Peer-Reviewed

YEARLY ACADEMIC JOURNAL

2022-23

Volume: XXII ISSN: 2348-9014



KALINDI COLLEGE (UNIVERSITY OF DELHI) EAST PATEL NAGAR, NEW DELHI-110008

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(UNIVERSITY OF DELHI) East Patel Nagar, New Delhi-110008

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Principal's Message



The Yearly Academic Journal of Kalindi College is delighted to bring its 22nd issue to its readers. It has been a long and rewarding journey as the Journal prepares to haul itself to a bigger stage. I have been closely associated with the various changes over the years. It is a labour of love for all of us and the fact that we have continued our efforts throughout the difficult years, which are hopefully behind us, could only have been possible with a belief in enhancing the academic reputation of the college. Without doubt, each journal is a meeting point of ideas and a conversation. It is a cornucopia of themes and languages and reflects the richness of our society. I am told that this year has seen an unprecedented increase in interest in publishing with us. This augurs well for the future. I congratulate Dr Chaity Das and Dr Deshraj and their Editorial Team heartily and wish them luck in their future endeavours.

Best Wishes

Principal Prof. Anula Maurya

Editorial

Another year has gone by and here we present the 22nd issue of the Yearly Academic Journal to our readers. Like other years, the articles are in three languages and are multidisciplinary in nature, largely from the sciences and humanities. We had an encouraging number of submissions this year and we are aware that this raises expectations from us.

The topics of the submissions in English range from programming in computational physics to biofertilizers and capping the contamination of soil by use of heavy metals using plant growth promoting bacteria. Clearly, environmental concerns are reflected in the academic engagement of scholars. In Political science we have a piece on the nuances of civil society, the concept of Hindu Rashtra. Gender has never been far away from our concerns and the relevant article on this theme brings out the unfinished task of achieving gender equality. It also informs us of the various policies and programmes undertaken in this regard. This is but a selective presentation of the entire collection aimed more to whet your appetite than anything else.

It has been a privilege to work under the guidance of our Principal Prof. Maurya. Her support has been unstinted to this day. A word of sincere appreciation is also due to Dr Malti who laid the foundation for this journey. We shall be failing in our duty if I do not mention the Editors I have worked with before taking up this role. Prof. Punita Verma and Dr Anjali Gupta and Dr Nisha Goyal deserve our gratitude. We must thank the entire team working behind the scenes to make this possible. Some have really stood up tall and been a pillar of support, knowing that a venture like this can only be collaborative.

The support we have received has been invaluable. We have embarked on a journey to produce a quality journal that scholars should look forward to publish in. We are constantly trying to upgrade our skills to meet the demand of the changing face of academics. We hope you will find articles of your interest and area in this issue.

Wishing you a fruitful reading experience.

Editor (English Section): Chaity Das

Co-Editor (English Section): Shipra Gupta

सम्पादकीय

कालिंदी कॉलेज की वार्षिक अकादमिक जर्नल ने एक बेहतरीन लंबा सफर तय किया है। पिछले अंक से कालिंदी महविद्यालय के साथ ही दिल्ली विश्वविद्यालय विविध महाविद्यालयों के संकाय द्वारा प्रस्तुत किए गए अकादमिक लेखों को प्रकाशित करने के लिए जर्नल ने महत्वपूर्ण पहल की है।इससे पत्रिका समृद्ध हुई है। इसकी त्रिभाषी सामग्री इसके के साथ साथ विषयवस्तु की विविधता और समावेशिता इसके विशिष्ट स्वरूप को रेखांकित करता है। ISSN नंबर के साथ 2015-2016 में यह विषय विशेषज्ञ /विषय समीक्षित पत्रिका बन गई।हम हमारे इस वर्ष अकादमिक जर्नल के 22 वें अंक 2022-23 के लिए हिंदी माध्यम से तीन शोध आलेख है जो संगीत, साहित्य और व्यक्तित्व और मनोविज्ञान से सम्बंधित हैं। डॉ अजित सिंह का है विषय है "वर्तमान हिन्दुस्तानी शास्त्रीय संगीत शिक्षण प्रणाली में परिवर्तन : विवेचनात्मक अध्ययन" जिसमें उन्होंने संगीत के विविध घरानों और आधुनिक शिक्षण संस्थानों पर गहन अध्यन विश्लेषण किया है और बताया है कि संगीत घरानों में किस प्रकार शिक्षण होता रहा है जबकि आधुनिक संगीत शिक्षण संस्थानों का अपना अलग महत्व व कुछ कमियाँ भी है। दूसरा शोध आलेख सुश्री रेखा मीणा का है विषय है "तेजेंदर शर्मा की कहानियों के माध्यम से विदेशों में रहने वाले भारतीयों के जीवन संघर्ष उनके वैचारिक सांस्कृतिक परिवर्तन पर शोध किया है।तीसरा शोध आलेख डॉ रेन् गुप्ता का है "व्यक्तित्व के विकास में आवश्यक तत्व" जो विद्यार्थियों के विकास पर महत्त्वपूर्ण प्रकाश डालता है कि जैविक तथा पर्यावरण सम्बन्धी तत्व व्यक्तित्व के विकास में कैसे महत्वपूर्ण हैं ।

भारतीय संस्कृति में नारी की स्थिति सदैव एक समान नहीं रही है। इसमें सदैव परिवर्तन होते रहे हैं। स्त्री को नारी, वामा, अबला सुन्दरी, प्रमदा, महिला, माता आदि अनेक नामों से अभिव्यक्त किया जाता रहा है। रामायण में नारी को अनेक रूपों में यथा कहीं पुत्री, कहीं पत्नी, कहीं बहिन, कहीं माता के रूप में चित्रित किया गया है। रामायण काल में नारी को शिक्षा प्राप्ति, राजनीतिक, आर्थिक, सांग्रामिक, धार्मिक, सामाजिक, पारिवारिक आदि सभी कार्यों में पूर्ण सहभागिता प्राप्त थी।पूर्वमीमांसा दर्शन में स्त्रियों के अधिकारों का इस प्रकार का वर्णन प्राप्त होता है, जिसका विस्तृत विवेचन प्रकृत शोध पत्र में किया जाएगा। वर्तमान समय में नारी अपने अधिकारों के प्रति अधिक सचेत है। नारी, विद्यालय, महाविद्यालय, कार्यालय आदि सभी क्षेत्रों में अपनी योग्यता के आधार पर कार्य कर रही है।संस्कृत माध्यम से एक शोध लेख "रामायण और पूर्वमीमांसा दर्शन में नारी:एक अवलोकन" डॉ शालिनी मिगलानी अपने शोध में बता रहीं हैं कि नारी की जहाँ पूजा होती वह समाज में सबसे आगे है और देश को आगे बढ़ाता है।

इस अंक के लिए सभी सहयोगियों और लेखकों का धन्यवाद।

प्राचार्या महोदया का विशेष रूप से आभार जिन्होंने हमेशा हमारा मार्गदर्शन किया।

डॉ देश राज (हिंदी अनुभाग) संपादक सह संपादक डॉ रक्षा गीता

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The Indian Parliamentary Opposition: Problems and Prospects

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ABSTRACT

The parliamentary system of government in India is largely based on the British parliamentary system. In such a system, the role of the parliamentary opposition is as important as that of the government (preferably within the background of a bi-party system), where the two great political parties alternatively hold the power of the government as each one is gradually forced to give place to the other. However, the parliamentary opposition in India often represents a chaotic multitude and possesses more colours than a rainbow. Due to constant in-fight and clashes of political interests amongst various factions of the opposition, they fail to reconcile to the formation of a common strategy for attacking the Government. Against this background, this paper highlights several institutional as well as attitudinal changes that must be adopted to cover the handicaps from which the opposition parties suffer in relation to the government.

Keywords: parliamentary, opposition, democracy, government, party

1. INTRODUCTION

The Constitution of India provides for a parliamentary form of government, both at the Centre and in the states. Simply speaking, a parliamentary system of government is one in which the executive is responsible to the legislature for its policies and acts and stays in office so long as it enjoys the latter's confidence. As a result, it is also known as 'responsible government'. In such a system, the role of the opposition is as important as that of the government. In fact, an essential pre-condition for the success of parliamentary democracy and the cabinet system is strong opposition, preferably within the background of a bi-party system where the two great political parties alternatively hold the power of the government as each one is gradually forced to give place to the other.

For instance, in Britain, the Her Majesty's Loyal Opposition has been termed variously as a "potential government" or a "government in waiting" which generally only includes the second largest party in the House of Commons. However, this does not mean that Her Majesty's Loyal Opposition automatically becomes government upon the next election; it is merely the largest minority party that is prepared to assume office if the incumbent government can no longer command the confidence of the House. Such a provision ensures that the criticism of government policies is based on a sense of responsibility and not a greedy drive to discredit the government just for the sake of political benefits.

2. HOW DID THE CONSTITUENT ASSEMBLY IMAGINE THE INDIAN PARLIAMENTARY OPPOSITION?

Several important questions have been raised in connection with the role of 'Institutional Opposition' in the Indian parliamentary democracy. What useful purpose does it serve today? Is verbal and representative opposition as effective as the direct action of the group opposition? Does not parliamentary opposition by its negative and dilatory action distract the Government from concentrating on more important and urgent tasks? And what anyway is opposition in the constitutional framework?

The answers to some of these questions can be gathered from the Constituent Assembly debates on the role of institutional opposition in India. For instance, when Mr. Z.H. Lari of the United Provinces raised the demand for a statutory recognition of the parliamentary opposition, he was of the opinion that such an institution, along with the rule of law, and a strong press, constituted the bulwark of democracy. He argued that the only way to prevent the party in power from degenerating into a despotism was the existence of another party that would act as a watchdog of the cabinet and simultaneously challenge and correct the various policies that are pursued by that party. In fact, a Parliament without opposition, he suggested, was prone to becoming "docile, meek, and submissive"- "a dull chamber" that does not do any work, "where members get up to criticise simply for the sake of appearing in print,

where the amendments are all withdrawn and whatever comes from the Treasury Benches is accepted without the change of a comma or a full-stop."¹ Thus, an official recognition to the opposition in the House, he asserted, was fundamental to generate public awareness and interest in the doings of the Government and to make them understand that criticising the government is not equivalent to an act of sedition. In his opinion, such a vigorous and wide-awake opposition in the legislature could only be created if it had a leader acting as a whole-time worker, who would be paid for this role- just like in England and other countries. He remarked, "If you say, let the party grow and then I will fix the salary," it means that you do not want an Opposition. You have to create conditions so that the public may feel that the Opposition has also a duty and is of service to the country. Unless that feeling is created, you cannot have a proper Opposition." Similarly, Kazi Syed Karimuddin (member from Central Provinces and Berar) argued that the Constitution should create a statutory opposition because in the absence of it, opposition in the country would continue to be subjected to intolerance, physical violence or lack of courtesy- "If a Muslim opposes, the Government says that he was a believer in the two-nation theory... If a socialist opposes, he is of course a dangerous character." Adding to this argument, Mr. Naziruddin Ahmad (member from West Bengal) asserted that pay for the leader of the opposition along with adequate secretariat facilities was essential to give the opposition, status as well as official recognition, while also ensuring that it was not subjected to indifference, resentment or contempt. A legally designated opposition, he added, would also help to ensure that the allegations leveled against the government in power or a particular ministry do not lead the country to chaos and disorder.

Arguing along similar lines, Shri Ramnarayan Singh (member from Bihar) added that the recognition of official opposition in the Parliament was needed to keep a check on the government and to review its policies from time to time. In fact, a good government, he believed, was one that would encourage and respond to opposition, rather than being offended by it. Shri R.K. Sidhva (member from Central Provinces and Berar) added that he would support the idea of creating a parliamentary opposition so long as it was not reduced to a campaign against the government. The role of the opposition, he opined, was to oppose the government when needed but also to support it as and when required. Further, he suggested that the Leader of the Opposition must be paid from party funds rather than state funds to ensure that the role of a parliamentary opposition is taken up seriously by them. However, as there did not exist any substantial opposition to the Congress at that time-whether inside or outside of the Parliament, most of the members feared that a constitutional provision for the salary and allowances of the Leader of the Opposition would involve the risk of draining out state funds to fill the purses of a person who might be driven by monetary temptations, rather than by a definite policy or program. As a result, the Assembly decided that the status of the parliamentary opposition-from salary to its secretariat facilities should be decided by an Act of Parliament as and when it witnesses the growth of a worthy opposition. In other words, the Constituent Assembly members were not against the idea of the creation of a parliamentary opposition, they only felt that the Parliament was not quite ready for it at that time.

3. EMERGENCE OF THE ROLE OF PARLIAMENTARY OPPOSITION IN INDIA SINCE INDEPENDENCE

After India became independent on August 15, 1947, the Constituent Assembly, which was set up for drafting a Constitution for Independent India, acted as the first parliament of India. In contrast to the practice of universal adult suffrage of today, the Assembly consisted of indirectly elected representatives and gave special representation to Muslims and Sikhs as minorities.² Although Indian National Congress (INC) hegemony in the Assembly was total because of their historic role in the Indian Independence Movement, nevertheless, various other political parties were beginning to take shape to challenge the Congress's supremacy. For eg, Syama Prasad Mookerji founded the Bharatiya Jana Sangh; Dr B R Ambedkar formed the Scheduled Caste Federation (which was later renamed the Republican Party of India); J B (Acharya) Kriplani founded the Kisan Mazdoor Praja Party; Ram Manohar Lohia and J P Narayan assumed leadership of the Socialist Party; and finally, there was the Communist Party of India (CPI) under the leadership of Mr. S A Dange.³ At the same time, however, all these smaller parties were aware that the Congress enjoyed a comparatively greater support and confidence from the masses and therefore, it would be almost impossible for them to dislodge it from authority.

3.1 THE PHASE OF AN ACTIVE PARLIAMENTARY OPPOSITION (1952-1980)

In 1952, the first Lok Sabha (1952-1957) came into existence after a successful conclusion of the country's first general elections. As none of the opposition parties had a strength equal to the quorum fixed to constitute a sitting of the House (that is one-tenth of the total number of members of the House), the Speaker refused to confer the status of a party to any opposition group and all the opposition groups were technically known as "groups" in the House. Concurrently, the Speaker allowed Shri A. K. Gopalan, the Leader of the Communist Group, to occupy the

seat reserved for the Leader of the Opposition on the front bench as they were the biggest group in the House. The Leader of the Communist Group occupied this seat till the split in the Communist Party in 1964. After that year, the seat reserved for the Leader of the Opposition was occupied by the Leader of the Swatantra Group. He occupied this seat till September 1969.

Despite the absence of an officially recognized parliamentary opposition, the Indian Parliament, from 1952-57, witnessed extensive debates and an active participation of members in the proceedings of the House. This is evident from the fact that the first Lok Sabha witnessed 677 sittings and worked for 3784 hours- a record that hasn't been defeated till date. Moreover, in the history of Indian parliaments, it is the only Lok Sabha to have passed a total of 333 Bills in its five year tenure. Since then, every Lok Sabha which has completed over three years of its full term has passed an average of 317 Bills. Also, out of the 14 private member's bills that have become law since 1952, the most-seven- were passed during the first tenure of Lok Sabha.⁴ Even though the Opposition was weak in numbers, its members made fine speeches and raised crucial issues. From Science Policy and Industrial Policy Resolutions to matters of defence and foreign affairs, the opposition never let ministers dodge questions or deny information to the Parliament under the excuse of public interest. In fact, on the question of relationship between the government and the opposition, Nehru, participating in the discussion on the Report of the States Reorganisation Commission, held in the Rajya Sabha on December 24, 1955, observed: "Democracy, of course, means that the majority will prevail. It is obvious. But democracy means also something else than this. It does not mean, according to my thinking, that majority will automatically function regardless of what the minorities think, because the majority, by virtue of its being in majority, has the power. Therefore, it has the greatest responsibility thrown upon it to function more or less as a trustee of the minority and always to consider the feelings-the interests-of the minority, not of course disliking it."5

As a result, the debates in the Indian Parliament attracted wide attention-both within the country and beyondsuch that the Visitors' Galleries and Diplomatic Galleries, remained fully packed during such debates. However, neither the Government nor the Opposition, let these debates, dissent, and differences, come in way of their agreement on certain fundamental issues. For eg, in 1953, when Shrimati Rukumani Arundale's Private Member's Bill on Prevention of Cruelty to Animals was under consideration, the Government declared that it was committed to the principles of the Bill and would bring forward its own legislation on the subject. Further, the members of the Opposition as well as the Government cooperated with the Speaker in any matter related to the rules and procedures of the House. Even on occasions when the office of the Presiding Officer would be subjected to criticism, efforts would be made to ensure that such dissent did not turn into disruptions or a deadlock. In this context, mention may be made of what PM Nehru once said in the Parliament: "We are concerned with our honour, we are concerned with the honour of the person who holds up the dignity and prestige of the Parliament. I do not say that it is not possible at all to raise a motion against the Speaker. Of course, the Constitution has provided it. The point is not the legal right but the propriety, the desirability of doing it."⁶ Given its excellent record, the First Lok Sabha is still looked upto for reference and inspiration. In terms of the performance of the parliamentary opposition, the Second Lok Sabha (1957-62) was also not far behind. In fact, one of its unique features was that it saw the government being grilled by the parties in opposition as well as the MPs from the government side.⁷A particularly relevant instance in this regard would be the Lok Sabha sitting of 16th December, 1957, when Feroze Gandhi, despite being a Congress MP, accused the government for an alleged involvement in a financial scam related to the newly nationalized Life Insurance Corporation of India (LIC). Despite their differences and disagreements, the government and the opposition also enjoyed a warm relationship. For example, once during a debate in Parliament, when PM Nehru was being questioned aimlessly by the opposition parties, Vajpayee stood up for PM Nehru and questioned the activities of such opposition parties. Nehru, too, reciprocated the warmth and in 1961, appointed the young Vajpayee to the National Integration Council (NIC).⁸ During the proceedings of the Third Lok Sabha (1962-1967), several issues rocked the Indian Parliament. Some of these included the 1962 Indo-China War, a stagnating economy, the Mizo tribal uprisings, famine, labour unrest, misery among the poor in the wake of rupee devaluation, agitation in Punjab for linguistic and religious separatism, etc. ¹⁰This was a particularly turbulent time for Congress in Parliament as the Opposition assailed the government for lack of military preparations in the War. From November 12-14, 1962, as many as 165 members spoke during the Lok Sabha debate on Chinese aggression. Some of these opposition stalwarts included Atal Bihari Vajpayee, N G Ranga, H V Kamath, Acharya Kripalani, among others. However, instead of arguing that free debates on the floor of Parliament might hamper war efforts, Nehru spoke over 1.04 lakh words on the India-China border dispute, running into well over 200 printed pages.⁹ He even assured the members that he would place "every scrap" of paper on the border issue before the House. Despite the expression of dissent and aggression in Parliament, the members never compromised with the dignity, decorum, and discipline of the House. For instance, in February 1963, when a few MPs disrupted the President's address to a joint session of Parliament for giving his speech in English instead of Hindi, they were condemned by the rest of the members of the House, who cut across their party lines and expressed their regrets in solidarity.¹¹

Moreover, the Third Lok Sabha is the only one in the history of Indian parliamentary sessions to have spent about 565 hours on questions and around 934 hours on discussing the Union Budget. These figures are suggestive of a deliberative democracy at work where debates are long and engaging, thereby making it impossible for the government to rush through with bills and resolutions.

The formation of the Fourth Lok Sabha (1967-1970) is particularly significant in the Indian parliamentary history as it is the first of those which signalled a break from the Congress hegemony of the first 20 years after Independence. Although the Congress continued to lead with 283 out of 520 seats, its seat share had fallen drastically as compared to the previous elections. The next largest party after the INC was Swatantra Party, which won 44 seats, followed by the Bharatiya Jan Sangh at a 35. In addition to Centre, the monolithic character of the Congress party was shattered in many states. As a result, regional opposition parties started gaining prominence and even combined together as the United Front and Samyukta Vidhavak Dal to form governments in several states. In the Parliament, the representatives of these regional parties provided a formidable opposition to the Congress. The strength of the Opposition was further accentuated by a split in the Congress party in 1969, between PM Indira Gandhi on the one hand, and Congress President K. Kamraj on the other. While the Congress Party under Mrs. Gandhi came to be called as Congress (R) or Indian National Congress (Requisitionists) with 220 MPs, the one under the leadership of Kamraj came to be called as Congress (O) or the Indian National Congress (Organisation) with 68 MPs. Since the government no longer had a majority in the House, it had to depend on the support of the Socialists, Dravida Munnetra Kazhagam (DMK), Akali Dal, and some independents to pass key legislations. The fifth Lok Sabha (1971-1977) is a landmark in the history of parliamentary democracy in India. This is because, in its tenure from 15 March 1971 to 18 January 1977, the Lok Sabha worked for 4071 hours and passed 487 Bills- the highest till date. A series of events like the nuclear test, war, the formation of Bangladesh, declaration of Emergency-to name a few, put a lot of business before this House that met for 613 days. However, in terms of accommodation of dissent and difference of opinions within the parliamentary debate, the Fifth Lok Sabha marked a clear departure from the Nehruvian legacy. In the first few sessions of the Fifth Lok Sabha, the Opposition parties cut across party lines to praise Mrs. Gandhi's efforts in ensuring India's decisive military victory against Pakistan that led to the creation of an independent country called Bangladesh. However, midway through her term, her popularity started to decrease because of a severe shortage of food grains, a dwindling economy, and rampant corruption. As a result, all the major opposition parties rallied against Mrs. Gandhi, demanding her to vacate the Chair and seek a fresh mandate from people. In 1973, Vajpayee arrived at the Parliament House on a bullock cart to protest against the hike in petrol and kerosene prices by the Congress government. The call for Mrs. Gandhi's resignation grew even louder when the Allahabad High Court invalidated her 1971 election on the grounds of electoral malpractices. However, instead of resigning, Mrs. Gandhi declared an Emergency in the country and jailed the entire Opposition. The oppression was further intensified by undemocratic laws that overlooked due process and basic legal jurisprudence. For example, legislations such as the Maintenance of Internal Security Act (MISA) was amended through an ordinance to allow the detention without any trial of any person who may pose a political threat through dissent. As many as 47 laws were sent to the Ninth Schedule of the Constitution during the Emergency in 1975 to keep them away from the Supreme Court's grasp.

The Emergency lasted till March 1977 and by that time, Mrs. Gandhi had become extremely unpopular among the masses because of the excesses and human rights violations imposed during the Emergency. As a result, in the 1977 elections, the Bharatiya Lok Dal (BLD) or the Janata party won 295 out of 405 seats, while the INC was stuck at 154, thereby providing for the formation of Independent India's first government not ruled by the Indian National Congress. Since the numerical strength of the Congress constituted more than one-tenth of the total number of members of the House (as required under Direction 121 of the "Directions by the Speaker of Lok Sabha"), it was recognised as a parliamentary party in opposition to the Janata Party led Government. However, since Indira Gandhi had lost her parliamentary seat, Yashwantrao Balwantrao Chavan was elected the Congress Party Parliamentary leader, who subsequently became the Leader of opposition in the Lok Sabha. In the Rajya Sabha, Kamalapati Tripathi of the Indian National Congress was recognised as the Leader of the Opposition. Prior to the 1977 General Elections to the Lok Sabha, except for a brief spell of one year (December, 1969- December, 1970), no opposition party in either House of the Parliament had the requisite strength for recognition and there was no recognised Leader of the Opposition during that period. Even in 1969, the Leader of the Opposition was described in the proceedings, without any formal announcement to that effect being made in the House. In other words, for almost thirty years after its Independence, India did not have an official 'Opposition' in the sense the term is used in a parliamentary form of government. It was only in 1977 that a statutory recognition was accorded to the Opposition as well as its leader when the Janata Government passed the Salary and Allowances of Leaders of Opposition in Parliament Act, 1977. The 1977 Act defines LoP as that member of the House who is the "Leader in that House of the party in opposition to the Government having the greatest numerical strength and recognised as such by the Chairman of the Council of States or the Speaker of the House of the People, as the case may be."

Apart from providing statutory recognition, the Act also specifies the salary and other privileges attached to the position of the LoP (Leader of the Opposition).

3.2 THE PHASE OF A DORMANT PARLIAMENTARY OPPOSITION (1980-2004)

In the Seventh Lok Sabha (1980-1984), the possibility of a united opposition seemed weak as members of all the opposition groups-barring the communists were desperate to join Mrs. Gandhi, thereby making it difficult to keep the rank and file of these parties together. In this regard, mention may be made of a CIA Report, dated January 5 of 1983 and declassified in 2009, which stated: "Prime Minister Indira Gandhi's grip on the levers of power is now relatively secure. The opposition party who together won more votes than the Congress (I) in the 1980 elections, have not succeeded in mounting a united challenge at the national level to Congress (I) in the last three years," the report read. To add to that, there used to be frequent infighting among most of the opposition parties. Despite the political divisions and feud, the Seventh Lok Sabha displayed a rare moment of cohesion and unanimity when all members stood two minutes in solemn silence to pass a unanimous resolution proclaiming its firm commitment to the national policy on reservation as has been laid down in the Constitution. They had done this only once in the past - while adopting a resolution pledging the nation to free Indian territory occupied by China. Even in 1984, before sending the Army to flush out militants from the Golden Temple, Mrs. Gandhi is said to have sought the advice of Vajpayee on the matter. Although Mrs. Gandhi conducted Operation Blue Star against the advice of Vajpayee, yet, her consultation with him is reflective of the faith the PM had in the veteran Parliamentarian.

The eighth Lok Sabha (1984-1989) debated extensively on the Indian Post office (Amendment) Bill 1986, the Muslim Women (Protection of the Rights of Divorce) Bill 1986, Bofor Scandals, and the Report of the Controller and Auditor General of India on the Purchase of 155 mm Howitzer Guns from Sweden. On other hand, some discussions were also marked by chaos and disruptions, bringing parliamentary proceedings to a halt. For eg, on March 15, 1989, 63 members of Opposition were suspended from the House. As a record, the House was adjourned eight times on July 20, 1989 when 124 members of Opposition resigned their seats in the House. An active role of the parliamentary opposition was also manifest in the Rajya Sabha. However, unlike the previous sessions of the Rajya Sabha, no Private Members' Bill were passed during this period. Despite a more or less active role of the opposition parties, the Eighth Lok Sabha was marked by a herd tendency as the government enjoyed four-fifths majority. In contrast, the ninth Lok Sabha (1989-1991) comprised of variegated strands and was therefore subject to a wide variety of voices. From religious zealots to journalists, police officers, judges, managers, academics and preachers, the Ninth House provided stage to both forceful and controversial voices.¹² Yet, the Ninth Lok Sabha had far reaching consequences in terms of the traditions, rules and norms of Parliament. There were numerous cases of pandemonia, uproars, walk outs, crowding in the well of the House and raising slogans, adjournments, etc. Financial business of the House including voting on demands for billions of rupees for the Union, Supplementary grants, Budgets of four States, President's rule in one Union territory were passed without any scrutiny or discussion. Also as many as 18 bills were passed without any discussion within less than two hours. Concurrently, Prime Minister V.P. Singh's decision to implement the report of the Mandal Commission, thereby effecting reservation of 'other backward classes', and the issue of Ram Janmabhoomi polarised political forces within the ruling National Front along caste and religious lines. Suddenly, unexpected alliances and equations emerged, as leaders struggled to juggle electoral politics with caste affiliations and party ideologies and policies. Consequently, the V.P Singh government was defeated on a vote of confidence as he failed to prove his strength on the floor of the House.

The tenth Lok Sabha (1991-1996) implemented a series of reforms emphasising on liberalisation and globalisation which opened up the country's economy to foreign investors. In this regard, the contribution of opposition parties is mention worthy. For example, when Finance Minister Manmohan Singh stood up in the Lok Sabha to present his liberalization Budget, there was total chaos in the House with the Left and socialists obstructing his speech. In response to such disruptions, Advani requested the then Speaker Shivraj Patil to allow the finance minister to proceed with his Budget presentation. Following his request, there was complete silence in the Lok Sabha. Similarly, while Vajpayee raised objections to the 1991 budget, he also expressed his praise and support for provisions providing for an open market. Acknowledging Vajpayee's criticism, Dr. Manmohan Singh promised to take appropriate steps to plug loopholes.¹³ Despite such constructive debates, the House lost about 279 hours because of interruptions and adjournments and was subject to constant instability caused due to defections and splits in the opposition parties.¹⁴ The eleventh Lok Sabha (1996-1998) experienced a relatively short tenure caused due to constant infighting among the coalition parties. To add to that, the House wasted around 45 hours because of interruptions and adjournments. In addition to a loss of working hours of the House, such political instability also resulted in a loss of people's faith in the ability of their political representatives to put national interest above

their ego and self-interest. On a day prior to the collapse of Deve Gowda's government, BBC World showed in its evening bulletin a worker in a basement factory in Bangalore as saying: "This country would have been so much better if we had no politicians."¹⁵ In the Twelfth Lok Sabha (1998-1999), the regional parties put up a great performance with 101 seats in total. As a result, the BJP formed the National Democratic Alliance (NDA) with regional parties like the Samta Party, the All India Anna Dravida Munnetra Kazhagam (AIADMK), as well as the Shiv Sena, and was able to muster a slim majority with outside support from the Telugu Desam Party (TDP). However, the government had to resign after 13 months in office as the AIADMK withdrew support. This has been the shortest life span of Lok Sabha till date. Even within its limited time span, the House wasted around 68 hours because of interruptions and adjournments.¹⁶In fact, obstruction in the proceedings of the House, not allowing it to function, and forcing frequent adjournments were part of the Opposition strategy. In the thirteenth Lok Sabha (1999-2004), the BJP again emerged as the single largest party with 182 seats and the Congress could win only 114. This time the regional parties won 158 seats. ¹⁷ Consequently, the BJP was able to form a more stable National Democratic Alliance (NDA) under the leadership of A.B. Vajpayee. It was the first ever non-Congress government which could complete its five years term. Although the presence of various regional parties as coalition partners helped to bring regional, local and ideological agendas on the national front, at the same time, it made it difficult to reach a consensus on important government decisions and policy measures. For instance, almost 455 hours were lost in disruptions in the thirteenth Lok Sabha. As a result, this House passed a relatively lesser number of bills as compared to all others which could complete their full term. Nevertheless, the representation of diverse interests in the government provided greater parliamentary interventions and scrutiny over the government processes. For eg, fierce debates as well as trials of confidence were forced to show on the floor of the House on the Prevention of Terrorism Bill and Gujarat Communal riots, 2002. For the third time, the President summoned a joint sitting of the two Houses to pass Prevention of Terrorism Bill, 2002.

3.3 THE PHASE OF A DEAD PARLIAMENTARY OPPOSITION (2004-PRESENT)

The fourteenth Lok Sabha (2004-2009) elections saw a head-to-head battle between the BJP and its allies on the one hand and the Congress and its allies on the other as there was no viable Third Front alternative. Regional players were dominant in their own respective regions but those not under the NDA umbrella and not aligned with Congress either, were rather insignificant in having a more national say.

In comparison to all the previous Houses that could complete its five years term, the fourteenth Lok Sabha happened to be the most unproductive-with approximately 1,782 hours of sittings.¹⁸ In 2008, the Parliament met for only 46 days- the lowest ever in a calendar year -- thereby drastically reducing the time available for the Opposition to meaningfully scrutinise the Executive. The low productivity of this House can be attributed to the abdication of responsibility on part of the Opposition parties in the Parliament. According to data compiled by PRS Legislative Research, this Lok Sabha was marked by the unbroken silence of as many as nine per cent of the MPs. Although BJP was designated as the principal opposition party in the House, it did not take its role as seriously as the MPs of regional outfits, who participated in more debates and attended the House more regularly than BJP MPs. ¹⁹Because of such inactiveness of the opposition parties, only 15% of the starred questions were orally answered in the entire duration of the Parliament. Moreover, on the last day of 2008, eight bills were passed in Lok Sabha in a span of 17 minutes, without any discussion. Even the financial domain was not spared from the repercussions of an indifferent opposition when the process of sending the budget to Standing Committees for scrutiny was bypassed in 2009. The decline in the productivity of the House was compounded by frequent disruptions of parliamentary proceedings. The fifteenth Lok Sabha (2009-2014) had 357 sittings and passed 192 Bills.²⁰ This is the least number of bills passed by a full five-year-term Lok Sabha. Moreover, in contrast to the 1950s, when every year, the Lok Sabha and Rajya Sabha met for an average of 127 days and 93 days respectively, the fifteenth Lok Sabha saw a decline in the time spent on legislation and oversight of the government.²¹ For eg, in 2011, both the Houses met only 73 times.²² On several instances, the Bills were passed without an adequate scrutiny and debate. According to data provided by the PRS Legislative Research, 36% of the total Bills passed by the fifteenth Lok Sabha were debated for less than thirty minutes. These include Bills with significant implications, such as the Protection of Women from Sexual Harassment at the Work Place Bill, 2011 which was passed by the Lok Sabha (in 2013) in 20 minutes. Even demands of important ministries were regularly "guillotined": that is passed without any discussion in House, while also escaping scrutiny by the standing committees. All in all, the fifteenth Lok Sabha worked for approximately 61% of its scheduled time. This has been the worst performance of the lower house in more than fifty years. The low productivity of the House was because of frequent disruptions over issues like the allocation of 2G spectrum, coal blocks, FDI in retail, demand for Telangana, and the Commonwealth Games. In fact, during the Telangana issue debate in the House, 16 MPs were suspended as they broke the glass and microphone on the table of the Lok Sabha Secretary-General, brandished a knife, and even used pepper spray to protest against the tabling of the Andhra Pradesh Reorganisation Bill. While such a scuffle

jeopardised parliamentary proceedings and created a ruckus in the House, many members had to be rushed to hospital for treatment.²³ In both the Houses, the biggest casualty of such disruptions was the Question Hour. While the Lok Sabha lost 61% of the time scheduled for Question Hour to disruptions, the Rajya Sabha lost 59%. Unhappy with frequent disruptions of question hour, the then Vice-President and chairman of Rajya Sabha, Mr. Hamid Ansari, said the time had come to consider doing away with question hour as the members didn't seem to attach very great importance to the questions being answered.

In the 2014 Lok Sabha Elections, the BJP emerged from the dust with one of the biggest mandates ever seen in India's recent electoral history. With 282 seats, the BJP became the first non-Congress party in Independent India to single-handedly cross the majority mark required to form government. Most alliance partners under the NDA umbrella too performed commendably, with Shiv Sena winning 18 of the 20 seats it fought the election in Maharashtra, the Lok Janshakti Party winning six of seven seats it contested from in Bihar, and the Telugu Desam Party (TDP) securing 16 seats.²⁴ The Congress, in sharp contrast, managed to win just 44 seats and fell short of the 55-seat mark required to claim the Leader of the Opposition (LOP) status. As a result, the sixteenth Lok Sabha was bereft of the Leader of Opposition as Congress was the largest party with 67 members. The sixteenth Lok Sabha (2014-19) had 331 sittings and passed 205 Bills.Most of these Bills evaded scrutiny- with only 25 per cent of those bills being sent to Committees, much lower than 71 per cent and 60 per cent in the 15th and 14th Lok Sabha (22 per cent and 14 per cent in the 15th and 14th Lok Sabha respectively. Bills passed within 30 minutes also decreased from 26 per cent in the 15th Lok Sabha to 6 per cent in the 16th Lok Sabha.²⁵

Although the sixteenth Lok Sabha spent more time on legislative business (32 percent) than the average of other Lok Sabhas (25 per cent), however, it was not free from disruptions and adjournments. According to data provided by the PRS Legislative Research, the sixteenth Lok Sabha lost 16 per cent of its scheduled time to disruptions over issues ranging from agrarian crisis, inflation and the Rafale deal-better than the 15th Lok Sabha (37 per cent), but worse than the 14th Lok Sabha (13 per cent). Similarly, the Rajya Sabha lost around 726 hours (out of the total working time of 1881 hours)due to disruptions and adjournments. At the same time, however, only 2 half-an-hour discussions were held in that period ('Information- At a Glance', Rajya Sabha Secretariat, 2020). On a few occasions, an entire session was forced into a washout due to stalling of proceedings by the opposition. For eg, the legislative productivity of the Rajya Sabha went to an all time low when only one Bill each was passed in the Winter Session of 2016 and Budget Session of 2018. Because of such disruptions, all proposals made in the union budget 2018-19 were passed un-debated. At the last day of the 16th Lok Sabha Wednesday, the Rajya Sabha also passed the interim budget of 2019-20 without debate. In both the houses, the biggest casualty of such disruptions was the Question Hour — while the Lok Sabha lost a third of this time, the Rajya Sabha lost 60%. Consequently, just 18% of the starred questions in each House got an oral reply.

Additionally, a no-confidence motion was moved against the government and discussed in the Monsoon Session of 2018. This was the 27th time a no-confidence motion was discussed since the first Lok Sabha. It was discussed for 11 hours 46 minutes and was negatived thereafter. However, what was peculiar about this discussion was that although the Speaker blamed the unruly behaviour of the MPs for her inability to count the required number of MPs demanding a no-confidence motion, but she allowed the Union Budget to be passed in the interim. There was a similar episode at the end of the 15th Lok Sabha when the Speaker was unable to conduct a no-confidence motion but let the House pass the Act to bifurcate the State of Andhra Pradesh.

In the 2019 Lok Sabha elections, the NDA surpassed its last tally of 336 to achieve a super-sized number of 350 seats, out of the total 542 Lok Sabha seats. While the BJP further increased its substantial majority by winning 303 seats, the Congress managed to win merely 52 seats-failing again to get 10% or 55 seats needed to claim the post of leader of the opposition. However, in the Rajya Sabha, the Congress continued to be recognised as the largest Opposition party with Ghulam Nabi Azad as the Leader of the Opposition, followed by Mallikarjun Kharge in that position.

The first session of the Seventeenth Lok Sabha (2019-2024) passed 36 Bills, which is more than the number of bills passed in the first session in 1952. In his valedictory address, Lok Sabha Speaker Om Birla termed the session as the most productive session since 1952 that had 37 sittings and sat for a total of 280 hours. Unlike earlier sittings of the Lok Sabha when only a few members used to get opportunities to speak in Zero Hour, the first sitting of the seventeenth Lok Sabha saw 1066 issues being raised during Zero Hour. This is the highest number of matters of urgent public importance raised in a session in the history of the Lok Sabha. Moreover, on at least three working

days in the session, proceedings continued till after 11pm. This session was also free from any kind of time loss resulting from interruptions or forced adjournments. On 27th November 2019, after 47 years (i.e. after 1972), for the first time, all the 20 Starred Questions listed were orally answered during the Question Hour.²⁶ Similarly, the 249th Session of the Rajya Sabha held from 20 June to 7 August 2019, proved to be the most productive in the last 20 years in various aspects of functioning of the House. Moreover, during this session, there were 3 Calling Attention Motions, 3 Short Duration Discussions, and around 326 matters were raised during the Zero Hour. In 2019 alone, 321 questions were orally answered in the House ('Information- At a Glance', Rajya Sabha Secretariat, 2020). While the House lost a total of 19 hours and 12 minutes of its time due to disruptions, it gained about 28 hours by sitting beyond the scheduled hours on 19 days ('Role of Rajya Sabha in Indian Parliamentary Democracy', Rajya Sabha Secretariat, 2019).

In the wake of the outbreak of COVID19 pandemic and subsequent lockdown in the country, the sittings for the Ouestion Hour in the third session were reduced to 21 and out of these. Starred Ouestions could not be called for oral answers in 4 sittings. Additionally, the zero hour was reduced to just half an hour and other devices of parliamentary proceedings like the Calling Attention Motion, Short Duration Discussion, and taking up Private Members' Business were completely scrapped out. Unlike the second and third sessions which had 20 and 23 sittings respectively, the fourth session sat for merely 10 times. Nevertheless, it passed 25 Bills and its productivity stood at a record 167 percent. Similarly, the fifth session of the seventeenth Lok Sabha accomplished record work, with a total of 24 sittings, lasting 132 hours. Despite frequent adjournments during the first few days, the Union budget was discussed for 14 hours and 42 minutes and a total of 18 bills were passed by the Lok Sabha. (PRS Legislative Research) However, the law makers feel that while such an intense legislative business is suggestive of the high productivity of the House, it is also suggestive of a lack of debate on the issues and amendments on part of the Opposition. "High productivity means that bills and amendments can be passed which is good. The Parliament doing so much business is a welcome step. The reality is that the BJP enjoys a majority in the Lower House. On the Opposition front, it is necessary to see if there is enough debate on the issues and amendments," said N. Bhaskar Rao, a New Delhi-based political analyst. Moreover, in a rush to pass listed bills, there is not enough scrutiny of them. Fewer bills are being referred to parliamentary committees. In the 17th Lok Sabha so far, 23% of Bills introduced have been referred to Committees. This is significantly lower than the last three Lok Sabhas: 60% in the 14th, 71% in the 15th, and 27% in the 16th Lok Sabha (PRS Legislative Research). Further, the irregular attendance of MPs in the Parliament is another challenge. Since its inception in 2019, only 148 out of the 542 members have more than 90% attendance. 93 members have less than 50%. Only six MPs have attended all the 149 days over the seven sessions and recorded 100% attendance. ²⁷ Finally, parliamentary sessions are being characterised by regular and continuous disruptions, which deprive members of the opportunity to discuss matters of urgent public importance and seek the accountability of the executive through questions. For instance, the last Winter session saw limited government business and the introduction of only seven of the 16 non-financial bills from the government's agenda because of repeated disruptions over the Opposition's demand for a debate on India-China ties.

4. SHORTCOMINGS OF THE INDIAN PARLIAMENTARY OPPOSITION:

4.1 FAULT LINES IN THE INSTITUTIONAL STRUCTURE

The parliamentary system of government in India is largely based on the British parliamentary system. However, the Indian Constitution, far from listing the rights and duties of the Parliamentary opposition, does not even recognise its presence in the parliament. While it does include provisions concerning the members of Parliament at large but has none concerning the roles and responsibilities of the opposition, in particular. Although legislation has been enacted to provide statutory recognition to the Leader of the Opposition, it only elucidates details concerning his salary and allowances and remains silent on his larger role in the Parliament. In other words, the parliamentary opposition in India is under no formal obligation to check the dictatorial tendencies of the executive or to question its policies. Thus, even if the ruling party functions in a manner that might not be in the larger interests of the nation, the opposition can get away with indifference and silence or disruptions and chaos. Further, India lacks a sound and balanced party system which is the backbone for the creation of a healthy Opposition. Comprising of several heterogenous groups, parliamentary opposition in India often represents a chaotic multitude and possesses more colours than a rainbow. As a result, the issues which divide various political parties and groups within the opposition are so fundamental that they are not even negotiable. Due to constant in-fight and clashes of political interests amongst various factions of the opposition, they fail to reconcile to the formation of a common strategy for attacking the Government. All these differences within the opposition, therefore, produce a weak and ineffective opposition which, in effect, severely impairs the quality of democratic values. In fact, it is because of these eventualities that the institution of opposition is often described as an embodiment of negative attitudes and irresponsible criticism. Moreover, the parliamentary opposition in India often constitutes a very poor numerical minority such that even with the best intentions, persuasive arguments, and best expression of talent and caliber, it proves, in the ultimate analysis, to be an ineffective opposition. The result is frustration, turmoil, pandemonium, and disorderly scenes in the Parliament.

4.2 THE ATTITUDINAL QUESTION

The actions and behaviour of some of the parliamentary groups and parties have brought the institution of parliamentary opposition under attack from several quarters. Uproarious and disorderly scenes, a boycott of the Address, snatching away of papers, shouting and raising slogans, staging of dharna, scenes of physical confrontation between members, wilful obstruction of proceedings, indiscipline and defiance of the Chair and similar other disruptions by the opposition parties often help the bills and policies introduced by the ruling party find an easy passage through the Lower House of the Parliament, where it already enjoys a numerical majority. As a result, the ideals of democracy go for a toss and the whole purpose of a parliamentary system of government stands defeated. The gradual decline in the performance of opposition parties in the Indian Parliament is due to the general impression that the role of the opposition is to oppose the government on all issues. What needs to be understood is that a purely negative opposition to all government policies without any alternative proposals leads to inconclusive debates and is ultimately self-defeating. While incidental details may be criticised or even opposed, agitational politics should not become the modus operandi of the Parliament. This is because the opposition's task is not to prevent the government from carrying out its policy but to criticise that policy in the hope that the electorate will choose a different government next time. Moreover, many proposals of the government concerning defence policy, foreign policy, food policy, etc. should not be opposed for they often constitute issues of national importance on which regular cooperation and consultation is not only necessary but particularly desirable. However, if there are proposals about which the opposition feels so strongly that it must obstruct, then the opposition must prove that it knows better than the government on those issues while simultaneously producing counter proposals that are seemingly more adequate and far-sighted to that of the government.

5. WHAT IS THE WAY FORWARD?

For the institution of parliamentary opposition to develop in an objective manner, it is important to reduce the number of political parties and create a popular understanding and interest in the basis and nature of the opposition in a democratic experiment. For this, the people must be educated about the importance of opposition in a parliamentary democracy. They must also be informed about the achievements and performance of the members of the opposition. Further, the opposition should be provided not only with means of acquiring information but with the means of disseminating their views and policies. For example, in Sweden and West Germany, political parties are subsidised by the State in proportion to their following. This example could be adopted and expanded into an allocation of revenues for larger expenditures to meet the requirements of the modern functioning of opposition. Besides institutional changes and procedures, a lot depends upon the will, skill, ingenuity, and tenacity of the opposition parties to cover the handicaps from which it suffers in relation to the government. For example, it is imperative for the opposition parties in the Parliament to supply themselves with and make use of, information and documentation effectively to be able to produce their own counter-proposals. To grow strong, the opposition parties should organise themselves on socio-economic questions and not on communal lines, linguistic feelings, local variations, landed interests, casteism, etc. As the Constituent Assembly members envisioned, a healthy opposition must be driven by a tradition of toleration and a widely diffused sense of public responsibility so that they can challenge the government when required and support it when they must. For, while it is true that the opposition should differ on issues, they should not differ on fundamental issues about which compromise is possible.

6. CONCLUSION

The Parliament of India, as the country's chief law-making body, occupies a central position in the Indian polity. It is, as Jawaharlal Nehru said, "the supreme temple of democracy and freedom, an institution of great importance in our national life, the only guarantee against tyranny and bad administration." However, its functions in this respect are limited by the strong position of the Cabinet working under the leadership of the Prime Minister in a parliamentary form of government. For instance, on various occasions, it is the Cabinet that decides about many things like summoning and proroguing the session of the Parliament, writing the text of the inaugural address to be delivered by the Head of the State, preparing a daily timetable of the session of the House or Houses, effective

initiation of the debate on the bills and resolutions moved by it and a host of other things that constitute the stock of the parliamentary business. Consequently, the role of the Parliament in the decision-making process is becoming more marginal than it was in the formative years of Indian democracy. Under such circumstances, formal recognition of the rights and responsibilities of the parliamentary opposition is fundamental to protect the image of the Parliament and its credibility as a representative institution.

CITATIONS

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Civil Society and Governance as Practiced in Japan, India and Egypt

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ABSTRACT

Civil Society is a necessary mechanism in a democracy and is intricately linked with the system of governance. It helps achieve certain social and political goals that are primarily concerned with the development and well-being of society. The success and failure of civil society are not only dependent on the nature and form of government but also on the inherent socio-cultural disposition of a country or its population, which is the larger argument presented in this article by bringing in examples from three different countries. The idea is to highlight the complex relationship the societies develop with the state as a result of their historical experiences and there is no single or universal rule and method that can be applied in engaging with the subject of civil society.

Keywords: Social dimension, political culture, diversity, networking, national consciousness

1. **INTRODUCTION**

There is no dearth of scholarship on civil society in the modern period, which is generally understood in the context of upholding 'citizens rights' in a democratic system. What can be drawn from such an understanding is that democracy in itself is not 'enabling' in upholding the rights of citizens, which implies that there are mechanisms and methods to be used or applied to ensure citizens' rights. Civil Society is one such mechanism, ordinarily independent of the state that ensures a just system of governance. Though there is more logical understanding of its presence in democratic systems due to the precondition for it to be born and grow as an independent and secular entity, with autonomy to function and form associations cutting across social barriers, the existence of such bodies or societies in a non-democratic or authoritarian system cannot be completely ruled out. It would also be wrong to assume that all civil societies are the same and are guided by a uniform principle. Of course, there are certain common principles and rules that civil societies are founded upon but conceptually the idea of civil society, as originated in ancient Rome refers to a 'good or civilized' society. By the time the concept reached the modern period, the meaning and its significance had not only undergone radical changes but also theoretically standing in opposition to or opposite of state.

In analyzing civil society, however, one aspect often remains outside the scope of its study, which is the 'social dimension' aspect. While civil society may be understood as the same as representing the rights and aspirations of a society, the social dimension plays a crucial role in determining the success or failure of it or even a state mechanism. Social dimensions may in different societies suggest different meanings, either to signify the positive effects of a particular process or the negative implications of political decisions and implementations. This article presents a comparative analysis of civil societies as conceived, understood and practised in a global context and will bring examples, particularly from Egypt, Japan and India to argue that there is no uniform rule for the success or failure of civil society and it is the constitutive social dimension which plays a determinant role. The examples are for a representative conceptual purpose and are based on a qualitative analytical method to reiterate that civil society cannot function in a stateless condition. Because civil society also requires a sense of a structured space and belonging to operate towards a common goal. This space has over time expanded to become more inclusive but also specific as societies are also becoming more complex.

2. SOCIAL DIMENSION ASPECTS IN CIVIL SOCIETY

To what extent the democratic principles in a modern state can be measured by looking at the issues and problems faced by society? It is not possible to address the question of governance, especially in a democracy, in isolation without referring to the rights of the citizens, including autonomy, liberty and equality, and this is where the aspects of the social dimension in a broader sense become relevant. The inter-relationship between democracy, governance and social dimension is always subject to the state. To understand the social dimension in the context of Egypt, it is imperative to look into the aspects of Egyptian society which is complex and has undergone multifarious and complicated processes of change. When one looks at the case of Egypt, a very basic question comes to mind: 'why do civil societies emerge?' However, in engaging with this question, it also must not be taken for granted that civil societies always reflect and represent the issues and concerns of common citizens. This was particularly the case in Egypt where dominant sections of the society, which can also be considered as the 'elites' were behind the development of organizations that presented themselves as civil society groups to claim a stake over state power. In fact, the political turmoil that the country underwent was also due to the tremendous pressure the successive regimes faced from various non-political groups at different levels dominated by the affluent classes.

The 'social' is political and that is why individuals become part of the larger political negotiations and processes. The notion of civil society emerged from the traditions laid down by particular societies that acted together to promote common interests or helped each other in community living. Hence, civil society has been defined as the associational life which connects people together and allows civic values and skills to develop individually and collectively. Societies differ according to their geographical, historical and cultural disposition, leading to the emergence of distinctive societal needs. From traditional cultural structure arises civic culture which is representative of social behaviour. This is a factor which in turn influences associational networking between groups, which gradually evolved to take more political character. As observed and agreed upon by most scholars studying the political culture of a nation, differing values and beliefs have a contributory role to play in shaping the political culture of a society. Moreover, the historical experiences and related social factors need to be taken into account while trying to understand the temporality of associational networks (Powell, Dalton and Strom, 2015: 68-69). While cultural elements like language, religion-belief system or ethnicity as markers of groups have their part to contribute in this process of associational networking, these are not the only cultural patterns that lead to the development of political cultures. Within such groups may also exist differing sets of ideologies that are more inclined towards creating a civic culture in a larger or universal sense. For civil society to become more widereaching and influential, such a political culture becomes important and this is where one can see the different trajectories of civil movements. Because, the 'civic' here generally encapsulates the historical, traditional and cultural values of a society, as representative of its worldview (Powell, et. all, 2015: 69). For instance, as Yugata Tsujinaka says, in the case of Japan it is not possible to think about civil society without taking into account the pre-modern traditions of social capital of volunteerism based on human relationships with the society. He rightly points out that the idea and practice of civil society in Asia cannot be expressed in the same way as in the West precisely because of the difference in historical experience and traditional values (Tsujinaka, 2010). Moreover, each country in Asia as well as in Africa underwent a distinct historical journey because of colonialism and therefore, the understanding of modern society and modern state too greatly differs. The social and cultural diversity that exists in these two continents makes the political culture of the regions all the more complex. While civil society is seen as a modern phenomenon, its presence at least in the Asian continent goes back to ancient times, which is very different in concept from the ones found in its European origin. There are traditions of 'welfare' in Asian societies as reflected in ancient manuscripts, especially in India where concepts like 'daana' for giving and 'seva' for service have been common, which are generally linked with religion-based philosophies. Throughout the history of India, there are examples of social welfare initiatives and measures by states, communities and social institutions that very well fit into the category of civil society. Some of the contemporary concepts like 'Make in India' is inspired by and build on furthering the legacy of the Swadeshi Movement, which had become a marker of political culture in colonial India. Likewise, most of the grassroots social movements in independent India, whether to do with social reform, protection of the environment, or empowerment of the marginalized and the subalterns, are examples of continuity from the colonial period. Interestingly, the social empowerment movements in the post-independence period have witnessed overlapping of demands and measures between state and non-state agencies, which will be discussed in the later section of this article.

3. CIVIL SOCIETY IN COMPARISON: JAPAN, EGYPT, INDIA

As mentioned above, the civil society experience differs subject to historical, cultural and social values embedded in society. While individual countries have their own distinct historical journeys and experiences, the emergent modern ideas and ideologies grounded the fundamentals of civil society to make them become universal. The three countries – Japan, Egypt and India, have been selected consciously for studying civil society in a non-western setting to illustrate that national character in its totality plays a major role in determining the success and failure of civil society. Japan and India in Asia are both democratic states but have very different historical journeys, while Egypt in North Africa is a totalitarian state. Analysing the political culture of these states is not only interesting but also challenging as it would require reflecting on each national society's constitutive elements. While there are scholarly works on individual countries' civil society history and practice, though mostly in relational context with government systems, there are fewer works that are comparative in approach.

To begin with Japan, it is well known that the Japanese history of modernization is unique, mainly because it is the only non-western country which did not experience colonization. Therefore, the concept of modernity, though influenced by Western ideas, was characteristically Japanese and based on which the society underwent major transformational changes beginning with the Meiji Restoration of 1868 (Jansen, 2002). Shimin Shakai, the term used in contemporary times to refer to civil society in Japan is a late 20th-century phenomenon, and it was during the Meiji period (1868-1912) itself the newly found modern nation-state introduced social reforms and modern institutions with an objective to create a national citizen or Shimin. What makes the Japanese notion of civil society more complex is the polarity between multiple concepts like shimin as an individual citizen in a national sense, kokumin as a citizen of the state or state-defined citizen and komin as someone who is 'public minded' (Tsujinaka, 2010). In addition, there are also more localized expressions like jumin (residents of a locality) or nomin (farmers or rural folks) which are seen as spatial collective devoid of shared public perspective, which are often seen in binary with the other terms like shimin or komin. The use of terminologies has relevance in the context of spatiality as they also inform about a person's social and political affiliations. Shimin as citizen is very much a part of envisioning the national character of modern Japan as an embodiment of 'enlightenment and civilization' propagated by Fukuzawa Yukichi, who is remembered as one of the most futuristic figures from Meiji era. (Yukichi, 2012, revised translation by David A Dilworth). The term *shimin* thus embodies to a large extent all the desired attributes of a national citizen committed to the cause of the state and its own existence is concomitant to it. Historically, the beginning of Japan's modernization was driven by the state, steered with slogans befitting the time, especially 'enlightenment and civilization' and 'rich country, strong army' for the national well-being which resonated with the general kokumin. During the imperial period, there was little scope for any form of meaningful civil society to emerge in Japan except for the very short duration in the Taisho period (1912-1926), which is also referred to as Taisho democracy. This draws one back to the universal understanding of democracy as the precondition for the birth of civil society. This understanding is valid to the extent that the constitutional framework of a country has provisions to safeguard the citizen interest groups and to uphold human rights. That is where democracy also differs because for a state to claim it to be an open society, it ought to limit the intervention by state functionaries when citizens exercise their rights. In the context of Japan, particularly the pre-war period had limited provisions for people to exercise their rights, moreover, due to the internalized Confucian concepts of loyalty and filial piety, the private and public becomes difficult to separate. This is perhaps the biggest challenge even the liberals of the country face where the social and political structures are formally conjoined and deviating from seeing oneself as part of the national body, kokutai, is rendered questionable (Maruyama, 1963: 4-6). This is a challenge that post-war Japan continued to face when civil society as a pressure group is expected to engage with the state in binary. This is one of the reasons why the traditional idea of volunteerism in a more non-political sense remains as the most favoured method of addressing societal issues and problems. However, the concept of civil society has gained certain momentum since the 1990s in the form of Non-Profit Organization (NPO) that take up pressing local or regional issues. But the intervention of the state is visible in the form of incorporated and non-incorporated NGOs that are largely dependent on state recognition and funding to carry out activities. In addition, the involvement of retired civil servants as state agents makes it difficult to take up more complicated or controversial issues which is a limiting factor for civil society groups in Japan. On the other hand, the most visible NGO activities are seen through the ODA (Official Development Aids) projects, which are mostly operating overseas, particularly in developing countries (Tsujinaka, 2010). Some scholars have tried to understand the rise and increase of civil society in a relational context to the developmental state, linking it to the fast-growing economic growth for the affluent class.

Comparatively, one can certainly see a major difference in the way civil societies are formed and practised in India. The concept, as mentioned earlier in this article, goes back to a distant history and is integral to the social

philosophy that operates in multiple spaces. The voluntary spirit of giving and offering services in the field of education, health, charity works like relief measures, cultural promotion, etc. have been present throughout the country's historical journey. This traditional concept of doing 'social good' gets a boost in the 19th century with an increase in national consciousness due to British colonialism. Some of the socio-political organizations that can be called civil society organizations founded in the second half of the 19th century include Friend in Need Society (1858), Prarthana Samaj (1864), Satya Shodhak Samaj (1873), Arya Samaj (1875), the National Council for Women in India (1875), the Indian Social Conference (1887) and others that focused primarily on reform and development alongside the political projects under the Indian National Congress founded in 1885. The enactment of the Societies Registration Act, of 1860 was an important milestone in the promotion of civil society movements as it provided legal recognition to the organizations working for various social and economic reforms and development (Asian Development Bank Report, 2009). Though this was a positive step undertaken by the colonial government towards promoting the well-being of their colonial subjects, on the other hand, this can also be read as one way of keeping the subjects under control, particularly in light of the growing national consciousness. Nevertheless, this experience of being able to form legal bodies has proved to be an enabling legacy to empower societies and groups that were historically marginalized. One major contribution made during the colonial period was by the Christian missionaries, especially in the sectors of education, healthcare and poverty alleviation. Many of the social welfare activities undertaken by the missionaries helped improve the living conditions of the socially marginalized sections of Indian society where the caste system works as a disenabling factor. Though the missionary activities have been critiqued for their focus on evangelism and aggressive proselytization efforts, their contribution to charitable human development cannot be denied.

The issues and problems faced by Indian society were both social and economic in nature which Mahatma Gandhi tried to address after his return in 1916 from South Africa. The idea of self-sufficient societies was promoted by him in the form of small-scale cottage industries, swadeshi, voluntary actions, rural village panchayats or councils to reinvigorate civil society in India and stressed that political freedom is meaningless without social responsibility. The problems and issues of the pre-independence period continued even after independence, a reason why the civil society groups in the form of NGOs (Non-Government Organization) continued to grow as the country embarked on a difficult journey to development. Unlike in Japan, the NGOs in India work domestically like the NPOs, but the majority of them focus on rural development like the AVARD (Association for Voluntary Agencies for Rural Development, founded in 1958) which is an association of hundreds of NGOs working for the development of rural sectors in India (ADB, 2009). This is an example of carrying forward the idea of self-sufficiency propagated by Gandhi to achieve national development in the true sense. What has made the functioning of NGOs in India relatively easier is the nature of democracy supported by diversity in the socio-cultural character of the country.

The examples from Egypt in North Africa give a contrasting comparison to both the Asian democracies of Japan and India. The nomenclature used to refer to the form of government in Egypt is 'Democratic Republic' with a Constitution and elected parliamentary system. However, in practice, Egypt has been more authoritarian and military in nature, conceptually separating the population between rulers and the ruled. Egypt has a long oppressive political history that rarely gets discussed in public discourse within and outside the country. Though geographically situated in the continent of Africa, it has been much closer in its affiliation to the Arab world because of the predominance of Islamic culture. Civil society emerged in Egypt in 1821, which is earlier than many developing countries, but it could not flourish and reach its full potential and underwent various phases of transition. Pre-19th century Egyptian society was considerably more advanced than many of its contemporary Arab, Asian and African societies. The spread of education alongside the rise of the elite class since the 18th century French occupation period created a condition for the working class to construct a middle-class society of professionals, which went on during the period when the British colonized it for a short time of sixty years from 1882-1922. This section of the society was the ones that articulated their rights for which associations and organizations were formed. However, such initiatives to form associations had no confrontational history with the state, rather they worked in complementarity with the state functionaries. In fact, some of the founding members belonged to the status group has been part of the state or connected to the ruling families with privileges and exposure to the western world. Like in the colonized societies of India and Africa, civil society movements in Egypt began with a freedom movement against the British colonial power. These movements though political in nature, provided the space for activism to protect the interest of the people and were voluntary in nature, which is similar to that of India. These forums and associations in essence propagated the modern concept of activism which paved the way for more organized civil societies like the trade unions (1898), political party formations (1907), the cooperatives (1908), chambers of commerce (1910), professional associations (1912) as well as the feminist movement (1919). The first quarter of the 20th century was the most liberal period in Egypt, which may be linked

to the spread of ideologies associated with national movements across the colonized world. The withdrawal of the British colonial government in 1922 shifted authority to the monarch which was followed by the promulgation of a modern constitution in 1923, based on the British Constitution guaranteeing many rights and basic freedoms, including the right to form associations and freedom of expression. This constitution, however, faced resistance from the monarchical government as it wanted to control the power over its citizens, which saw the diverse sets of civil society of the country coming together to defend their rights using the newly adopted constitution. This was perhaps the most significant period of mass movements in Egypt leading to the overthrow of the monarch in 1952 and transferring power to the military under Gama Abdel Nasser Hussein as the first President of the Republic of Egypt. Ironically, civil society organizations during Nasser's time were brought directly under the state, making them agencies of the government. State interference and control over civil society was imposed through the enactment of the law in 1964 subject to which administration was empowered to reject proposals for forming organizations as legal bodies, to dissolve and to amalgamate. Post-Nasser saw a period of open-door policies under the presidentship of Muhammad Anwar Sadat (1970-81) and continued till Hosni Mubarak (1981-2011) allowed entry of a market economy to Egypt, which required a liberal political outlook to attract foreign investments. Thus, the civil society in Egypt had fluctuating experiences of having a confrontational engagement with the state, as the associations were also typically class-based, and maintaining the social and political hierarchy intact was important, or working in tandem with the state to further their own group centric interests.

4. CONCLUSION: CIVIL SOCIETY AND GOVERNANCE

Irrespective of different histories of origin, the practice of civil society depends largely on the form and nature of government. For civil society to thrive a conducive political culture is necessary because often it is seen that civil society functions not only in binary to the state but also alongside the state, sometimes even collaborating with the state. This is particularly so if we look at the examples of India. After independence, it was important for the government to pay immediate attention to the social and economic health of the country and therefore, recognized the potential for civil society to supplement and complement the state efforts. Thus, taking this into account, the first Five-Year Plan stated, "Any plan for social and economic regeneration should take into account the services rendered by these agencies and the state should give them maximum cooperation in strengthening their efforts." (ADB, 2009). This led to the founding of the Central Social Welfare Board in 1953 to promote social welfare activities, which eventually saw the birth of agencies like the *National Community Development Program* and *National Extension Service* including the *Association for Voluntary Agencies for Rural Development* (AVARD) as a consortium of major voluntary agencies (ADB, 2009). Most NGOs in India work closely with the Social Welfare Ministries or Departments to avail of funds through various government schemes.

The laws governing civil society in India make it necessary for organizations to be registered under either the Societies Registration Act of 1860 or the Income Tax Act of 1961 to work as societies / Association, charitable trusts or companies (under Section 25). Trusts are subject to the Public Trust Act (1976) and to federal regulations, governed by the State Office of the Charity Commissioner. Organizations receiving foreign funds must abide by the Foreign Contribution Regulation Act of 1976, and are regulated by the Ministry of Home Affairs. In order to promote organizations to engage in social welfare and development activities government provides income tax relief through the Income Tax Act (1961). Another practice observed in the case of India is that government institutions have been founded to promote funding of NGOs like the Khadi Gramodyog (village industry), cooperatives, CAPART (Council for Advancement of Peoples' Action and Rural Technology), etc., which make beneficiaries dependent on the state. CAPART, established in 1986 works as an autonomous body to promote voluntary action towards the enhancement of rural prosperity by implementing projects for the development of technology appropriate for rural areas. However, NGOs collaborating with government institutions lose autonomy and end up becoming implementing agencies of government projects which often are politically motivated.

In Japan, it was the economy which guided and directed the state policies vis-à-vis the development in the social sector, which goes back to the second half of the 19th century. A strong collaboration between business conglomerates called *Zaibatsu* and the state agencies became the pattern of political culture which had influence over civil society-related activities. Until the 1980s presence of civil society groups in Japan was not very visible. There are two types of civil society groups in Japan as mentioned earlier: incorporated groups and unincorporated groups, and the majority of NGOs in Japan including the NPOs are unincorporated with no legal status and registration. While these unincorporated groups have no legal protection, tax breaks and source of funding; on the other hand, they enjoy relative autonomy and freedom from state intervention. Such smaller unincorporated groups have since the 1980s increased in number, whereas in contrast, the incorporated groups are registered and regulated by the Uniform Civil Code (1896), and supervised by relevant state agencies (Hirata, 2002). Many of these

incorporated groups are founded at state initiatives and therefore, do not have the characteristics typically identified with civil society or NGOs in other countries as they are strictly monitored and function according to the state guidelines. There are, however, few incorporated associations which are independent of the state and are also eligible for the government's Official Development Aids (ODA) subsidies. The majority of the local civil society groups in Japan became known mainly because of environmental and war-related protests in the 1960s, and such bodies continue to remain relevant only at a very local level without making much impact nationally primarily because of the strict government laws regulating civil society functioning.

Egypt is the polar opposite of both Japan and India in terms of civil society governance since there has been little scope for it to grow under successive authoritarian regimes. For instance, since Nasser's time, civil society organizations were all brought under direct regulation of the state, making them restricted and dependent on the government for any kind of activity. It is interesting to note the record of some thirty thousand civil society groups being formed by 2010 even though only a handful have been active. Though the majority of these groups have a religious character they also represented the current socio-economic and political despair of the larger population and included youth-oriented groups, clubs, cooperatives, professional associations, and trade and workers' unions to highlight the fact that people were aware of the importance of such civil society associations. The relationship between civil society and the state in Egypt remains both ambiguous as well as repressive. For example, the trade union and the state had a relationship of patron and client, particularly the state-run trade union like the General Trade Union which dominated trade union activities. The state strove to have control over civil associations and for this purpose the Ministry of Social Affairs was entrusted with the responsibility to supervise civil society activities (Hassan, 2011). The Ministry is empowered to reject applications for registrations and to dissolve existing ones by law, by citing non-compliance with the law. The reason why the civil society movement in Egypt could not flourish is not merely because of the authoritarian regime despite having a democratic republic system but also because of a fragmented society with religious fundamentalism dominating the political culture. Moreover, more liberal groups have failed to come up with a common agenda and ideas to build networks essential for mobilizing the people.

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Concept Of 'Hindu Rashtra' And The Analysis Of Current Political Debates Related To It

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ABSTRACT:

Religion plays an important role in the formation of a society as it constructs the social value and enables a sense of community among the individuals in the society. With the onset of time, we have been clearly witnessing how religion and the debates around it have become an important talking point whether its on the news or on the debates. The paper will focus upon the role of religion in Indian national politics with special focus on the concept of 'Hindu- Rashtra' and the current political debates related to it with special reference to how the notion of secularism becomes important during this time.

Keywords: secularism, Hinduness, religion, right-wing, left-wing

1. INTRODUCTION

When we talk about the relation between religion and politics, it continues to be an important theme in political philosophy, despite the emergent consensus between the political theorists and in practical political contexts on the right to freedom of conscience and on the need for some sort of separation between the state and the religion. One of the major reasons for the growing importance of this topic is that religions often make strong claims about people's allegiance and universal religions make these claims about all people, rather than just a particular community. Talking about India, the largest democratic country in the world, religion has historically influenced Indian society on a political, cultural, and economic level. The Constitution of India signifies India as a secular nation which means that every individual has a right to express and profess any religion they want to profess or express. But this notion is challenged by the rising notion of 'right wing' politics in the nation which lead to the emergence of the concept of a 'Hindu Rashtra' Talking about the rise of right-wing politics in India, the light is shed towards the rise of the notion of a "Hindu rashtra". The concept is not new to the field as the mention of a 'Hindu rashtra' can be found in the writings of Savarkar. Hinduism and Hindu culture had always fascinated Savarkar since his childhood days. His first article, published by Nasikvaibhav in its editorial columns in two instalments was named as "The Glory of Hindu Culture". Savarkar's premise of Hindutva outlined in his book is broadly the same which the Rashtriya Swayamseval Sangh (RSS) champions have but there exists a crucial difference as: while Savarkar wanted a Hindu state, RSS wants a Hindu Nation, that is, which reflects the 'Hinduness' without making Hinduism a state religion. The difference stands in the perspective. RSS wants the state and its policy to reflect the predominance of the Hindu ethos without realizing a theocratic state which it considers alien to the nation. But when we talk about the concept of 'Hindu rashtra' in contemporary India which is formed on the ideals of secularism then it leads to various debates on how secularism should be accorded prominence in this era.

2. THE BACKGROUND BEHIND THE CONCEPT OF A 'HINDU RASHTRA'

'Hindu Rashtra' which translates to 'Hindu Nation' is not a recent concept but it has a history that dates back to the time of Savarkar. 'Hindutva', as a political philosophy not only reflected the firm conviction of Savarkar in the veracity and the practicability of the religious-cultural ethos of Hindus to be the infallible basis of conceptualizing India as a 'Hindu Rashtra', but also the response of a Hindu nationalist to the prevailing circumstances of the time. Savarkar began his conceptualization of the idea of Hindutva by seeking an answer to the question as to what could be considered Hindu. He envisaged three fundamental bonds that would conjoin the Hindus as a common entity, namely 'rashtra' which means nation, 'jati' which means race and 'sanskriti' which means culture. Thus, territorially, a Hindu is one who feels attached to the geographical tract extending between the rivers Sindhu (Indus) and Brahmaputra, on the other hand, and from the Himalayas to the Cape Comorin, on the other hand. Racially, Savarkar (1989) considered a Hindu as the one 'whose first and discernible source could be traced to the Himalayan altitudes of the Vedic 'Saptasindhu'. Such a racial demarcation of the Hindu was seemingly not meant to claim any sort of superiority of Hindus in comparison to other races in the world but to distinguish them from others. Culturally, Savarkar maintains that a Hindu must feel the pride and commonality of his cultural roots with the other people of the nation. Savarkar defined India not only in terms of Hindu idioms but considered both terms as synonyms. The term 'Hindu' for him was not about a particular religion but a race or nationality. He sought to make a distinction between the Hindu religion and Hindutva. Savarkar deliberately preferred and picked the word 'Hindutva' over Hinduism despite the fact that he was deeply influenced by Vedic Hinduism. His concern was primarily to accommodate the diverse main native faith system and belief along with the religious practices. He refused to accept the Hindu

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dharma as a synonym of Vedic dharma, the dharma which was in practice among the people which constituted the majority or mainstream. Hindu dharma, for him, should be comprehensive enough to absorb all the diversities which the Hindu race constitutes of whether it is related to thought systems or the religious social rituals. Savarkar did not identify India in terms of territorial or political nationalism. He identified India in religio-cultural terms, as having a distinct civilizational boundary. For him, the idea of territorial and political nationalism as conceived and cherished by the Indian National Congress was a sin. He found it detrimental to the growth of a cohesive Hindu nation. Savarkar's premise of Hindutva is outlined in his book which the Rashtriya Swayamsevak Sangh (RSS) today follows with a crucial difference which is that Savarkar wanted a Hindu state but on the other hand, RSS wants a Hindu nation that reflects 'Hinduness' without making the religion as a state religion. RSS wants the state and its policy to reflect the predominance of the Hindu ethos without realizing a theocratic state which considers alien to the nation, as mentioned earlier.

3. THE HISTORY OF RASHTRIYA SWAYAMSEVAK SANGH (RSS)

Talking about its origin, the organisation came into being in 1925 by Dr. K. B. Hedgewar in the Maharashtrian city of Nagpur. Being a person who started this organization, Dr. Hedgewar gave a tradition and some regular practices along with a proper vision and mission. His immediate purpose was to present a good image of RSS in front of the public. The development of 'Shakha' technique was at giving shape to this vision. The development of the 'branch' or 'Shakha' training was aimed at giving shape to this vision. The name of the Sangh, its flag, its prayer, its pledge, its thoughts and many other aspects of it's functioning, each gave a message creating a Hindu awareness among the people with a strong sense of dedication among the people towards the nation. The Sangh and its offspring political organization, which is Bharatiya Janta Party also known as BJP have successfully become a prominent figure in the current politics with BJP dominating the majority of seats in the whole nation. In an attempt to define the ideology of the Sangh, Golwalkar describes the mission of Rashtriya Swayamsevak Sangh as the revitalisation of the Indian value system based on universalism, peace and prosperity. 'Vasudhaiva Kutumbhakam' which means that the whole world is a one big family, is considered as the ultimate mission of the organisation. But the immediate focus of this organisation, which the leaders believe is to bring a Hindu renaissance, which would help build an egalitarian society based on this philosophy. The organisation says that it aspires to unite all Hindus and build a strong India, which could contribute to the welfare of the world. Golwalkar in defining the goal of RSS said that 'the supreme goal is to bring to life the all round glory and greatness of our Hindu Rashtra, to rejuvenate ancient and life giving features of our cultures in the national and international context'. According to him, in order to attain the highest pinnacle of national glory, resplendent with its fourfold arrangement. This according to Gowalkar and other RSS leaders, could be achieved by making Hindu people alert, organized and powerful; by getting them imbued with unity of mind and thought, bound them together with a common code of morality and filed with absolute loyalty towards the nation.

The ultimate goal of the RSS and of its ideology, namely 'Hindutva', is to establish the kingdom of Manava Dharma within and to make India a world power, armed to the teeth. This is to be achieved by pursuing a policy of the destruction of the weakest elements in the society and protection of the strong, according to RSS. The RSS ideologists hold the view that the Indian society is to be build on 'Varnashrama Dharma' and other dharma shastras. When Indians won their freedom from the British rule in 1947, the Constitution of India established a pluralistic democracy based on secular principles, embracing India's diversity. But the RSS's goal is to redefine India according to its majority Hindu faith.

4. THE RISE OF HINDU NATIONALISM IN INDIA

The history of Hindu nationalism is not something which has emerged recently. Its beginning was marked when the Bhartiya Janata Party or popularly known as BJP was formed in the 1980. The party is known to trace its political roots to the Rashtriya Swayamsevak Sangh or RSS. The party's main driver is considered to be RSS, which as discussed earlier in the previous chapters is an all-male Hindu organization formed in 1925. At its most benign, the RSS is a disciplined force of volunteers dedicated to social service, usually among organizations who offer help to citizens during natural disasters. But the ideology which the organization is based is the major reason of the rise of Hindu nationalism in India. The Sangh Parivar's ideology is understood as Hindutva or Hinduness, which is to distinguish it from Hinduism. The movement does not demand a theocratic state or any explicit embrace of Hinduism as a state religion. Hindutva is understood as something national and cultural rather than fitting it into the religious category. There aim is to make Hindutva synonymous to the idea of India. The Sangh Parivar believes that the Indians of other faiths do not have any problem in accepting this notion. Coming back to the political aspect, Hindu nationalism which was a marginal ideology back in the 1950s is on a rapid rise since 2014 which rose to its peak after the 2019 elections. During the 2014 national general elections, people saw a change in the election result when the BJP broke the continuous winning streak of the Indian National Congress Party, by winning the elections with a huge number and that in both 2014 and 2019 election years respectively. BJP's electoral resurgence has brought an alternative nationalism to the fore, one based not on secular principles but rather on the premise that Indian culture is synonymous with Hindu culture. The factor behind the BJP's victory throughout 2014 and 2019 along with the ideological ascendance of Hindu majoritarianism has been the weakened state of secularism in contemporary India. The party has long advanced the notion that the Congress party and the other parties in the nation have not been following a genuine notion of secularism. The secular arrogance increasing in the nation describes the notion that political power can be used either to co-opt or to marginalize religious voices. Secular ignorance, on the other hand, refers to situations in which politicians can easily entangle themselves in religious debates even as they try to ensure an equal distance from all faiths. To gauge how Hindu nationalism is reshaping Indian politics, it is informative to examine how the BJP government has wielded power in both predictable and unexpected ways. Beyond the government's approach, elements of the Sangh also object to the increase approach of BJP 2.0 has taken with the respect to the traditional Hindutva agenda. On the core social issues that have dominated the BJP's cultural agenda for decades – the initiation of the construction of a Lord Ram temple in the city of Ayodhya located in the state of Uttar Pradesh, the demand for a new uniform civil code to name a few. Given the ongoing duel between secularism and Hindu majoritarianism in the Indian politics, it is important to note the role that Hindu nationalism is playing in India's democracy under the political leadership of BJP. Soon the year of 2024 will arrive which will mark the beginning of the 18th Lok Sabha elections in the nation, the election will determine the future of the nation as a secular republic that embraces pluralism because the competitive jousting over religion raises concerns about the nation's future and lays more importance on the ideology of secularism.

5. GROWTH OF RIGHT -WING POLITICS IN INDIA

The field of politics is divided into two mainstream ideologies which are the right wing and the left-wing ideology. These two are warring ideologies different in their outlook and application. Right wing politics is centred around the belief that social order and hierarchies are natural and this belief is supported by the natural law while the Left -wing politics supports social equality and is in opposition with the notion of social hierarchy or any other form of class division. Defining more about the Right wing politics, this ideology believes that the best outcome of the society is delivered when individual rights and civil liberties are paramount with limited involvement of the central government. Right wing politics believes that the religion should play an extended role in the society. Populism is a recurring theme in the right-wing politics. Populism is defined as a political approach that appeals to ordinary people who feel that their rights are ignored. Talking about the history of the right wing politics, then it all began in the origins of the French Revolution (1789-1799) where the supporters of the Monarchy were seated on the right hall of the National Assembly. When we talk about the influence of these ideologies in the mainstream political future of the country is decided on whether which ideology the political party in centre follows. Talking about India, there is a rise of right wing politics in the nation but what are can be corresponding reasons to the rise?

In India, the right-wing parties follow and abide by the following ideologies namely, importance of religion values, highlighting the cultural values, nationalism, ethnic identity, showcasing the importance of traditions, and economically it focuses on capitalism and entrepreneurship. The history of right wing politics date backs to the 1980s when India saw a slight shift from leftism as Indians were becoming more individualistic rather than revelling in benefits assuring collective success. Back then The All India Congress Party failed to provide defense for its secular values along with people aligning to a religious orientation, protested against the demolition of religious and social structures which contributed to this shift. The rise of right wing politics is marked by the event when Bhartiya Janata Party also commonly known as BJP secured an overwhelming majority and came into power in both 2014 and 2019. The results of the election sparked a wide ranging discussion about the rise of the right wing, religiously rooted nationalism in India. Critics of BJP noted that the party based its campaign on the 'Hindutva' nationalism. The BJP popularised an ethnically divisive discourse in order to gain Hindu votes and create a culture of majoritarianism in the nation. Although occupying a marginal place on India's political spectrum for most of the 20th century, the discourse of Hindutva emerged at the forefront of Indian politics. But along with the notion of 'Hindutva' being the central notion of the party's campaign, there were other factors as well which led to BJP winning the 2019 election as well like the focus on national development in terms of economic growth, infrastructural growth, growth in defence sector and much more reasons contributed to the reasons which lead to the growth of BJP

6. WHAT LEAD TO THE RISE OF RISE OF RIGHT-WING POLITICS IN INDIA?

Right-wing extremism has been growing at a faster pace around the world and has become a more mainstream phenomenon in various nations with a frequent rise of right-wing parties and, subsequently right-wing extremists taking root and entrenching themselves in the political landscape around the world. India has seen a gradual rise of its own version of right-wing politics which came with the partnership of Hindu nationalism ideology. While the political ecosystem of India has been fraught with complex interactions between different actors on the ideological spectrum, it has become even more complicated with the rise of right-wing extremism.

But what can be factors which contributed the growth of right-wing politics and Hindu nationalism in India? The factors are as listed below as according to Ramachandra Guha:

a) Indian National Congress: Indian National Congress or popularly known as Congress Party among the common people in the nation is one of the contributing factors. Indian National Congress holds an important prominence in the Indian Struggle for independence, due to INC's major part in the Indian Freedom Struggle movement they gained support and votes of the people in India's first general elections which took place in 1952. The Congress Party continued to rule the Indian governance till many years but after the 1980s elections, the trust among the people for the Congress Party started to crumble due to which they started to look for other trustworthy alternative political parties.

- b) Declining popularity of Left-Wing Politics in India: One of the major factor in bringing right-wing politics to the centre stage has been the declining supporters of Left-Wing politics as the Left-Wing political parties failed to present a cogent ideological opposition to the right-wing political parties, alongside compounded by their own internal matters. But there are political parties in this nation which were able to present themselves as good flag bearer to carry forward an ideal leftwing politics, the best example can be seen of the success the Communist Party of India (Marxist), which was formed in 1925, which initially argued for social and economic equality, removal of caste barriers and policies that favour the economically weaker sections of the society. It gained strength in West Bengal. Tripura and Kerala because of its promotion of extensive land reforms. But over the years, however, many of the party's leaders lost their ideological purity and began to profit from corruption and capitalist politics. In various states, the left-wing was seen to be dominated by the upper-class section of the society, leaving the lower-class section of the society to flounder.
- c) Global rise of Ethno-Nationalism: Beginning in the 2010s, right-wing movements across the world gained new currency and were able to expand their foothold in different parts of the world, including Europe, the United States. Australia and other parts of the Asian continent. Populists such as Donald Trump in United States of America, Victor Orban in Hungary, Rodrigo Duterte in Philippines can be seen as among the examples.

Along with the above reason, the rise in the power of tech companies and the use of anonymous accounts online along with the increased amplification of fake news and hate filled rhetoric due to the algorithm models, right-wing narratives spread across the world

d) The Internet as a Facilitator: The widespread use of the Internet and the rise of social media platforms such as messaging or photo sharing platforms have facilitated the growth and spread of right-wing extremism in India. These platforms have been instrumental in accommodating and emboldening extremist groups across the world. The Internet seems to have created echo chambers that reflect the views of only one orientation. The issue of hate speech and extremist views has been growing at a rapid speed in India

7. SOCIAL MEDIA AND THE SPREAD OF RIGHT-WING POLITICS IN INDIA

India is a growing consumer market of a number of products and services, and one of that service and product is a smartphone and social media account. Social media account and a smart phone go in hand in hand as if a person owns a smart phone, then they may posses one or more than one social media accounts. In India where a smartphone and data pack is available at a cheaper price, the users of social media in India is increasing at a rapid speed. Looking at the numbers, Facebook has 93 million users and Twitter which is a micro blogging platform has estimated 33 million accounts. Social media plays an important role in influencing people's opinions and way of perceiving the events all around them, this is known as political socialization through social media. Social media is a key ingredient used to spread your voice and views to almost every individual in this nation and it also provides the people a platform to interact with other people and form a community which help them to communicate and spread their thoughts and opinions to other people. But due to the algorithm game, people are only able to know one side of the story which is one of the major down side of this platform Coming to India, it becomes an essential question that how social media is related to the spread of the right wing politics in the nation? The 2014 elections, which bought Bhartiya Janta Party or BJP to the power to form the government at the centre is majorly regarded as the 'First Social Media Election' because of the extensive use of social media platforms used in election campaigns by the political party which also lead to the kickstart of a social media revolution in Indian politics. The party's major success in mobilizing and bringing together India's tech generation using the social media platforms lead the other political parties in the nation to follow the same and increase their social media engagement. This also lead to the formation of various 'IT cells' by the political parties which is generally linked to spread the parties propaganda on the respective social media platform. The growth of BJP's social media campaigning journey began to evolve extensively in 2014, the core focus of the campaign in the year was aided by professional agencies which aimed on building the manifesto of the political party on the social media platform and also promoting the political party's leader. The party's social media campaign adopted more polarizing methods in the 2017 Uttar Pradesh assembly elections and the 2019 Lok Sabha general elections after the party failed to deliver its electoral promises including its leading development programme. Using social media extensively more to the traditional media, the party developed a distinct style of initiating political communication between the people and the government. The party's successful use of social media for political agenda building and spreading along with policy crowd sourcing and publicity developed into major successful and evident pan-India programmes. It was the party's phenomenal success in the 2014 Lok Sabha elections that made the use of social media stand out.

BJP has become a primary player at increasing their social media engagement and presence at a constant pace. Their campaigns intended polarize the users and spread their ideology over the internet. As the party seeks to advance its notion of Hindutva, their aim to make the digital space a more fertile ground for them to help them spread the concept. Although BJP may not support constituting such an independent body, the opposition parties must pressure the government for a reform through all means which also include a judicial intervention. Opposition parties must also play an active role in its use of the social media platforms. The social media platforms themselves must more effectively resist the pressures and work to halt the spread of disinformation and allow the individual's to express their voice and opinion. The advent of social media has changed how politics is organised and conducted, as well as the nature of political communication is initiated in India. If we see both sides then, social media has allowed for the democratisation of politics and re-energised the political scenario. On the other side, several ethical dilemmas arise with the involvement of political actors in the use of social media, compounded by the proliferation of social media among a digital

population. The people have to be aware before using the social media platforms and should research and think twice before believing only to one side of the story.

8. THE CONCEPT OF HINDU RASHTRA AND THE MINORITIES IN INDIA

India, since its inception has a diverse, multi-ethnic and multi-religious formulation of the polity. The constitution of the nation declares India as a secular nation and has kept religion and state affairs separate, which means that the state will not interfere in the matters of religion and the state intervention is limited or minimal. Despite this essential feature, there are several instances in the nation where the country has found itself in the space of religious nationalism. Considering the results of the recent general elections in the nation, there is a considerable demand for taking the country into a majoritarian path which not only challenges the foundation of a secular nation but also endangers the rights of representation of minorities in the nation. Going back to the time when the Indian Constitution was being drafted, the drafters of the Constitution sought to eradicate the fears of a majority hegemony by providing special rights and status to the minority communities in the nation. This came in various forms like the constitutional guarantees on the protection and promotion of minority rights and interests to the implementation of affirmative action to elevate the status of minorities by providing them with special provisions but during the current times seeing the emergence of a majoritarian concept endangers this notion of the Constitution. Additionally, Indian Constitution is not the only source of the background of Indian law. The colonial past of the nation has left a very strong cast of shadow on India's formation of a legal system and judicial tradition, therefore, many law that were passed when India was a British colony are still in force and were not abrogated by the Indian constitution. Thus, the Muslim Personal law which is initially based on the Shariat Act of 1937, enacted before 10 years before the independence of the nation remains operative. The Muslim Personal law allows Muslims a semblance of religious autonomy and limited freedom to follow a few Shari'ah based rules pertaining to marriage and inheritance. It enables the Muslim community to maintain a political and constitutional identity. Talking about our Constitution, it permits all the religious minorities to handle and manage their religious affairs and allows the individual to practice and profess any religion they want. Looking back at the history, India never conformed to any strict religious identity. In the first quarter of the century, Hindu ideologues like Vinayak Damodar Savarkar and Keshav Hedgewar sought to create a Hindu nation but had a very restricted appeal. In the post partition phase of the independent nation, some of the followers of the Hindu nationalist ideology made their presence felt through the creation of Jana Sangh but they were unable to make their presence count during the general elections

Hindutva, as an ideology, is defined as it equates 'Indianness' with being exclusively Hindu. It seeks to subvert the secular and pluralistic aspirations of the nation and is presumably trying to set a path that will eventually make it a Hindu state with the Hindu ethos being the dominant ethos of the culture of the nation, which challenges the diverse notion of the nation. The 'Hindutva' notion has an effect on the legal framework of the country which protects the rights of the religious minorities. There is a concerted effort to (1) undermine the secular nature of the Indian constitution and (2) to eliminate the non-constitutional sources of minority rights. In the wake of the electoral victories indicating the rise of the ideology of Hindu nationalism, the cases of violence against the religious minorities and lower caste Hindu communities are increasing. So many cases have been recorded of the violence against minorities that the U.S Commission on International Religious Freedom has recommended that India can be designated a Country of Particular Concern. Talking about the economic policy by the BJP, it proved to be detrimental. When we look at the results of 2019, the party gained 21 more seats in the Parliament and received 37% of the votes and 6% more votes as compared to their 2014 share. The results illustrated that while two-third of the nation was not committed to the Hindutva ideology. The most troubling consequence of this election was the realization that the growth of Hindu nationalism in the nation. Perhaps this realization that the culture were more important than governance shaped the major steps of towards the rise of Hindu nationalism.

To conclude, the Constitution of the nation guarantees full access of fundamental rights to all the citizens in the nation regardless of their race, religion, sex, etc., however we have seen that how the notion of a majoritarian rule threatens these rights especially for the minorities. India's historical precedence as well as the Constitution, in its recent form, allows for the protection of rights yet the rise of the notion of Hindu nationalism has imperilled India's secularity and its character as a liberal democracy that guarantees religious freedom, does not prioritise religion and protects individual's fundamental rights. It is very important to maintain the essence of secularism in the nation as it is the backbone for maintaining cultural harmony and diversity in the nation.

9. POLITICAL DEBATES REVOLVING AROUND THE NOTION OF 'HINDU RASHTRA' AND THE IMPORTANCE OF SECULARISM

As discussed in the previous section, that the notion of 'Hindu Rashtra' dates back to the writings of V.D Savarkar where he mentions about the notion. Talking about the notion in contemporary times, for RSS it means the manifestation of the 'Bhartiya' or the 'Indian' way of living which further translates to its basis of 'Sanatan Dharma' which translates to the 'eternal way of living'. To translate the ideology of 'Hindutva' in other words, it can be understood as the essence of the Hindu Dharma. But India being home to a diverse population which practice and follow a plethora of religions and beliefs, what does this notion mean to the minorities in India?

To answer this question, lets us first understand what does secularism mean? Secularism is defined as the separation of religion from political, economic, and social aspects of life, which in other words means that the religion and state should be separate. India is a secular nation since its inception and the word 'secular' was included in the Indian Constitution after the 42nd amendment in

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1976. The secular aspects of the nation are reflected in Articles 25-28, which are part of the most essential part of the Indian Constitution which is the Fundamental Rights. The meaning of a secular nation is described it keeps the state institutions and religion separate, but it recognizes and accepts all religions and enforces parliamentary laws instead of religious laws and respects the diversity in the nation.

Religion should be a separate entity in which state intervention is required whenever necessary but if religion influences the working of the government and its decisions, then it can harm the interests of the whole nation. A diverse nation like India, cannot compromise on that because it can harm the interests and demands of the minority. The notion of secularism becomes important during these times, as it reminds the state that religious beliefs should not interfere with the decisions which are formed for the people. Religious plurality in India makes secularism very important for India in contemporary times, as it is an ideology that keeps the sense of togetherness alive. To keep the essence of a secular nation alive, the use of freedom of speech is a key ingredient. Whether secularism can maintain its hold as a defining ideology for the country will depend in part on a combination of political forces, namely the BJP's future electoral success and the strategies the opposition adopts to counter the ruling party.

10. CONCLUSION

Religion is the set of beliefs human beings follow and it helps humans form a sense of community among the people who follow and practice the same religion as them. In politics, religion, and politics are kept separate with minimal to no state intervention. To acknowledge the diversity of the nations, there is the emergence of the notion which is 'secularism' which ensures religious freedom in the nation and the independence of the state to make fair decisions keeping in mind the diversity of the nation. Secularism is important because it regulates the relationship between the state and the religious communities in society. The notion becomes invaluable for a society like India which is characterized by its religious diversity and the concept will become meaningful when it is guaranteed democratic equality.

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Combating Gender Issues in the 21st Century

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ABSTRACT

The creation of a society that upholds the principles of liberty, equality, and justice for all people serves as the cornerstone of the global community. Human rights have helped society understand the meaning of equality, liberty, fraternity, and justice on a wider scale. Human rights are the most fundamental of all rights. Every member of the human race who resides on this planet is aware of human rights. These fundamental, unalienable rights were bestowed upon individuals as a result of their familial ties, nationality, etc.

This paper attempts to highlight the biggest problem of the 21st century I.e. violation of human rights, especially women's. There are flagrant violations of women's rights everywhere. The immediate need is to put an end to human rights abuses. People's life, liberty, and dignity are protected by human rights. For the state of a society's and an economy's health, all genders are responsible. But sadly, despite the significant contribution women make to the economy, they are mistreated in many aspects of their lives. The women are even denied their basic rights. Empowerment is the most important aspect of a woman's life which can be attained on a global scale through employment and education.

Keywords: Human rights, 21st century, women's rights, society, economy, empowerment.

1. **INTRODUCTION**

Human rights are fundamental freedoms that cannot be taken away from anyone. The concept of human rights is as old as humanity itself. Without the defence of human rights, no one can lead a contented and peaceful life. Human rights were guaranteed by the Vienna Declaration, but they encountered numerous difficulties during the First and Second World Wars. No matter where they are from, everyone is entitled to the same fundamental human rights. Human rights are fundamental, interconnected, and unalienable across all nations. Human rights have two defining characteristics: universality and egalitarianism. The human rights doctrine has been important and significant in international law as well as in international and regional organizations.

In India, adolescence is not the same for boys and girls. Girls typically face significant restrictions on their freedom of movement and their ability to make decisions that will affect their employment, education, marriage, and social relationships, whereas boys typically enjoy greater freedom. The gender gap widens as girls and boys get older and persists into adulthood when only 25% of women are employed in formal jobs. Many women and girls in India do not fully enjoy many of their rights due to deeply ingrained patriarchal views, norms, traditions, and structures, although some Indian women are global leaders and powerful voices in a variety of fields.

The World Economic Forum's Global Gender Gap Index (GGGI), released in 2018, ranks 149 nations based on a variety of criteria for gender equality. On this index, India's performance in terms of gender equality placed it at position 108. India was ranked 112th out of 153 countries in the Global Gender Gap Index 2020, which now includes more than 150 nations. In 2020, India's score increased from 0.665 in 2018.

India won't advance to its full potential unless both boys and girls are given equal support to realize their potential. Girls face risks, violations, and vulnerabilities simply by virtue of being female. The majority of these dangers are directly related to the disadvantages girls experience on a daily basis in terms of economy, politics, society, and culture. During crises and natural disasters, this gets worse. Due to social norms and practices that promote gender discrimination, girls are more likely to experience child marriage, and teenage pregnancies, and child labour, poor education, poor health, sexual abuse, exploitation, and violence. Numerous of these manifestations won't alter unless girls are given more value.

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In India, gender inequality leads to unequal opportunities, and while it affects both genders' lives, statistically speaking, girls are more disadvantaged than boys. India is the only major country where girls attend preschool, have higher survival rates at birth, and are more likely to have normal developmental stages. Women live with a veil of ignorance that keeps the qualities that women possess hidden from them their entire lives. Countries looking to advance women should concentrate on the three factors that make up the human development index. To help raise awareness of the potential that women themselves possess, more power must be given to women. The subject of feminism is examined from a number of angles, including those pertaining to gender, race, ethnicity, culture, and religion. To accomplish their goal, the nations should develop women using a capabilities-based approach.

2. CONCEPTUAL FRAMEWORK

According to the famous words of the great humanist Ikeda, D., a woman should never lose her identity. Piano players who ignore the fundamentals of their instrument will lose their musical ability. Everyone can relate to this. Women who lose their identities abandon attempts to grow as people and stop respecting who they are as individuals, just like men do. The woman becomes unaware of herself and her identity in such situations. Never should a woman lose her sense of value or her love for her family. To maintain life as an individual with a distinct identity, one must put forth an unusual amount of effort (Contemporary Africa Issues and Concerns, 2011). This demonstrates unequivocally that women shouldn't consider themselves to be a burden for others. She instead possesses a distinct identity that she ought to value and respect, just like every other woman. If society takes good care of its women, which are priceless gems, society will shine.

The other person acknowledges their role as a change agent. Women's involvement in nation-building is essential because they not only contribute to the creation of a nation but also influence global development directly or indirectly. A nation is deemed successful when every man and woman has access to necessities like housing, safe drinking water, sanitary facilities, education, and primary healthcare. Redistributing resources among those who are unaware of the opportunities the world offers is another method for moving the nation forward. (Putting Women and Girls at the Center of Development, 2019).

Working women are women who have jobs outside the home. In the current climate, it is impossible to simultaneously meet the needs of women and the needs of working women. They are among the pioneers accountable for the advancement of any nation. Gender stereotypes in society have historically prevented women from feeling comfortable in the workplace. Women experience pain from the time they are pregnant until they pass away and are buried. Gender discrimination was primarily the fault of the patriarchal society, which held men to be superior to women. The various cultural barriers are the main contributors to the nation's demeaning treatment of women. Women are subjected to more risks because they earn less money than men for doing the same amount of work.

These factors all restrict the growth of women. Women cannot obtain the necessities of life. Any nation's women are its most important pillars, and when they are empowered, society as a whole benefit. In order for women to establish themselves in society, more power must be given to them. In order to do this, women must be aware of their legal rights. Women's lives are heavily impacted by the issue of human rights, especially those who work. Working women are humiliated at work because they are humiliated at home and in their personal lives. Concern over working women's human rights is becoming more widespread in the modern world.

Because more and more women are empowering themselves through employment in a variety of professions, women's rights must be upheld. Working women need to feel safe and secure in their environments in order to produce the best results. But sadly, there are many different forms of female exploitation in the world, including in multinational corporations, hospitals, workplaces, and the unorganized sector where women are employed for a daily wage. Most working women experience discrimination and exploitation. The speed at which the world is currently moving makes it necessary for women to be treated with the respect and dignity they merit. The issue of human rights violations is getting worse worldwide because working women experience discrimination from their male counterparts.

Having control over resources is essential for empowerment. It involves engaging the material world, which includes attitudes, values, and beliefs. This includes the physical, human, intellectual, financial, and ideological realms. Second, women's agency demonstrates that they should be involved in making decisions that affect their families and themselves. (Women's Empowerment and Human Development 2010) cites examples of outcomes that are thought to be related to empowerment, including improvements in education, health, and economic and political participation.

The empowerment of women is one of the most important issues of the twenty-first century, both nationally and internationally. Governmental initiatives alone won't be enough to accomplish this goal. A leading expert stated, "Society must take the initiative to create a climate in which there is no gender discrimination and women have full opportunities to self-decide and participate in social, political, and economic life of the country with a sense of equality" (Women Empowerment in India, 2016).

Social, cultural, and religious restrictions continue to limit the economic opportunities for women in rural India. Particularly the inheritance laws of the Hindu and Shariah civil codes continue to marginalize women in the home and in society at large. Rural women, especially those from lower social classes and castes, have the lowest rates of literacy, making it difficult for them to negotiate contracts or wages. As a result, they are more likely to work independently, in small-scale businesses, or in the unorganized sector. Self-help groups (SHGs) are a social and economic mobility model that the government and NGOs frequently use. Women have the opportunity to manage loans and savings that members can use for a range of needs through SHGs.

SHGs are used to promote social change among both their members and the general public. By using their experiences as leverage, members of SHGs have gained access to other regional institutions like the Panchayat Khap. Women make up a smaller portion of the labour force than men and those who do tend to have lower-paying, less secure jobs. Women typically earn less money than men for doing the same type of work. Women work in less important economic sectors than men, on average. Women lack the opportunities and capacity to contribute to the advancement of society despite possessing a wealth of skills. Whether in the formal or informal sector, women workers struggle to find the desired employment worldwide. For centuries, men have held the view that women are weak and inferior to them. It is a myth that women need men's support and attention in order to be empowered.

Depending on the region, the pattern of women's employment in the organized sector varies significantly; in some states, like Andhra Pradesh and Karnataka, this participation has sharply increased. Assam, Delhi, and Himachal are examples of states that have experienced a moderate increase; West Bengal, etc., have experienced a minimal increase; and Bihar has experienced a decline. Women work for a variety of companies and organizations in the organized sector. Women have the opportunity to become more independent by working in the primary employment sectors like central government, state government, quasi-government organizations (autonomous bodies like educational institutions, developmental institutions, and public sector undertakings), and various local bodies (Women in Organized sector in India, 2020).

Through its organized sector, India strives to improve the status of women in Indian society. The male-oriented society maintains that women should only be involved in straightforward tasks because men perceive women as weak and do not want them to hold important or higher positions than men. This way of thinking further stifles the desires and aspirations of female workers in the Indian economy.

3. INITIATIVES AT INTERNATIONAL LEVEL

International organizations are working very hard to stop the discrimination that women encounter at various stages of their lives, so the world needs to address this issue in an open manner. To raise the status of women everywhere, fundamental constitutional principles are required on a global scale. Concerns about women's rights in both the domestic and private spheres must be taken into account. By changing their perspectives from personal to professional levels and getting involved in the development, public policy, etc., women can advance themselves. The driving forces behind the development are women and girls. A country cannot fully develop if it does not acknowledge the advancement of women; putting women and girls at the centre of development involves more than just directing development initiatives towards them.

In response to the identification of the deprivations that Indian children experience, including gender-based deprivations, **UNICEF India's 2018-2022 Country Programme** was created. A gender priority that is explicitly stated in each programmatic outcome's programme, budget, and results are one that it is committed to. These consist of:

• *Health:* Lowering the excess mortality of young girls and encouraging boys and girls to seek care equally. (For instance, front-line staff members urge parents to take sick baby girls right away to the hospital.)

• *Nutrition:* Promoting more equitable eating habits will help women and girls' nutrition, in particular (Example: women cooperatives develop and implement their own micro-plans for improved nutrition in their villages)

• *Education:* Enabling more gender-responsive curricula and pedagogy, as well as gender-responsive support for out-of-school boys and girls (Example: implementing new strategies for identifying vulnerable out of school girls and boys, an overhaul of textbooks so that the language, images and messages do not perpetuate gender stereotypes)

• Ending child and early marriage is a key component of child protection (for instance, by helping panchayats become "child-marriage free" and supporting boy and girl clubs that teach girls sports, photography, journalism, and other non-traditional activities).

• *WASH:* Ensuring that women have better access to menstrual hygiene products and services, including separate restrooms that are well-equipped in schools (Example: developing gender guidelines from Swachh Bharat Mission, supporting states to implement MHM policy)

• Supporting state governments in creating gender-responsive cash transfer programmes and encouraging women to take on leadership roles in local government (Example: cash transfer programme in West Bengal to enable girls to stay in school, a Resource Centre for women panchayat leaders in Jharkhand)

• Increased female leadership and participation in village disaster management committees, for example, as well as increased gender disaggregation of information management for disaster risk reduction are all aspects of disaster risk reduction.

• Subhas and Manisha, two outstanding students who excelled in school, display their certificates of merit from the Laado Campaign in Bambhor Village, Tonk District, Jaipur, Rajasthan, India. UNICEF/UN0276693/Das. In Bambhor village, Tonk district, Rajasthan, model student achievers Subhas and Manisha display their certificates of merit from the "Laado Campaign."

• The Ministry of Women and Child Development is a significant partner, particularly for its oversight of the Beti Bachao Beti Padhao Programme, which UNICEF India supports on a national and state level. In particular, UN Women and the United Nations Population Fund, and UNICEF India collaborate closely with other UN organizations to support gender equality. Key partners also include civil society organizations, which include gender experts and initiatives.

4. **INITIATIVES AT NATIONAL LEVEL**

The Government of India has made eradicating gender-based injustices, lowering the gap between men and women, enhancing the socioeconomic status of women, and increasing their participation in a variety of fields its top priority. The Indian government has taken a number of significant steps to ensure that women have equal rights, opportunities, and access to resources, including:

4.1 Constitutional Provisions -

Articles like Article 14, Article 15(3), Article 39A, and Article 42 make specific provisions for women's rights to ensure gender equality.

4.2 Legislative Provisions -

Laws requiring women's rights include the Dowry Prohibition Act of 1961, the Pre-Conception and Pre-Natal Diagnostics Act (PCPNDT), the Sexual Harassment of Women and Workplace (Prevention, Prohibition, and Redressal) Act of 2013, the Equal Remuneration Act of 1976, the Minimum Wages Act of 1948, and the Maternity Benefit Act of 1961 (Amended in 2017).

4.3 Programs/Schemes -

i. Economic Participation & Opportunity: Several programmes and schemes geared towards the advancement and empowerment of women include:

• The organization BetiBachaoBetiPadhao (BBBP) ensures the girl child's safety, survival, and education.

• Mahila Shakti Kendra's (MSK) mission is to provide rural women with employment and skill-development opportunities.

• The Working Women Hostel (WWH) makes sure that working women are safe and secure.

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• Mahila Police Volunteers (MPV) aims to place Mahila Police Volunteers in States and UTs who serve as a conduit between the police and the community and assist women in need.

• An apex microfinance organization called Rashtriya Mahila Kosh (RMK) offers poor women microcredit on favourable terms for a variety of livelihood and income-generating activities.

• By giving the kids a safe, secure, and stimulating environment, the National Crèche Scheme makes sure that women take up gainful employment.

• Pradhan Mantri Matru Vandna Yojna aims to give pregnant and nursing mothers maternity benefits.

• The Pradhan Mantri Awas Yojana aims to offer housing in the woman's name as well.

• The DeenDayalUpadhyay National Urban Livelihoods Mission (DAY-NULM) prioritizes giving women the chance to develop their skills and find market-based employment.

• The Pradhan Mantri Ujjwala Yojana provides free LPG cylinders to women, empowering them and safeguarding their health.

• With the help of the Pradhan Mantri Sukanya Samriddhi Yojna, girls have gained financial independence by opening bank accounts.

• Female Entrepreneurship: The government has launched programmes like Stand Up India and Mahila e-Haat (an online marketing platform to support women entrepreneurs, SHGs, and NGOs) to encourage female entrepreneurship. The Pradhan Mantri Mudra Yojana (PMMY) gives micro/small businesses access to institutional financing.

ii. Educational Opportunity:

Along with these steps and initiatives, the school system has implemented the National Curriculum Framework (NCF) 2005, a flagship programme called SamagraShiksha, as well as the Right to Education Act that followed (RTE). In educationally underdeveloped blocks, Kasturba Gandhi Balika Vidyalayas (KGBVs) have been established (EBBs). Additionally, gender sensitization is carried out through the implementation of a gender sensitization module as a component of in-service training, the building of restrooms for girls, the building of housing for female teachers, and curriculum revisions.

iii. Political Opportunity:

Additionally, 33% of the seats in Panchayati Raj Institutions have been set aside for women by the government in an effort to mainstream women into political leadership at the local level. To enable women to participate effectively in the governance processes, the Ministry of Women and Child runs the Capacity Building of Elected Women Representatives (EWRs) programme.

5. CONCLUSION AND RECOMMENDATIONS

Human rights are the fundamental liberties that all people have. They are the fundamental birth rights to a contented and honourable life. Respecting each person regardless of their fears is the foundation of human rights. The central tenet of human rights is that every person is a moral and thoughtful being who deserves to be treated with respect. Human rights include the rights of women and girls. They cover every facet of a person's existence, such as food, clothing, shelter, education, freedom, equality, personal well-being, etc. All people on this planet have the right to fully and equally exercise their human rights, regardless of their caste, gender, religion, ethnicity, or country of origin, among other things.

In the world, women's status continues to be lower than men's. Women's sufferings are not a recent phenomenon; they have existed since antiquity and still do today. In line with the advancement of societies, the difficulties faced by women keep growing. Today, there are more instances of violence against women than ever before. While there are new forms of violence against women in India, such as sexual harassment at work, racial discrimination, stalking, murder, acid attacks, cybercrime, honour killings, etc., women are still making strides in the economy.

The difficulties that women face are evolving, and they now bear twice as much responsibility. She is a family carer who faces numerous difficulties, such as the inability to divide household duties and responsibilities, the stress of work commitments, and sexual and verbal abuse both at work and at home, which causes women to suffer

from poor health. Another obstacle in the way of women's development is the lack of medical facilities. The oppression that disabled women experience as women and as disabled people makes their lives very difficult. Since she is unable to perform her duties properly, the word "disabled" acts as a curse on the woman's identity. Most women suffer from poverty, poor health, violence, and other disadvantages on a global scale, but they still fight for their rights. Despite the fact that society has advanced significantly since independence, both South Africa and India continue to guarantee the fundamental rights of women in their constitutions. Though much more work needs to be done. Therefore, there cannot be full development until the nations strive to improve the condition of women.

The current study is a modest attempt to shed light on some of the issues that women in the twenty-first century are dealing with. Families around the world are seeing women who aren't just housewives but also contribute to the household income. In the last four decades, women's roles have changed from being primarily domestic to primarily professional. Women must now be viewed as crucial development tools that support social and political as well as economic development. Women have struggled to carve out a place for themselves in societies around the world, and they will continue to do so in the past, present, and into the future as well. The world, which is on the cusp of development, is ignoring one of the primary factors contributing to the development.

By concentrating on the various aspects that are crucial for a woman's development throughout her life, the United Nations and its members are working to improve the status of women globally. Even though The United Nations and National Human Rights Commission has made a number of efforts to address the issue of human rights violations in the countries, much more needs to be done. Only when people's attitudes towards women change will the status of women's human rights improve. Women in India can improve their situation by using education and empowerment as their two main tools. Another significant factor contributing to women's declining condition is a lack of opportunities. Women face particular difficulties in each of these areas of their lives in the twenty-first century, despite the fact that global trends indicate that they and men share some similarities in these areas.

It is imperative to restore women's dignity by guaranteeing them their fundamental rights, including the right to education, and by empowering them to improve the world. There is a need to address and recognize the contribution that women make to society. All over the world, the unpaid work of women needs to be valued. Men and women are equally capable of contributing. The true meaning of equality must be understood in terms of responsibility and financial status. The family itself, which serves as a child's first learning environment, gives rise to the fundamental idea of equality.

Women will be able to breathe easier in a better environment thanks to the equation of equality in family relationships. Both South Africa and India must create gender-equal family structures where men and women work together as the forces behind growth, care, love, and development. For all people on the planet to live happy and healthy lives, a gender-neutral society is necessary.

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BIOFERTILIZER A BOON FOR SUSTAINABLE AGRICULTURE

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ABSTRACT

Soil is a reservoir of micro and macronutrients which supports the plant growing on it. The excessive use of chemical fertilizer to increase crop production has led to many serious effects on soil as well as human beings who use these crop products. Ultimately these affect our ecosystem also. Biofertilizers are products that are beneficial for crop growth providing the same nutrients that chemical fertilizers do. In the long run the use of biofertilizers in India will help to attain the goal of sustainable agriculture and thus will contribute to a sustainable ecosystem and the holistic well-being of the country.

Key words: Biofertilizer, Microbes, Fungi, Bacteria, Compost

1. INTRODUCTION

Agriculture is the main source of national income. It is by far the largest single industry of our country providing two third engagement and job opportunities of the total workforce. Besides being the main source of food for the vast and growing population, agriculture provides the bulk of our export commodities like jute, sugar, fiber, oilseeds, lac and tea. It also forms the basis for our various industries including trade and transport.

The increasing pressure of population on land and rapid industrial development demand greater agricultural production in the country. During the past fifty years India's population has gone up at the rate of 9 million per year on an average, which will be doubled in the subsequent years by 2025. In India the most important problem is increasing undernutrition and malnutrition on a large scale due to increasing pressure of population on land. We have not only to attain self-sufficiency in food but also to evolve a balanced use of land. Every acre of land in the country has to be put to the maximum use. A trend which has come into operation is the substitution of commercial crops for food grains and cultivation of better quality irrigated lands under commercial crops leaving the raising of food grains. As a result, food grain production suffered further. Our traditional farming, though with limitations, was a sustainable agriculture. Traditional farming has been able to maintain soil quality. It largely depends upon soil microbes for regeneration of fertility and soil conservation. Biofertilizer is a very good option for organic farming and to maintain the quality of the soil. In traditional farming farmers use plenty of organic manures which improve soil texture, water and nutrient retention capacity. Crop rotation, mixed farming, cultivation of a number of varieties improved the soil status as well as safeguarding against pathogens.

Modern rapid growing, high yielding varieties require large quantities of nutrients and plenty of water etc. These conditions are met by chemical fertilizers. With water, chemical fertilizers and the energy crisis we are likely to face ahead, it may be difficult to meet the demands of intensive agriculture in near future. Our agriculture has to change into a sustainable system i.e. a system which can be carried on without threat to our soils, plant and animal communities and excessive drain on our energy and material resources. For good production food crops require fertile soils to grow. Therefore, after each harvest chemical fertilizers are added to the soil. Their function is to restore the soil nutrients after crop harvest. Today land degradation and desertification is seen as a serious threat to global food security.

2. NUTRIENTS REQUIRED BY PLANTS

The essential elements which are essential for the plants are C, H, O, N, P, K, Ca, S, Mg, Zn, Fe, Mn, B, Cu, Ni, Cl, and Mo. Elements may be classified into two groups: -

2.1. Major elements or macronutrients: -

Macronutrients are required by plants in large amounts. They are also called primary nutrients. These are C, H, O, N, P, K, Ca, S and Mg. C, H, O, N, S, and P are constituents of the protoplasm and the cell wall. C, H, and O form most parts of the plant body. N is an important constituent element of proteins and nucleic acids. Mg is an important constituent of chlorophylls and Ca is present in middle lamella in the form of calcium pectate. (Jain, ,2013)

2.2. Minor elements or micronutrients

The essential elements which are required in very small amounts by the plants are called minor elements or micronutrients or trace elements. They are the elements like Fe, Cu, Zn, Mn, Cl etc. (Jain,2013)

3. CHEMICAL FERTILIZERS

After each harvest chemical fertilizers are used to restore the nutrients in soil and increase productivity. The commercial fertilizers are three broad types, depending on which primary nutrient they supply to the soil. These are nitrogen based fertilizers such as Sodium nitrate (NaNO₃), Ammonium Sulfate (NH₄)2SO₄, Urea (NH₂CONH₂), Phosphorus based Super Phosphate, $Ca_2H_2(PO_4)_2$, $CaSO_4.2H_2O$, Triple Super Phosphate, $Ca_2H_2(PO_4)_2$. CaHPO₄ potassium based potassium Sulfate K₂SO₄, potassium chloride KCl etc. (Sodhi, 2002)

3.1. The advantages of using chemical fertilizer

1.Chemical fertilizer create a direct and fast effect because nutrients are soluble and immediately available to plants

2. Only small amounts are required for crop growth as they are high in nutrients.

3. The price is lower and more competitive than organic fertilizer, which makes it more popular with farmers.

3. They are quite high in nutrient content; only relatively small amounts are required for crop growth. (Sodhi,2002)

3.2. The disadvantages of using chemical fertilizer

1. The overall impact of chemical fertilizer on soil health is not good.

2. Chemical fertilizers result in leaching, pollution of water resources, destruction of microflora, and decrease in soil fertility. All these ultimately affects our ecosystem.

3.Access nitrogen causes softening of tissues which results in increased susceptibility to disease and pests.

4. High nitrogen affects the symbiotic nitrogen fixation.

5.Nutrients are easily lost from soils through fixation; leaching and can lead to reduced fertilizer efficiency. (Sodhi,2002)

4. BIOFERTILIZERS

Biofertilizers are different types of living microorganisms which enrich the nutrients of the soil. The main source of biofertilizers are bacteria, fungi and cyanobacteria (blue green algae). Biofertilizers are one of the basic requirement for organic farming. It not only enhances the crop growth and yield but also improves the soil health and sustains soil fertility. Rhizobium inoculants in India were first reported in 1956 at Indian Agricultural Research Institute, New Delhi. However, their commercialization started only in late 1960's when yellow seeded soyabean varieties were introduced for the first time in India to stop import of soyabean inoculants from the USA. **Types of biofertilizers**

Biofertilizers can be classified on the basis of their nature and function.

4.1. Nitrogen fixers

Rhizobium, Azospirillum and Phosphobacteria provide nitrogen and phosphorus to crop plants through the process of nitrogen fixation and phosphorus solubilization. Nitrogen fixing biofertilizers fix atmospheric nitrogen into the forms which plants can utilize. Phosphate solubilizing microorganisms secrete organic acids that enhance the uptake of phosphorus by plants by dissolving rock phosphate and calcium phosphate. (Anonymous, 2014)

4.1.1Free living biofetilizers

4.1.1.1Azotobacter inoculants

Azotobacter is a cyst forming bacteria which belongs to the family Azobacteriaceae. Neutral or alkaline soils are preferred by azotobacter. Antifungal antibiotics are produced by the bacteria which inhibit the growth of several pathogenic fungi in the root region. It is recommended for wheat, paddy, maize, barley, tomato, potato, cotton and mustard. It generates phytohormones which help in better germination and root proliferation. (Anonymous, 2014)

4.1.1.2. Anabaena azollae

The aquatic nitrogen fixing pteridophyte Azolla is found occurring naturally in paddy fields under tropical conditions. Due to the capacity of high biomass production and nitrogen fixation it is an ideal biofertilizer. The nitrogen fixing capacity of the organism is due to its association with nitrogen fixing cyanobacterium. Anabaena azollae resides in the dorsal leaf cavities of Azolla.In addition to this its application has been reported to increase the availability of nutrients such as Fe, P, Mn and Zn. Azolla plants release plant growth hormones and vitamins to enhance the crop productivity. (Anonymous, 2014, Mishra and Dash, 2014.)

4.1.1.3. Blue green algae

For successful production of rice nitrogen is required in large quantities in comparison to the other essential nutrients. The inorganic fertilizer i.e. urea which is used to supply nitrogen has low use efficiency because of its loss from soil through various chemical and biological processes. Cyanobacteria or blue green algae are nitrogen fixing prokaryotes which utilize sunlight as the sole energy source for the fixation of nitrogen. Nitrogen fixing Blue Green algae are present in abundance in rice fields. Their occurrence, however, varies depending upon soil conditions and other climatic factors. Blue green algae which find a highly favourable environment in the waterlogged conditions of rice fields provide cheap nitrogen to plants besides increasing crop yield by making soil fertile and productive. Some predominant nitrogen fixing genera are Anabaena, Nostoc, Aulosira, Calothrix, Tolypothrix, Aphanothece and Gloeotrichia. (Anonymous, 2014)

4.1.2. Symbiotic Biofertilizers

Rhizobium

Rhizobium is a bacterium which belongs to the family Rhizobiaceae. It forms nodules and is used for pulses, leguminous oil seed and fodder crops. Rhizobium is specific to each legume, therefore, only recommended inoculants should be used for gram, lentil, pea, soya bean, groundnut, arhar, moong, urad etc.It colonizes the roots of specific legumes to form tumor like growths called root nodules, which act as factories of ammonia production. (Anonymous, 2014)

4.1.3. Associative symbiotic

Azospirillum

Azospirillum belongs to the family Spirilaceae. The Azospirillum forms associative symbiosis with many plants particularly with those with the C4 dicarboxyliac pathway of photosynthesis. These are nitrogen fixers on salts of organic acids such as malic and aspartic acid. It is chiefly recommended for maize, sugarcane, sorghum, pearl millet etc. The Azotobacter colonizing the roots penetrates into the root tissues and lives in harmony with the plants. They do not, however, produce any visible nodules or outgrowth on root tissue. (Anonymous, 2014)

4.2. Phosphate solubilising bacteria

The bacteria which can solubilise phosphate are <u>Pseudomonas putida</u>, <u>Bacillum megaterium</u>, <u>Rhizobium</u>, <u>Agrobacterium</u>, <u>Erwinia</u> etc. These phosphate solubilizing bacteria are present in the soil and in plant rhizospheres. These include both aerobic and anaerobic strains. The more common soil bacteria are the genera of Pseudomonas, Bacillus and Fungi. (Anonymous, 2014)

4.3. Phosphate solubilising fungi

After nitrogen phosphorus is the second element which is required by the plants. Phosphorus is abundant in soils, in both organic and inorganic forms but its availability is restricted as it occurs mostly in insoluble forms. It plays a significant role in increasing disease resistance capacity to plant. Phosphate solubilizing fungi are Penicillium sp and Aspergillus. (Anonymous, 2014)

4.4. Phosphate mobilising

4.4.1. Arbuscular mycorrhizal fungi

AM fungi enhance phosphorus availability to plants by mobilising the nutrient through its network of hyphae. AM increases the plant growth and health by improving the availability of trace elements such as zinc, copper and iron. It enhances the microbial population near roots and the uptake of applied fertilizer such as nitrogen. AM should be applied near the seeds and if possible it should be applied before sowing of seeds especially with transplanted crops. (Anonymous, 2014)

4.4.2. Ectomycorrhizae

These are mainly associated with forest and ornamental tree species including coniferous and broad-leaved trees. Some common species which are examples of mycorrhizal associations are Pinus, Picea, Larix from Pinaceae, Quercus and Fagus from Fagaceae, Betula from Betulaceae, Eucalyptus from Myrtaceae. The fungus in ectomycorrhizal associations belong to class Basidiomycetes e.g. Amanita, Boletus, Russuia, etc. Root associated with ectomycorrhizae is generally short, swollen, dichotomously branched. Root hairs are also not developed. (Anonymous, 2014)

4.5. Silicate solubilising bacteria

Silicates and aluminium silicates can be degraded by microorganisms. They supply H^+ ions to the medium and promote hydrolysis and the organic acids like citric, oxalic acid, keto acids and hydroxy carbolic acids which form complexes with cations. It promotes their removal and retention in the medium in a dissolved state. It can be used for all crops such as cereals, millets, vegetables, fruits, fiber and oil crops. The examples are Bacillus sp. (Anonymous, 2014)

4.6. Potassium solubilising bacteria

It supplements the potassium requirement of the crop. It can be used for crops having high K requirements like maize, potato and wheat. The examples are <u>Pseudomonas burkholderia</u>, <u>A</u>. <u>feroxidans</u>, <u>Bacillus mucilaginous</u>, <u>Bacillus edaphicus</u>, <u>B.circulans</u> etc. (Anonymous, 2014)

4.7. Compost biofertilizers

Compost biofertilizers are those which are made up of animal dung. To convert the animal's waste into biofertilizer, the microorganisms like bacteria undergo biological processes and help in breaking down the waste. Cellulolytic fungal culture and Azobacter cultures can be used for the compost biofertilizers.

5. CONCLUSION

Today's concern is about food security, human population and sustainable agriculture. For this sustainable farming is required to maintain the ecosystem and high crop yield to support our increasing population. Modern soil management system is entirely with chemical based fertilizers which has several hazardous effects on our ecosystem. Biofertilizers represent a new hope for Indian agriculture. By using biofertilizers, the nutrient supply is more balanced which keeps plants healthy. It increases the organic matter content of the soil which in turn improves the soil health. Biofertilizers are products that are beneficial in the long run once adequate information is given, and on a large scale it becomes available to producers and farmers.

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Post-Rational Philosophy of Self-Realization and

the Vedāntic Approach to Morality

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ABSTRACT

In this paper I explore and explain the cognitive tool of post-rationalism that is needed to approach the Upanişadic philosophy of Self-Realization as recommended by the Upanişads themselves. I propose the term 'post-rationalism' to describe the cognitive approach of the Upanişads – The Upanişadic philosophers recognize both, the utilities of logic and also its limitations when it comes to exploring certain metaphysical dimensions of life. I argue that the Upanişads are not rational texts as is popularly believed but post-rational texts as the knowledge they seek to transmit was not born merely out of a rational enquiry but a post-rationalist experiential understanding of truth beyond the level of thought. Further, I explore the Vedāntic approach to morality, which is guided by its understanding of the self and its concern with Realization. Finally, I conclude with how imbibing the mental approach of post-rationalism may promote our cognitive and cultural decolonization.

Keywords: rational, Upanisads, morality, Indic, decolonization, cognitive approach

1. INTRODUCTION

The tussle between rationality and intuition has been an important discussion within the discipline of philosophy. Rationalism is the practice of basing one's opinions on logic or rationale, of understanding all aspects of the universe through an exercise of the faculty of reason. The human rationale is a powerful instrument. It has allowed us to dismantle tyrannical structures of oppression, and ante-diluvian norms and organize our survival with great efficiency through various scientific tools. Without the 'clear stream of reason' guarding against the 'dreary desert sand of dead habit', I, a woman, would not even enjoy the privilege of writing this paper. Therefore, I would like to mention at the outset, that the objective of this paper is not to undermine the very crucial role that has been played by rationality in human progress.

Notwithstanding its many blessings, the human mind has failed to resolve the most fundamental existential malaise of discontent or a constant sense of something missing. It has failed to provide lasting solutions to the many miseries that plague mankind. Much comfort and convenience have been achieved, yet well-being remains elusive. We are perhaps one of the most mentally and physically susceptible generations if the recent pandemic experience is anything to go by.

Perhaps, The Age of Reason has now had its time. Perhaps, an intelligence embedded in a deeper realm than that of the mind needs to arise and assume its rightful position, winning the final battle of human evolution, not by going against reason but by transcending it. The *Upanişads* is a powerful ancient beckoning to this deeper intelligence. It's time to look within and plumb the very depths of our inner stillness till a panacea is unearthed.

According to Sarvepalli Radhakrishnan, there are two forms of knowledge: intellectual and intuitive. Intellectual knowledge lies at the core of Western systems of philosophy and is based on critical analysis and logic. However, Eastern systems of philosophy, particularly Hinduism, believe in a higher form of knowledge built on intuition. (An Idealist View of Life, 1932) Radhakrishnan writes,

Intuition is only the higher stage of intelligence, intelligence rid of its separative and discursive tendencies. While it liberates from the prejudices of the understanding, it carries our intellectual conclusions to a deeper synthesis. Instead of being an unnatural and mysterious process, it is a deeper experience, which by supplementing our narrow intellectual visions, amplifies it. Intuition is not an appeal to subjective whims of the individual, or a dogmatic faculty of conscience or the uncritical morbid view of the psychopath. It is the most complete experience we can possibly have. It is the experience which devout souls have moments of spiritual exaltation or religious devotion." (The Reign of Religion in Contemporary Philosophy: 439).

Radhakrishnan in his *An Idealist View of Life* (1932) states that intuition does not oppose intellect but rather lies beyond it. Intuitive knowledge, although it does not contradict the necessity of reason, questions the sufficiency of reason. Intuition is not illogical but super-logical. In summary, both intellect and intuition must be synergized in the quest for the nature of ultimate reality.

To address the raging debate between rationality and intuition is beyond the scope of this paper. I merely seek to throw light on the subtle, post-rational aesthetics of Vedanta and chart out a path for our cognitive decolonization. *Upanişads* are praised as rational texts, as though rationalism is perhaps the highest normative quality that a text can exhibit. However, they are post-rational by their own characterization. 'Post-Rational' is a term that I am proposing to describe their cognitive position, which acknowledges both the utilities as well as the limitations of logic. They explicitly mention that the knowledge contained in the texts hasn't been arrived at through a mere intellectual enquiry alone. And they insist that the readers approach the scripture not merely as a thinker, but as an awareness or a holistic intelligence beyond thought. I argue that the latter approach is necessary for a decolonial reading of the texts because it is an approach inherent to the texts.

Upanişads (to sit nearby – a guru or a teacher) are later Vedic Sanskrit scriptures, that form the concluding part of the *Vedās* or its end aim, and hence are referred to as *Vedānta*. They are roughly dated between 800-600 BCE although they could have been in oral transmission for much longer before that. About 108 *Upanişads* are known, of which the first dozen or so are the oldest and most important and recognized as *mukhya* or Principal *Upanişads*.

1.1 Self-Realization: Meaning, Features and Tools

'Something there is that doesn't like a Wall'

This timeless line by Robert Frost eloquently captures the essence of *Upanişadic* philosophy. A wall is essentially a boundary. There is something within you that is longing for boundlessness. This something is the Self (*Brahman*), manifestation of the Supreme Consciousness (*Para-Brahman*), longing to experience its original boundless nature after being trapped in the physical and mental boundaries of ' $n\bar{a}ma-r\bar{u}pa$ '. The $n\bar{a}ma$ is the qualities and personality of the individual, and $r\bar{u}pa$ is the physical embodiment of that idea.¹ Both aspects of form, your physicality and your personality are transient so not much significance is given to them, and they are compared to a flash of lightning as they are brief and momentary.²

The same eternal Self is throbbing within all beings. And if one experiences it – then one is fulfilled and ecstatic, liberated from the dualities of Life – like pain and pleasure, and in a state of union with all there is. The latter is known as Self-Realization. And this Self can be known not through what it is, but only by disidentifying with all that it is not – '*Neti, Neti*' or (Not this, not this). In the following passage, the theoretical and intellectual unknowability of the Self is emphasized.

'By what and whom should one know? By what should one know him by whom all this is known? That self is (to be described as) not this, not this. He is incomprehensible for he cannot be comprehended.'

The *Upanişadic* philosophy holds that freedom and bliss are attainable rights in this life and one does not need to go to another world post-death to experience it. Suffering is not a natural condition of human life but the result of the distortion of reality through ignorance or *avidyā*. Even if one has lived a life of evil so far, one can attain Realization, and burn all the evil. It's a philosophy of redemption and not damnation. The path to Self-Realization eludes many and is difficult to walk upon. This is because the Self itself is elusive.

There are various tools described in the Vedānta to assist one on this mystical path -

• *The Guru and scriptures or spiritual literature* – Both these tools are regarded as helpful to turn one inward but neither is enough by themselves nor indispensable.³

¹Sarvepalli Radhakrishnan (1953), The Principal Upanishads, George Allen and Unwin, London, p.194.

² Ibid p.194.

³ Ibid. pp.197-198.

- Breath awareness to arrest the incredible momentum of the thinking mind: This involves taking one's attention away from the mental noise to the inflow and outflow of life-sustaining breath. This in turn slowly creates a distance between you and your thoughts and lets a certain awareness or spaciousness arise.
- Some of the other tools are chanting, silence, deep sleep, and connecting with the etheric or akashic intelligence.

2. POST-RATIONALISM - THE INDIC COGNITIVE APPROACH

The rationalists are often hostile to metaphysical knowledge and dismiss it as illogical pseudo-science. Postrationalism is a mental state where one recognizes both the utilities of thought and logic in the material dimensions of life, and their limitations in accessing the mystical dimensions and addressing larger questions about the nature of human existence. If something is not entirely within the grasp of human thought, it is not immediately dismissed as unworthy of consideration, by the post-rationalist. Post-rationalism is not a lower state of superstitious irrationalism but a transcendent state where both the rational and a sense of the ethereal and mystical can co-exist in harmony.

The *Upanişads* point to the existence of other dimensions of intelligence within the human being that transcend human thought and that need to be employed to truly unravel and experience the transformative potential of *Upanişadic* knowledge. They discourage a purely theoretical and intellectual approach to the texts and encourage an experiential understanding of the texts, which means something deeper than the thinker has to listen and respond to this knowledge. As the texts were themselves the product of not merely a rational enquiry, but mystical experiences and epiphanies beyond the reach of thought. The theoretical unknowability of the Self is constantly emphasized and it is said to be directly perceived and immediately present, i.e., not as a thought but as one's experience of oneself as the Self.⁴

Sense or intellectual knowledge which does not involve the functioning of the whole Self is incomplete knowledge. Wholeness is integral insight. We trace our lost cattle by following their footsteps so will we find everything if we know the Self. ⁵

You cannot see the seer of seeing, you cannot hear the hear of hearing, you cannot think the thinker of thinking, you cannot understand the understander of understanding. He is your self which is in all things. Everything else is evil.⁶

Just as the hand cannot do the job of the nose or the legs, so too every instrument, including logic has its particular domain of application. An intelligence which has the discretion of when to use the rationale and when to lay it down is post-rational. The one who is not overly excited by his own thoughts, and recognizes their limited significance in this vast cosmos is a post-rationalist.

⁴Contemplation is not mere philosophic thought. It is a higher stage of spiritual consciousness. It secures a direct conviction of reality. ⁷⁷

Most of the teachings in the *Vedānta* are in the form of discourses or questions and answers and not any irrefutable dictum or dogma. So the *Upanişadic* scholar-saints encourage thinking and questioning, but at the same time, there is a caution against over-utilizing the logical mind in metaphysical domains which can never be fully accessed by the thinker. There is an understanding that a skeptical inquiry can take you only so far and then comes the realm of silence and awareness, the realm of the knower beneath the thinker which immediately recognizes and resonates with the truth.

For example, after answering a slew of questions from Gargi, the following is what Yajnavalkya advises her:

⁴ Ibid p.219 and p.222.

⁵ Ibid p.167.

⁶ Ibid p.220.

⁷ Ibid pp.197-198.

'Gargi, do not question too much lest your head fall off. Verily, you are questioning too much about a divinity about which we are not to ask too much. Do not, O Gargi, question too much.'⁸

This caution is not born out of any antipathy to critical inquiry, but out of an awareness that recognizes that certain higher realities of life cannot be known through the thinking mind alone.

Most discourses are ended by a moment of silence by the questioner and this silence of the questioner is always emphasised. Because silence is the natural response to such higher learning, to moments of epiphany. This is not the silence of intellectual defeat but the silence of realization and awakening. When something very profound is perceived, silence and not further mental chatter is the natural response.

The following anecdote about two Greek thinkers beautifully brings out the essence of post-rationalism:

One day, Aristotle was walking on the beach. A glorious sunset was happening, but he had no time for such petty daily events. He was thinking seriously about some great problem of existence, because for Aristotle, existence is a problem, and he believes he is going to solve it. Thinking seriously, he was walking up and down the beach. There was another man on the beach who was doing something very intensely – so intensely that even Aristotle could not ignore him.

He closely observed what this man was doing: He was going to the ocean, coming back, going to the ocean, coming back, all with great intensity.

So, Aristotle stopped and asked, "What are you up to?"

The man said, "Don't disturb me, I am doing something very important," and went on and on.

Aristotle became even more curious and asked, "What are you doing?"

The man said, "Don't disturb me, something very important."

Aristotle said, "What is this important thing?"

The man showed a little hole he had dug in the sand, and he said, "I am emptying the ocean into this hole." He had a tablespoon in his hand.

Aristotle laughed at this and said, "This is ridiculous! You must be insane. Do you know how vast this ocean is? How can you ever empty this ocean into this little hole? And that too, with a tablespoon? At least if you have a bucket, there's some chance. Please give this up: this is utter madness, I am telling you."

The man looked at Aristotle, threw the spoon down and said, "My job is already done."

Aristotle said, "What do you mean? Forget about the ocean being empty; even the hole is not full. How can you say your job is done?"

The other man was Heraclitus. Heraclitus stood up and said, "I am trying to empty the ocean into this hole with a tablespoon. You are telling me it's ridiculous. What are you trying to do? Do you know how vast this existence is? It can contain a billion oceans like this and more, and you are trying to empty it into the small hole of your head – and with what? With tablespoons called thoughts. Please give it up. It's utterly ridiculous."

3. VEDĀNTIC APPROACH TO MORALITY

Morality is a certain code of conduct, guided by social, religious, cultural or universal ideas of good and bad, virtue and sin, pure and impure. It is derived from the Latin word, *moralis* (manner, characteristics or customs).

The *Upanişads* do not seem to give much significance to morality as an instrument of guiding human behaviour. No external set of values, institutions, people or books should guide humanity but the light of their own Self, should illuminate their path. It is broadly, human desire and human apathy that invite moral intervention in society. As Self-Realization would bring absolute fulfilment, there will be no motivation for indulging external

⁸ Ibid p.223.

pleasures, and secondly in an experiential state of union with all life, one would certainly not be needing moral lessons on how to behave with 'others' since there won't be any other.

'Live you having self as light and refuge and none other'9

'He who makes the Self his wayfinder is no longer stained by evil action'¹⁰

'He sees The Self in him and all in the Self. Evil does not overcome him. He overcomes all evil.'11

So the idea is that first you know the Self as a result you would act right.

This, verily, is his form which is free from craving, free from evils, free from fear. As a man when in the embrace of his beloved wife knows nothing without or within, so the person when in the embrace of the intelligent self knows nothing without or within. That, verily, is his form in which his desire is fulfilled, in which self is his desire, in which he is without desire, free from any sorrow.¹²

The passage describes the state of utter self-fulfilment and bliss, where there is no motivation for evil doing. Since only touching the infinite within can bring fulfilment to humanity, then one can deduce that Upanishads consider the essential nature of human longing to be a desire for the ultimate, for the infinite. Therefore, even if one gets something they want, they move to wanting something else or more of that something, whether it's wealth or knowledge and the like. The human desire, therefore, is not for some things, but for everything, the infinite. Every other desire is an unconscious expression of this fundamental longing for the boundless. Until the divine potential finds expression, the constant existential malaise of inadequacy and discontent will persist. Rather than externally controlling it with religious and social norms, the Upanishadic way is to change the direction of this desire inward, tapping into one's inherent divinity which provides a constant source of fulfilment.

A passage describes how the humans were trying to maintain purity of speech, hearing, seeing, smelling and thinking and *'contracted evil on account of their attachment to doing well.'* But instead when they focused on their breath, *'all evil scattered and perished'.'*

Externally enforced purity is always a source of evil. So, instead of thinking good and pure thoughts, shifting your attention from your thoughts to the breath is the simplest way of creating a little distance from the thinking mind and liberating yourself from your mind instead of controlling it, or trying to suppress your thoughts. Anything labelled or censured as evil or impure has always attracted human attention and piqued human curiosity far more, throughout history. What we are trying to avoid is usually what we end up thinking about the most.

Even Ramakrishna Paramahamsa points out that one who is very fastidious about outer purity does not attain divine knowledge, as to attain divine knowledge one has to be guileless.¹⁴ An external piety or a normative purity along the lines of the morality of the time, is usually a surface phenomenon, a guile or deception. Desire for anything, whether material, intellectual or physical, is an unconscious expression of the fundamental human longing for the infinite. It cannot be extinguished with moral conditioning.

Everything that morality tries to superficially and externally cultivate, by suppressing human desires, achieving at the very best a skin-deep change, the *Upanisad* seeks to do through an inward movement of Self-realization that brings about a dissolution of desires. Morality is conceptual. Realization and conscious response (as opposed to a cultivated response) to life, is experiential.

⁹ Ibid p.204.

¹⁰ Ibid p.274.

¹¹ Ibid p.280.

¹² Ibid p.263.

¹³ Ibid pp.156-157.

¹⁴ Mahendranath Gupta (1942), *The Gospel of Sri Ramakrishna* (Swami Nikhilananda, Trans.), Sri Ramakrishna Math, Madras.

When Yajnavalkya is asked about the behavioural traits of a brahmin, he is rather dismissive and refrains from giving a behavioural code. Because he expects the realized one or the Brahmin to operate consciously, responding according to the needs of a given situation rather than being guided by external dictums.

'How does the Brahmana behave?' Howsoever he may behave, he is such indeed. Everything else is evil.' Thereupon Kahola Kausitakeya kept silent.'¹⁵

4. LITERATURE REVIEW

The West¹⁶ went through a long phase of theocratic suppression of rationality, which ushered into a phase of fascination with reason and scientific thought, which culminated with the dogmatization of the latter. This dogmatic attitude got exported to the rest of the World through colonization. Western historians of philosophy consistently held *Upanişads* as religious rather than rational philosophical texts. ¹⁷ In reaction to this, many Indian writers tried to establish the merit of Upanishads as rational texts. For example, Sarvepalli Radhakrishnan writes,

*The Vedantic ideal of love, fellowship, and self-sacrifice is not the vain fancy of a dreaming poet sighing after an impossible utopia, but is the logical outcome of a rational reflection upon man's place in the cosmos.*¹⁸

He admits first that 'the Vedanta does not contain an articulate code of morality derived from an acknowledged ethical ideal,'¹⁹ but then goes on to locate a moral vision in it guided by reason. He conflates the post-rational, *Upanişadic* idea of contemplation with reason, which he considers to be the guiding principle of *Upanişadic* philosophy.²⁰

Instead of trying to win the game by Western rules, we must bring our own rules to the table. Yes, there is reason in the text, but there is also a recognition of the limitations of reason, making it post-rational. The merit of our texts should not rely on to what extent they measure up to western yardsticks. They have their own viewpoint, epistemes, concerns and approach. The *Upanişads* do not want to churn out ethical, moral humans but conscious, liberated humans.

Sri Aurobindo has aptly articulated the limitations of an intellectual reading of the Upanisads:

This character of the Upanishads needs to be insisted upon with a strong emphasis, because it is ignored by foreign translators who seek to bring out the intellectual sense without feeling the life of thought vision and the ecstasy of spiritual experience which made the ancient verses appear then and still make them to those who can enter into the element in which these utterances move, a revelation not to the intellect alone, but to the soul and the whole being, make of them in the old expressive word not intellectual thought and phrase, but Sruti, spiritual audience, an inspired Scripture.²¹

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Ibid p.221.

I am aware that my use of 'West' is a sweeping generalization, but I am discussing some overarching civilizational features.

¹⁷ P. V. Rao (2008), 'Opening the Door to Indian Philosophy'. *India International Centre Quarterly*, 35(1), p.71.

¹⁸ Sarvepalli Radhakrishnan (1914), 'The Ethics of the Vedanta', *The International Journal of Ethics*, Vol.24, No.4, p.169.

¹⁹ Ibid p.168.

²⁰ Ibid p.172.

²¹

Sri Aurobindo (1990), 'An Essay on the Upanishads', *Arya – A Philosophical Review*, Vol.6, All India Press, Sri Aurobindo Ashram.

5. CONCLUSION AND SIGNIFICANCE

5.1 Post-rationalism and the Indic route to decolonization

Imbibing post-rationalism which is the undercurrent of Indian metaphysics is what might serve as a crucial step towards our cognitive decolonization. Human thought and reasoning abilities are absolutely indispensable faculties when it comes to the mundane affairs of life but for the mystical to touch you, it is important that one has the discretion when to lay down their logic and taste the miracle of life. The maxim of Western civilization - 'I think, therefore I am' – is a fundamental misconception, equating thought with existence and beingness; But in oral and experiential traditions like that of ours - 'I am ' is the highest, and thought is just a by-product of that. From thought domination, we need to move to a more holistic approach to intelligence, which has always been the Eastern way. The Western approach is to empower the thinker, the Eastern is to empower the knower beneath the thinker, who may in turn wield the instrument of thought as and when necessary, at its own discretion instead of being trapped in it, and being consumed by it. While in the West, the thinker is respected as the highest sophistication of civilization, in the Indic traditions, the state of thoughtlessness or emptiness is considered the highest aspiration, and the one has attained this state of nothingness or *shoonya*, transcending thought or *buddhi* is revered as a *buddha* (awakened one).

The post-rational approach would further promote a decolonial reading of these texts as it is the approach internal to these texts that the texts themselves recommend. Instead of merely judging them from the standpoint of 'scientific temper' and 'rational thinking'. Yes, Upanishads are a 'superb example of the creativity of asking questions' as Prof Romila Thapar puts it²², but they are also much more than that.

Only if we become a witness to our own thoughts, and observe them from a distance, will we truly become aware of how many ways are they a reaction to or a product of colonization. In order to create this therapeutic distance from our own thoughts, we need to stop taking them and ourselves seriously and realize our cosmic insignificance. This too is an essential part of post-rationalism. As Marcus Aurelius said – 'Soon you would have forgotten all things, soon all things would have forgotten you'.²³ He is pointing out that we are a brief and minuscule happening in this infinite cosmos. We need to stop taking ourselves as seriously as we do. Only then will we stop being so enamoured by our thoughts, with which we identify so deeply. Then a certain distance or space would arise between ourselves and our thoughts. This silent space will let supra-rational intelligence operate. Our thoughts are often based on data that we have gathered through our sense organs. The latter always provides us with relative reality, not actual reality. For example, what is darkness to our eyes is broad daylight to a nocturnal animal and vice versa. Something we touch and it feels hot, it is because our temperature is less with respect to it. Someone else with a higher temperature could find the same thing cold. So the senses, while crucial to the survival process, are limited.

For true academic decolonization we need to not just bring back a study of our ancient knowledge systems but also its concomitant post-rationalist cognition back, otherwise even these experiential traditions would exist only at the level of thought leading to chest-thumping boisterous groups who take pride in their ancient culture, but no actual transformation.

We are a threshold generation, standing on the cusp of several ecological catastrophes. We do not have the luxury of a lot of time to address them. We need to urgently address human transformation. Only the melody of philosophy can reign in the meaningless chaos of Technology- the immediate access to wanton self-indulgence that it allows and the wholesale killing that it empowers us with. We are a generation overly empowered by technology. If more conscious beings and more inclusive hearts do not wield them, we will use all our inventions to destroy ourselves and the planet. Many, especially, western nations organized their civilization around external conquest but India organized her civilization around inner conquest. And she discovered something profound that could facilitate the creation of a more peaceful and conscious human race, that certainly deserves academic limelight. This paper has attempted a small beckoning towards the experiential wisdom of immense transformative and liberative potential trapped in our ancient sutras.

²² <u>https://scroll.in/article/977026/interview-romila-thapar-on-the-history-of-dissent-and-how-it-shaped-hinduism-and-india</u>. 31/10/2020.

²³ Marcus Aurelius (2006), *Meditations* (Martin Hammond, Trans.), Penguin Classics, UK, p.61.

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Using Plant Growth Promoting Bacteria

Remediating Heavy Metal Contaminated Soil Using Plant Growth Promoting Bacteria

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ABSTRACT

Heavy metal pollution in the environment can have severe health impacts on humans, animals, and plants, causing various problems with the ecosystems. Plant growth-promoting rhizobacteria (PGPR) are a group of bacteria that live in association with plant roots and can improve plant growth, nutrition and stress tolerance, and enhance bioremediation of heavy metals by solubilizing metal ions, producing chelating agents or reducing metal toxicity through the biosorption of metal ions on their cell surfaces. Direct mechanisms include the use of bacterial features that result in direct plant growth enhancement, while indirect mechanisms include bacterial features that impede the function of one or more plant pathogenic organisms. PGPR is one of the most eco-friendly, cost-effective methods for the removal of heavy metals from the soil, thereby leading to a pollution-free environment. An alternative is to add Plant Growth Promoting Rhizobacteria to metal hyper-accumulating plants, inoculation with rhizobacteria influences metal mobility, alters metal bioavailability in the soil, decreasing metal phytotoxicity and altering the phytoavailability of heavy metals in contaminated soil.

Keywords: heavy metal, bioremediation, PGPR, Plants remediation, cost effective

1. INTRODUCTION

Heavy metals are naturally occurring elements that can be harmful to living organisms in excessive amounts. They can accumulate in the environment, including water, soil, and air, through both natural processes and human activities such as mining, manufacturing, and waste disposal. Heavy metal pollution in the environment can have severe health impacts on humans, animals, and plants. Exposure to heavy metals can cause various health problems, such as neurological and developmental disorders, cancer, kidney damage, and reproductive issues. In addition, heavy metals can also harm ecosystems by reducing biodiversity, impacting food chains, and altering the balance of the ecosystem.

2. PGPR STRATEGIES FOR REMEDIATION

Heavy metals can be removed from the environment using a variety of treatments including physical, chemical, and biological methods focusing on physicochemical properties of the metal. As a result, integrated processes are gaining popularity nowadays since they are said to efficiently fulfill the aim of a variety of environmental drawbacks. This problem can be overcome by introducing plant growth-promoting Rhizobacteria (PGPR) to the soil. Plant growth-promoting rhizobacteria (PGPR) are a group of bacteria that live in association with plant roots and can improve plant growth, nutrition and stress tolerance. They can also enhance bioremediation of heavy metals by solubilizing metal ions, producing chelating agents or reducing metal toxicity through the biosorption of metal ions on their cell surfaces. According to Shrivastava (2017), PGPRs are of importance to rhizosphere microorganisms because they help host plants to adapt to poor soil conditions under stressed conditions and boost phytoremediation effectiveness.

Using Plant Growth Promoting Bacteria

3. MECHANISM OF ACTION OF PGPR

Plant hormones (gibberellins, cytokinins, and auxins) are produced by PGPR, which influence plants by increasing the pool of bioavailable phosphorus, nitrogen, and iron (through siderophore secretion) (Y Ma et al, 2015). They also improve plant tolerance, for example, by lowering ethylene levels (through ACC deaminase production) (M Saleem et al, 2007). PGPR boosts a variety of physiological processes that support growth and development, including water and nutrient intake, photosynthesis, and source-sink connections. These techniques increase plant biomass and secreted compounds from the roots. Because these secretions are considered nutritious for rhizospheric bacteria, result in an increase in their number (S Rostami 2019). The capacity of the legume–rhizobia symbiosis to detoxify heavy metals and improve the quality of contaminated soils is well documented (A Checcucci et al, 2017). Direct mechanisms are defined as the use of bacterial features that result in direct plant growth enhancement. Auxin, cytokinin, gibberellin, nitrogen fixation, phosphorus solubilization, and iron sequestration by bacterial siderophores are among them. Bacterial features that impede the function of one or more plant pathogenic organisms, both fungi, and bacteria, are known as indirect mechanisms. 1-aminocyclopropane-1-carboxylic acid (ACC) deaminase, antibiotics, cell wall degrading enzymes, hydrogen cyanide, induced systemic resistance, quorum quenching, and siderophores are examples of indirect processes.

4. STUDIES DOCUMENTING SUCCESSFUL HEAVY METAL REMEDIATION

Heavy metals mobility and availability to plants are known to be influenced by microbial populations through the release of chelating agents, acidification, phosphate solubilization, and redox shifts (T A Anderson et al, 1993). These bacteria can establish colonies on the plant's surface or within its roots, and interact with the roots. Rhizobacteria collect, transform and detoxify heavy metals. Microbes have metabolic capacities that are supported by molecular machinery, allowing them to adapt and perform even when exposed to high levels of heavy metals. In the presence of potassium dichromate, chromium-resistant pseudomonads isolated from paint industry effluents were able to enhance seed germination and growth of Triticum aestivum (JE Leggett et al, 1956). PGPR is one of the most eco-friendly, cost-effective methods for the removal of heavy metals from the soil, thereby leading to a pollution-free environment. Usage of many hyperaccumulating plants which have the ability to accumulate or absorb a high amount of heavy metals through plant roots followed by the formation of metallo-complex with the help of special proteins to detoxify the poisonous effects of the metal, their translocation from plant roots to shoots via apoplast or symplast pathway, distribution of toxic metal inside the tissue and finally accumulation of these metals in metabolically less active cells. The disadvantages of hyper-accumulating plant species are that they grow steadily, produce fewer amounts of biomass when the concentration of heavy metals in the contaminated soil is very high, and are preferred only for the selected metal. An alternative is to add Plant Growth Promoting Rhizobacteria to metal hyper-accumulating plants, inoculation with rhizobacteria influences metal mobility and alters metal bioavailability in the soil but produces much larger-above ground biomass, thus decreasing the metal phytotoxicity and altering the phytoavailability of heavy metals in contaminated soil. The potential of S.nigrum to extract phytonutrients can be advantageous in ways other than co-cropping with particular plants like ryegrass. S.nigrum has a higher ability (hyper-accumulator) than ryegrass (low accumulator) to remove accessible cadmium and/or other heavy metals from the soil (N Rascio et al. 2011).

5. LIMITATIONS OF PGPR

Although using rhizobacteria in conjunction with plants could provide high-efficiency phytoremediation, the microbial ecology of the rhizosphere is still unknown. It prevents erosion and metal leaching by stabilizing heavy metals, reducing the risk of contaminants spreading; it can also improve soil fertility by releasing various organic matter into the soil.

6. CONCLUSION

Heavy metals can be remediated from polluted soil either by increasing the metal-accumulating ability of plants or by increasing the amount of plant biomass. In heavily contaminated soil, where the metal content exceeds the limit of plant tolerance, it is possible to treat them using plant growth-promoting rhizobacteria, which helps in increasing plant biomass and thus stabilizing, revegetating, and remediating metal-polluted soils. In conclusion,

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PGPR can be effective for bioremediation of heavy metals in soil by improving plant growth, reducing metal toxicity, and solubilizing or biosorbing heavy metal ions.

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A Study of Scientific Implementation of Python to Physics

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ABSTRACT

Computational Physics is a very important and fascinating area of Physics which provides an opportunity to explore deeper aspects of Physics before actual experimentation. The knowledge of computation is essential for a person with a scientific temperament and it is the need of the hour. Python[1] is a very upcoming interactive programming language which can be used to solve real processes in science meticulously. In this paper, real Physics based problems are analyzed and solved by the means of computations using Python Programming Language. In this paper, the physics of planetary trajectories and projectile motion are developed using python.

Keywords: Python, Projectile Motion, Planetary Motion

1. **INTRODUCTION**

It is well known that the study of real processes is always a complicated analysis and computation helps a lot in analyzing any such process. Python is one of the interactive programming languages. It is open-source software, easy to learn and very popular nowadays. It includes a range of features tailored for scientific use, including handling vectors, inverting and diagonalizing matrices, performing Fourier transforms, curve fitting, making graphs, etc. It also has the capability of creating 3D graphics along with animation, which is very fascinating to analyze a problem and presents the results beautifully in a visual manner. This versatile language has been used to study real processes in science.

2. PYTHON: ADVANTAGES AND APPLICATIONS

Python is an object-oriented, high-level, paragon, interactive, interpreted, and structured programming language. It allows users to write clear and logical codes. It incorporates modules, exceptions, dynamic typing, etc. It is a very easy-to-use, free, versatile, paragon, extensible, portable, and productive programming language. It can be used to create websites, software development processes, system scripting, development of mobile applications, creation of video games, etc. [4,5].

In this paper, the following physics problems are analyzed and codes developed using Python.

- 1. Projectile motion
- 2. Planetary motion

3. **PROJECTILE MOTION**

The motion of a body which is thrown into space with some initial velocity moves thereafter only under the influence of gravity without being propelled by any external force like engine or fuel, etc. and is known as projectile motion. The path followed by the body is known as trajectory [2]. For example, A javelin thrown by an athlete has projectile motion, water flowing from a hole of a vessel, a ball thrown from the top of a building, a bullet fired from a gun etc.

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3.1 Principle:

According to Galelio's principle the motion of a projectile is the combination of two motions provided the air resistance is absent i.e., horizontal motion with uniform velocity and vertical motion under gravity having acceleration equal to the acceleration due to gravity 'g'.

The above two motions are independent of each other. A hypothesis used in projectile motion is that air resistance should be absent, the effect due to rotation and curvature of the earth should be negligible and the value of acceleration should be the same at every point on the trajectory. Let us consider the projectile motion at an angle.

3.2 Projectile motion at an angle

Let us consider that projectile fired at an angle θ with horizontal[3,4], with initial velocity 'u'. The velocity 'u' has two rectangular components: unchanging 'ucos θ ' and changing 'usin θ '.

It must be noted that '*usin* θ ' first decreases, becomes zero at the highest point, and after that, it increases till the projectile hits the ground. Under the combined effect of the above two components, the body follows a parabolic path as shown in the figure.



Figure 1. *Trajectory of a particle fired at an angle* θ *with the horizontal* [3]

3.2.1 Code:



Figure 2. Program for projectile motion using trinket

3.2.2 Output:

Initial conditions: u = 0 m/s and t = 0 sec



Figure 3. Projectile motion at time 0.4980 s, 0.9158 s, 2.0984 s, 2.7673 s.

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4. PLANETARY MOTION

Planetary motion is defined as the planet's trajectories around the sun. Kepler stated that all planets move around the sun in elliptical orbits having the sun as its one foci. Due to very small differences in semi-major and semiminor axial length of planets like mars, mercury, Venus, etc.; the path traced by them is circular. While the path traced by Saturn varies from other planets as its semi-minor and semi-major axial length differ from each other.

4.1 Principle

Kepler's second law of planetary motion states "The areal velocity of a planet revolving around the sun in elliptical orbit remains constant, which implies that the angular momentum of a planet also remains constant'. As angular momentum is constant, all planetary motions are planar motions.

The mathematical expression of Kepler's Second Law of Planetary Motion

$$\frac{dA}{dt} = constant$$

where dA is the differential area swept by the line joining the planet and the sun in a given time interval dt. The constant value in this equation represents the rate at which the area is being swept out, which remains constant throughout the planet's orbit.

4.2 Objective

Main aim of performing this simulation is to show how different planets move around the sun, and their path and to visualize their path clearly using python language.

4.3 Parameters Used

We mainly use the length of the semi-major and semi-minor axis of different planets to trace their elliptical path. The following table shows the parameters used.

| Planet name | Semi-major axial length (a) (A.U) | Semi minor axial length (b)(A.U) | Difference (a-b)(A.U) | |
|-------------|--------------------------------------|-------------------------------------|--------------------------|--|
| Mercury | 14.275 | 11.775 | 2.5 | |
| Venus 27 | | 26.99935 | 0.00065 | |
| Earth | 37.5 | 37.494575 | 0.005425 | |
| Mars | 57 | 56.747625 | 0.252375 | |
| Jupiter | 194.75 | 194.516075 | 0.233925 | |
| Saturn | 257.5 | 102.725 | 154.775 | |
| Uranus | 717.5 | 716.740475 | 0.759525 | |
| Neptune | 1125 | 1124.5 | 0.5 | |

4.4 Code

```
# import package and making object
import turtle
import math
screen = turtle.Screen()
# method to draw ellipse
def draw(rad):
    a=28.95
    b=28.3351515
    for i in range(3):
        turtle.circle(a,90)
        turtle.circle(b,90)
# Main Section
# Set screen size
screen.setup(10000,5000)
# Set screen color
screen.bgcolor('white')
x=0
<u>у</u>=0
planet={"Saturn": [257.5,102.028725]}
for planets in planet.keys():
   tilt = 1 * (math.pi / 180)
   a,b=planet[planets]
   x=x+a
   y=y+b
   #print(a)
   turtle.speed(10)
   turtle.up()
   turtle.setpos(0,-b)
   turtle.down()
   turtle.seth(-tilt)
   for i in range(2):
       turtle.circle(a,90)
       turtle.circle(b,90)
```

```
# import package and making object
import turtle
import math
screen = turtle.Screen()
# method to draw ellipse
def draw(rad):
    a=28.95
    b=28.3351515
    for i in range(3):
        turtle.circle(a,90)
        turtle.circle(b,90)
# Main Section
# Set screen size
screen.setup (10000, 5000)
# Set screen color
screen.bgcolor('white')
x=0
у=0
Jonet={"Mercury":[11.775,14.275],"Venus":[27,26.99935],"Earth":[37.5,37.494575],"Mars":[57,56.747625],"Jupiter":[194.75,194.516075],
"Uranus":[717.5,716.740475],"Neptune":[1125,])
for planets in planet.keys():
    tilt = 1 * (math.pi / 180)
    a,b=planet[planets]
    x=x+a
    y=y+b
    #print(a)
    turtle.speed(10)
    turtle.up()
    turtle.setpos(0,-b)
    turtle.down()
    turtle.seth(-tilt)
    for i in range(2):
        turtle.circle(a,90)
        turtle.circle(b,90)
```

4.4 Output





Figure 6. Elliptical path traced by planets

4. CONCLUSION

In this paper, real physics-based problems are analyzed and solved by the means of computations using Python Programming Language. The output of the study shows that physics problems can be effectively explored using python. In fact, this computational pedagogy of dealing with Physics problems can be viewed as a new method of teaching which will give a deeper insight into real physics to students.

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Total Protein Estimation of Seven Fabaceae Members Growing around Kalindi College Premises by Bradford's Assay

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ABSTRACT

Legumes are well-known for their rich protein contents, minerals, and medicinal properties. Members of Fabaceae also produce several anti-nutritional secondary metabolites acting as defense compounds against insect herbivores. Estimation of total protein of leaves can be crucial for quantitating specific bioactivity of anti-nutritional compounds active against phytophagous insects. In this context, total protein of leaves of seven members of Fabaceae growing in and around the Kalindi College premises was estimated. Methodology included local survey of the college campus to identify members of Fabaceae, preparation of herbaria; and standard Bradford's assay of leaf samples for spectrophotometric estimation of total protein. Results obtained were further compared by One-way Analysis of Variance (ANOVA).

Keywords: Bradford's assay, total protein, Fabaceae, herbivory

1. BACKGROUND OF THE STUDY

Fabaceae comprises approximately 750 genera and 18000 species representing the world's largest flowering plant family including several herbs, shrubs, and trees (Ahmed and Hasan, 2014). Fabaceae form a large and economically important family of flowering plants that can be perennial or annual, and are extensively described by their uncommon flower structure and their peculiar fruits known as pods. Legumes are among the major sources of protein and minerals. Astragalus, Acacia, Indigofera, Crotalaria, and Mimosa constitute five largest genera of this family (Polhill, 1997). The members of Fabaceae exhibit several medicinal properties. Medicinal properties of Fabaceae members included in this study are summarized in Table 1. Members of Fabaceae members also contain secondary metabolites that act as defense compounds against insect attacks (Wink, 2013). Among these, some proteinaceous secondary metabolites such as protease inhibitors are anti-nutritional for insects (Mazumdar-Leighton and Broadway, 2001; Kumar et al, 2015; Kumar et al, 2021). Total protein estimates of leaves can be crucial for quantifying specific-bioactivity of proteinaceous anti-nutritional compounds active against phytophagous insects. Present study aims to estimate the total protein content of selected Fabaceae members growing in and around college campus using Bradford's assay.Bradford's assay is a simple spectrophotometric assay for measuring total protein concentration using a dye- binding method which is based on the color change of Coomassie brilliant blue G-250 dye (CBB G-250) in response to varying concentrations of protein under acidic conditions (Bradford, 1976). The dye binds primarily to basic (especially arginine) and aromatic amino acid residues. Binding results in a shift in absorption spectrum of the Coomassie Brilliant Blue G-250 dye from 465 nm to 595 nm. Total protein content of unknown samples (e.g., leaf extracts) can be estimated from a standard curve plotted for a range of concentrations of a known protein (e.g. Bovine Serum Albumin, BSA).

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| SN | Name of tree | Phytochemicals | Medicinal Value | Reference |
|----|----------------------|---|--|-------------------------------------|
| 1 | Albizia lebbeck | macrolyric spermine alkaloids, triterpene seasoning, phenols, flavonyl glycosides, tannins, and sterols | to treat diarrhoea, gonorrhea, skin diseases, poisonous bites, and leprosy | Kokila et al, 2013 |
| 2 | Acacia nilotica | alkaloids, volatile essential oils, phenols and phenolic glycosides, resins, oleosins, steroids, tannins, and terpenes | anti-cancer, vasoconstrictor, anti-pyretic, anti-asthamatic, cytotoxic, anti-diabetic, anti- platelet agregatory, anti- plasmodial, molluscicidal, anti- fungal, hypertensive and anti- spasmodic activities | Ali et al, 2012 |
| 3 | Cassia fistula | anthraquinone, oxyanthraquinone, rhein, volatile oils, amino acids like arginine, leucine, methionine, phenylalanine, tryptophan, aspartic, and glutamic acids, tannins, albuminous starch, gluten, and gum. | antidiabetic, anti-inflammatory, antimicrobial, antipyretic, anti- venom, antioxidant, and purgative properties. | Mwangi et al, 2021 |
| 4 | Pongamia pinnata | flavones, flavans, and chalcones etc. | es, flavans, and chalcones for treating rheumatism, skin diseases, piles, gonorrhea, dyspepsia, flatulence etc. | |
| 5 | Bauhinia purpurea | methoxyflavones, xylopyranoside, biflavonyl, bioflavonoid, bibenzyls, dibenzooxepins, mixture of phytol fatty esters, lutein, and sitosterols. | anti-bacterial, anti-diabetic, analgesic, anti-inflammatory, anti-diarrheal, anti-cancerous, nephroprotective, and helps in thyroid hormone regulating activity. | Kumar and Chadrashekhar, 2011 |
| 6 | Mimosa pudica | <i>mosa</i> <i>dica</i> <i>alkaloids, mimosine, flavonoids</i> <i>c-glycosides, terpenoids,</i> <i>tannins, sterols, and fatty acids</i> <i>antibacterial, antifertility,</i> <i>antidepressant, aphrodisiac, for</i> <i>treating urogenital disorders,</i> <i>piles, dysentery, sinus, and</i> <i>wounds.</i> | | Ahmad et al, 2012 |
| 7 | Dalbergia sissoo | dalbergenone, dalbergin, methyl dalbergin, phenyl chromene, dalbergichromene, nordalbergin, and isodalbergin flavinoids- prostaglandin and synthetase inhibitors. | Anti-inflammatory, analgesic, antipyretic, and antimicrobial activities abortifacient and to possess estrogen-like activities. | Shah et al, 2010 |

| Table 1: Phytochemical constituents and medicinal | properties of Fabaceae members included in this study: |
|---|--|
|---|--|

Kalindi College Premises by Bradford'sAssay

2. MATERIALS AND METHODS

2.1 Field Survey of College Campus for identification of members of Fabaceae

Members of Fabaceae (legume family) were identified by local field survey of campus of the Kalindi College, University of Delhi. Furthermore, each identified tree/shrub was labeled and tagged. Subsequently, fully expanded mature green leaf samples were collected in zip-lock bags of 10×10 sq.cm. for total protein estimation using standard Bradford's assay. Fully expanded leaves of about the same size for each sample were selected. For taller trees, leaf-pucker was used for collection. During collection of leaf samples, care was taken, not to include leaves damaged by insects, and/or having any disease. A total of seven members were identified and used for experiments (Table 2; Figure 1 and 3)



2.2 Preparation of herbaria of identified trees

For making a herbarium, the collected leaves were washed properly to remove the dust and dirt adhering to the surface. Subsequently, washed and wiped leaves were pressed onto a flat surface of tabletop by keeping the leaves between several layers of a newspaper. Outmost care was taken to ensure that leaves were not overlapping or were not wrinkled due to overcrowding. Furthermore, whole bunch of newspapers along with leaf specimen was pressed with heavy plywood. Newspapers were frequently changed to avoid any infection caused by dampening of the leaves every 24 hours. The pressing and drying of leaves were completed in 4-5 days and subsequently, leaf specimens were pasted, and labeled on herbarium sheets (Figure 2).

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2.3 Total protein estimation of leaf extracts of selected Fabaceae members using Bradford's assay

2.3.1 Preparation of leaf extracts

Leaf extracts of selected members (Table 2) were used for total protein quantitation using Bradford Assay (Bradford, 1976). Briefly, 1g deveined leaf tissue was homogenized in liquid nitrogen by adding 1ml of 0.1M Tris pH 6.8 gradually using pestle and mortar. The homogenate was transferred to properly labeled 2ml microcentrifuge tubes and were centrifuged at 10000rpm for 10 minutes at 4°C. The supernatant was transferred to fresh microcentrifuge tubes and the pellet was discarded. Supernatant was used for total protein estimation using a Bradford Kit (catalog# 500- 0006, Bio-Rad Laboratories, Inc., Hercules, California, USA).

2.3.2 The Bradford assay for total protein estimation

Different dilutions of standard protein, Bovine Serum Albumin (BSA) in a linear range (0.1 to 1.0 $\mu g/\mu L$) were prepared for standard curve from a stock solution of $1\mu g/\mu l$ of BSA made in 0.1M Tris pH 6.8 buffer. For the Bradford's assay, 200 μL of Bradford reagent (diluted in 0.1M Tris pH 6.8 buffer; 1:4) was added to 10 μL of prepared dilutions of different BSA concentrations for standard curve. 10 μL of diluted leaf extracts were also incubated simultaneously with 200 μL of Bradford reagent into the wells of a microtiter plate as per template shown in Figure 4 and the plate was kept at room temperature for 15 min. Subsequently, the absorbance was taken at 595nm against 0.1 M Tris pH 6.8 buffer as a blank.

For reactions pertaining to leaf extracts, at least three different dilutions i.e., undiluted extract (neat), 1:50 and 1:100, were used. Each reaction was performed in triplicates. Standard curve of BSA was plotted using

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arithmetic mean values of triplicates for each concentration of BSA along with the values of their standard deviations (Figure 5a-b). Total protein concentration of the leaf extracts was calculated from the standard curve by extrapolation and also by substituting the absorbance values of plants extracts in the linear equation of the standard curve (Figure 5a). Furthermore, arithmetic means of total protein values were plotted as bar graphs along with the values of their standard deviations (Figure 5b). One way Analysis of Variance (ANOVA) along with pairwise multiple comparisons using post-hoc Tukey's HSD test was performed using IBM SPSS ver21 to find out statistically significant differences between total protein values of leaf extracts (Figure 5b).

| SN | Botanical name | Abbreviation | Common name | Subfamily | | |
|----|-------------------|--------------|--------------|------------------|--|--|
| 1 | Albizia lebbeck | AL | Shireesh | Caesalpinioideae | | |
| 2 | Acacia nilotica | AN | Babul | Mimosoideae | | |
| 3 | Cassia fistula | CF | Amaltash | Caesalpinioideae | | |
| 4 | Pongamia pinnata | РР | Karanj | Papilionoideae | | |
| 5 | Bauhinia purpurea | BP | Kachnaar | Cercidoideae | | |
| 6 | Mimosa pudica | MP | Touch me not | Caesalpinioideae | | |
| 7 | Dalbergia sissoo | DS | Shisham | Faboideae | | |

| Table 2: List of Fabaceae | members inclu | ded in this study |
|---------------------------|---------------|-------------------|
| | | |



Total Protein Estimation of Seven Fabaceae Members Growing around

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| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|---------------|
| A | BSA 0 µg/µl | BSA 0.1µg/µl | BSA 0.2µg/µl | BSA 0.3µg/µl | BSA 0.4µg/µl | BSA 0.5µg/µl | BSA 0.6µg/µl | BSA 0.7µg/µl | BSA 0.8µg/µl | BSA 0.9µg/µl | BSA 1µg/µl | Empty |
| В | BSA 0 µg/µl | BSA 0.1µg/µl | BSA 0.2µg/µl | BSA 0.3µg/µl | BSA 0.4µg/µl | BSA 0.5µg/µl | BSA 0.6µg/µl | BSA 0.7µg/µl | BSA 0.8µg/µl | BSA 0.9µg/µl | BSA 1µg/µl | Empty |
| С | BSA 0 µg/µl | BSA 0.1µg/µl | BSA 0.2µg/µl | BSA 0.3µg/µl | BSA 0.4µg/µl | BSA 0.5µg/µl | BSA 0.6µg/µl | BSA 0.7µg/µl | BSA 0.8µg/µl | BSA 0.9µg/µl | BSA 1µg/µl | Empty |
| D | AL-1 Neat | AN-1 Neat | CF-1 Neat | PP-1 Neat | BP-1 Neat | MP-1 Neat | DS-1 Neat | AL-1 1:100 | AN-1 1:100 | CF-1 1:100 | PP-1 1:100 | BP-1 1:100 |
| Е | AL-2 Neat | AN-2 Neat | CF-2 Neat | PP-2 Neat | BP-2 Neat | MP-2 Neat | DS-2 Neat | AL-2 1:100 | AN-2 1:100 | CF-2 1:100 | PP-2 1:100 | BP-2 1:100 |
| F | AL-1 1:50 | AN-1 1:50 | CF-1 1:50 | PP-1 1:50 | BP-1 1:50 | MP-1 1:50 | DS-1 1:50 | MP-1 1:100 | DS-1 1:100 | Empty | Empty | Empty |
| G | AL-2 1:50 | AN-2 1:50 | CF-2 1:50 | PP-2 1:50 | BP-2 1:50 | MP-2 1:50 | DS-2 1:50 | MP-2 1:100 | DS-2 1:100 | Empty | Empty | Empty |
| Н | Empty | Empty | Empty | Empty | Empty | Empty | Empty | Empty | Empty | Empty | Empty | Empty |

А



B

Figure 4: A 96-wells microtiter plate showing (A) template in which standard concentrations of BSA and various leaf extracts of three different dilutions were loaded; (B) Photograph of microtiter plate before taking absorbance at 595nm.

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Figure 5: Total protein estimation by Bradford's Assay. Bovine serum albumin (BSA) standard curve; and (B) Total protein content (mg/ml) in leaf extract of selected members of Fabaceae. Bar graph represent mean of triplicate readings for each sample \pm standard deviation (SD). Different letters on bars indicate samples tested were significantly different as determined from Tukey's HSD post-hoc tests.

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3. **RESULTS & DISCUSSION**

Total protein content (mg/ml) of seven selected members of Fabaceae was estimated using standard Bradford's assay. *Dalbergia sissoo* (DS1; 64.27 \pm 9.47 SD; mg/ml) and *Mimosa pudica* (1.72 \pm 0.09 SD; mg/ml) were reported to contain highest and lowest protein content among all tested species, respectively. Total protein estimates of seven tree species can be arranged in following descending order *Dalbergia sisso* (DS1) > *Pongamia pinnata* (PP1) > *Bauhinia purpurea* (BP1) > *Albizia lebbeck* (AL1) > *Acacia nilotica* (AN1) > *Cassia fistula* (CF1) > *Mimosa pudica* (MP1). Total protein content of *Albizia lebbeck* (AL1) and *Acacia nilotica* (AN1) were statistically similar. Likewise, total protein content of *Pongamia pinnata* (PP1) and *Bauhinia purpurea* (BP1) were statistically similar.

4. FUTURE SCOPE OF STUDY

Variations in total protein content among different members of Fabaceae can be explained as a function of age, genotype, and seasonality. Future experiments that use these total protein estimates such as qualitative estimation of total proteins in leaf tissues using SDS-PAGE, Native-PAGE; estimation of specific activity of proteinaceous bio-active compounds involved in herbivory etc. can be performed.

ACKNOWLEDGEMENTS

We thank RPAC, Kalindi College, University of Delhi for providing financial assistance and Prof. Sudeshna Mazumdar-Leighton, Department of Botany, University of Delhi for providing access to her research laboratory without which this work would not have been possible.

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ABSTRACT

Carbon nanotubes are effective gas sensors for sensing environment hazardous gases due to their unique physical and electrical properties. The functionalization of carbon nanotubes may lead to change in their sensing properties in terms of responsivity, selectivity and stability. In the current studies a review is done on functionalization of single walled carbon nano tubes (SWNT) with metal oxides. The effect of decoration with metal oxide on responsivity, selectivity, response time and recovery time of SWNT is studied with the understanding of their sensing mechanism. The advantages and challenges for their use as commercial environment gas sensors is also discussed.

Key Words: Single walled carbon nanotube, functionalization, metal oxide, responsivity, gas sensor

1. INTRODUCTION

The detection of environmentally hazardous gases which are released from industry, transport and agriculture has become a serious concern post pandemic. The increase in levels of NO₂, NH₃, H₂S and CO cause adverse effects on the breathing system of humans and animals. This has created a demand for efficient gas sensing devices [Xu et.al 2019; Aggarwal and Toshniwal 2019].Carbon nanotubes have been studied since decades for their use in sensing gases [Zhang et al 2008; Wang et al 2009; Rotkin and Subramoney 2005; Cammilli 2018; Chang and Lee 2001; Kumar et al 2017; Kumar et.al 2016; Aroutiounian 2015]. They exist in two forms-Single walled carbon nanotubes (SWNT) and Multi walled Carbon nanotubes (MWNT). SWNT are one-atom-thick layer of graphite rolled up into a seamless cylinder, while MWCNTs are made up of multiple layers of graphite which are wrapped up together to form a tube shape, sharing the same central axis, (fig.1)[Zhang et.al 2008; Wang et.al 2009]. The unique mechanical properties like high surface to volume ratio, diameter in nano range, excellent tensile strength and favorable electrical properties make both SWNTs and MWNTs promising candidates to be used as gas sensors [Zhang et.al 2008; Wang et.al 2009; Rotkin and Subramoney 2005].



Fig.1 Single and multiwalled Carbon nanotube [internet]

Single walled carbon nanotubes are p-type in nature. They show a drastic change in electrical properties when exposed to various gases (NO₂, NH₃, CO, H₂S, H₂) and hence can be used as gas sensors for detecting environment polluting gases [Chang and Lee 2001]. The gas molecules get adsorbed on the surface of SWNT and result in the change in surface energy due to intermolecular attractive forces. The adsorption of gas molecules largely depends on number of available sites, size of the gas molecule, surface area of bundles of SWNTs, binding energy etc. The sites created by defects often prove to be low energy sites and leads to enhanced gas sensing [Kumar et.al.2017]. The electron accepting gases e.g NH₃ and electron donating gases e.g. NO₂ cause changes in charge concentration and hence leads to changed resistance when interact with P type CNTs [Kumar et.al.2016]. SWNTs in its pristine form suffer challenges of high recovery time, low selectivity and responsivity [Kumar et.al.2017]. To increase their responsivity, selectivity and stability at room temperature, SWNTs are functionalized by metal ions, inorganic polymers, functional groups, metal oxides and are widely studied [Ellison et al 2004; Guo et al 2022; Rana et al 2017; Kanchanatip et al 2018; Zhang et al 2017; Hua and Shi 2007; Neeru et al 2020; Tang et al 2020].

The current study mainly focuses on the review of metal oxide functionalized SWNT, their functionalization procedure, operating temperature, responsivity, response time and recovery time. The study gives the light on influence of functionalization on sensing mechanism. The final conclusion is drawn on the basis of their advantages and challenges to be used as effective gas sensors.

2. FUCTIONALIZATION OF SWNT WITH METAL OXIDES

2.1 Functionalization with Fe₂O₃

Kim et.al (2018) prepared SWNT-Fe₂O₃ nanocomposites by facile synthesization technique using oxidative copolymerization (pyrrole and 3 carboxyllic acid (0.2% to 5%) and heat treatment. So prepared sensors proved to be stable at room temperature and good sensitivity for H₂S gas with best response at 3% carboxylic acid (Table 1). The results may be due to unique morphology of nano particles which avoided aggregation on carbon surface.

Huaa et al (2017) worked on SWNT and SWNT-Fe₂O₃ nanocomposite films. SWNT thin films were synthesized by chemical vapour deposition. SWNT-Fe₂O₃ nano composite films were prepared by simple annealing method on a flexible substrate. The prepared gas sensors were exposed to H₂S and NO₂ gases. As grown SWNTs showed no response on exposure to H_2S gas while SWNT-Fe₂O₃ nanocomposites showed a response of 3.7%, 11.3%, 15% and 17.3% and 18.3% for 1ppm, 10ppm, 20ppm, 50ppm and 100ppm of H₂S gas. The reaction between H₂S and Oxygen releases electrons which are adsorbed at the surface of Fe_2O_3 nanoparticles. These electrons when transferred to SWNT, increase its resistance as more electron-hole recombination lowers the concentration of holes in the sensor. SWNT-Fe₂O₃ nano composites when exposed to NO₂ gas (1-100ppm) results in larger decrease in resistance of the sample and hence increased responsivity as compared to as grown SWNT sensors. The reported response obtained for Fe₂O₃ decorated SWNT for 100ppm of NO₂ gas is 25% which is appreciably higher than 16.4% for as grown SWNTs. This was attributed to increase in number of locations in terms of both SWNT and Fe₂O₃ for NO₂ adsorption.

2.2 Functionalization with ZnO

Wassef. et al (2014) prepared ZnO/SWNT sensors by lithographic method. They obtained maximum response of 0.7 at room temperature for 1ppm NO₂ detection, however response increased at high temperature and at higher concentrations. Increase in porosity may be the cause for the increased response in functionalized samples. They tried to prepare sensors which can be used for museum walls in protecting archeological articles.

Barthwala et al. (2018) synthesized nanocomposites of SWNT-ZnO by wet chemical method. The responsivity is measured in terms of change in resistance on exposure to 50ppm, 100ppm, 250ppm, 500ppm and 1000ppm of NO₂ gas in temperature range 25° C to 300°C. The maximum responsivity of 9.6% was observed at 150°C with recovery time 100 s and response time 70 s for 1000ppm. The combination of n-type ZnO with p type SWNT shows improved sensing and mechanical properties as compared to their pristine counterparts.

Park et al (2019) worked on ZnO nanocluster functionalized SWNT by varying initial weight of ZnO as 0.5, 1, 2 64

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and 3% using microwave assisted synthesis technique. The defects were created by microwave assistance. The responsivity obtained for defect induced in 0.5ZSWNT and 1ZSWNT are 2.22 and 7.14 as compared to 1.55 in pristine SWNT at room temperature for NO₂ gas, while it decreases in 2ZSWNT and 3ZSWNT. An increase in selectivity can also be observed in ZSWNT for 5ppm exposure of SO₂, CO, C₂O₅OH, NH₃ gases at room temperature. The enhanced sensitivity and selectivity were attributed to formation of n-p heterojunctions between n type ZnO nano crystals and P- type SWNTs, formation of defects and catalytic activity of ZnO. These sensors are good performing low cost gas sensors.

Hybrid ZnO/ SWNT nanocomposites were synthesized by Alvi et al (2019) which showed a response of 150% for NH_3 (enhanced response as compared to SWNT with response of 80- 100%) gas with a recovery time of 8 to 10 second and response time of 4-5 second. The results may be attributed to increased number of sites for adsorption in functionalized samples.

2.3 Functionalization with SnO₂

The enhancement in responsivity of SWNT by decorating with SnO₂ prepared by chemical method had been studied [Neeru et al, 2020; Gupta et al, 2021; 2022a; 2022b]. An increase in responsivity was observed by Neeru et al, 2020 on exposure to NO₂ gas and NH₂ gas for concentrations 2ppm-100ppm at 23^{0} C. The results were attributed to formation of nano heterojunctions resulting in increased sensitivity. The enhancement in selectivity is also studied by Kumar et.al, 2021 in SnO₂ decorated SWNTs at room temperature. The obtained data for change in conductivity on exposure to NO₂ gas and NH₃ gas was also analyzed by theoretical isotherm models which indicated that increase in responsivity is due to more availability of active sites and increase in heterogeneity [Gupta et al, 2021]. On variation of SnO₂ concentration by 0.1mg, 0.2 mg and 1mg, an optimum response is obtained for 0.1mg which indicates that the higher amount of SnO₂ sabotage the working of SWNT and decrease the responsivity by its n type nature. Rate kinetic models' studies indicate that intraparticle diffusion is the underlying phenomenon for adsorption on NO₂ exposure to SWNT/SnO₂ nanocomposites [Gupta et al, 2022b]. Recovery time also showed an improvement in nanocomposites for 0.2mg and 1mg functionalization [Gupta et al, 2022b].

Mubeena et al, 2013 deposited SnO_2 on SWNT by electrochemical functionalization method by adjusting amount of charge. He exposed NH_3 , NO_2 , H_2 and H_2S gases. Enhanced responsivity is obtained for all the gases at 5 micro coulumb deposition of charge. (35% for 10ppm NH_3 , 15% for 250ppm H_2 , 40% for H_2S , NO_2). The increase in sensitivity is due to formation of Oxygen defects and availability of large surface area.

In research article by Hoa et al, 2009, SnO_2 is deposited on SWNT with varying thickness (50, 100, 200 nm) by sputtering method and then exposed to 60ppm of NO2 gas. The responsivity increased drastically from 45% (pure SWNT) to 650% for 50nm SnO_2 / SWNT. However, it is lesser for large thicknesses. This is attributed to the fact that volume portion of a property change is larger in thinner films.

To increase the responsivity and selectivity of SWNT/ SnO₂ nanocomposites, Myung et al, 2016 used small amounts of additives of Pd, Pt, Au and Ag. The sensors were exposed to toxic gases NH₃, H₂, H₂S and water vapour at room temperature. High increase in responsivity was observed for Pd decorated nanocomposites with 500% change in resistance obtained for 5ppm of H₂S gas. The catalytic adsorption of gases on Pd surface and formation of electro-active elements lead to such high values of responsivity. Pt showed the highest 550% increase in resistance on NH₃ exposure while 20% change for NO₂ gas.

2.4 Functionalization with Co₃O₄

Wei Li et al, 2010 first synthesized SWNTs by arc discharge method and then later prepared Co_3O_4 /SWNT nanocomposites by polymer assisted deposition method. Co_3O_4 nanoparticles were related to precursor solution. The response is measured in form of change in resistance for NO_x and H_2 gases. The NO_X gas (20-100ppm) was exposed to Co_3O_4 /SWNT nano-composites and response was observed in form of decrease in resistance as both SWNT and Co_3O_4 are P- type while NO_X is electron accepting in nature. High responsivity (~9% for 20ppm, 9.6% for 40ppm, 15.3% for 60ppm, 19.8% for 80ppm and 25% for 100ppm) at room temperature was obtained at all the concentrations which are greater than for pure SWNTs reported in literature. The pure SWNTs and Co_3O_4 /SWNT nano-composites were also exposed to 4% H₂ gas which resulted in increase in resistance due to electron donating nature of Hydrogen gas. The responsivity thus obtained is 15% in SWNT while 200% in composites. The observed responsivity for nanocomposites is much higher than Co_3O_4 whose response for H₂ gas was not even measurable at room temperature. The high increase in the responsivity was attributed to increase in resistance of nanocomposites from 10^2 (for pristine SWNT) to 10^8 ohm developing high capability of charge modulation and increased adsorption capability. Such characteristics are very suitable for devising gas sensors.

0.1% SWNT/Co₃O₄-SnO₂ sensors prepared by calcination method [Jang et al, 2008] increased the sensor response from 23mV (for Co₃O₄-SnO₂) to 192 mV for CO gas at 25^oC. Recovery and response time decrease with increase in temperature. Results are attributed to increase in number of active sites.

2.5 **Functionalization with TiO**₂

Fort et al, 2019 deposited TiO₂ nanoparticles from their liquid colloids on SWNT. The measured conductance on exposure to NO₂ gas (12ppm, 25ppm and 50ppm) showed a decrease due to P type nature of SWNT/TiO₂. The responsivity increases for TiO₂ functionalization to 20% at 240°C due to actual modification of SWNT by deposition of nanoparticles. However, SWNT/TiO₂ showed high sensitivity to relative humidity. Response and recovery time both decrease in TiO₂ decorated SWNT. It provides low cost and stable gas sensor at low temperature.

SWNT/TiO₂ [Marichy et al, 2015] were prepared by atomic layer deposition with varying thickness of TiO₂. The obtained response (108%) on exposure of 8ppm NO₂ is maximum at 5.5nm thickness of TiO₂ and at 150° C temperature. The results show p type nature of the composite towards NO₂. When thickness is reduced to Debye length, space charge layer gets fully developed and results in high sensitivity.

2.6 **Functionalization with In2O**₃

 In_2O_3 / SWNT FET were synthesized by one pot hydrothermal method and then exposed to 1-9ppm NO₂ gas at room temperature [Seoa et al, 2022]. The sensor showed a significant response factor of 3, however proved to be a good sensor with fast response and recovery time. The recovery time reduced from 1 hour for pure SWNT to 10 min for functionalized. The poly crystalline structure of In_2O_3 results in channel conductivity.

Rigoni et al, 2014 synthesized Indium tin oxide functionalized SWNT gas sensors bydeposition on plastic substrate. NH₃ gas exposure showed a 3 fold increase in responsivity w.r.t pure SWNT at room temperature with faster recovery time which form low cost and low power consumption gas sensor. Indium tin oxide reduces hole density and shifts fermi level by injection of more electrons. They make flexible, highly efficient environmental sensors which can detect ammonia at ppb level.

2.7 **Functionalization with WO**₃

Duy et al, 2015 prepared WO₃ by hydro thermal method and then mixed with CNTs. The so prepared gas sensors prove to be efficient for sensing NH_3 gas with very fast response and recovery time of a few seconds. Schotty hetero junctions are formed between CNT and WO₃ leading to good responsivity.

The Table 1 summarizes the reviews done on SWNT -metal Oxide nano composites, while Table 2 gives the

advantages and challenges.

Table 1: Summarized review of SWNT -metal Oxide nano composite

| Nano Comp osite | Preparati on method | Gases detected | Temper ature | Maximum responsivity | Recover and Response time | Inference on sensing mechanism | Ref |
|---|---|---|-----------------------|---|---|---|----------------------------------|
| SWNT- Fe ₂ O ₃ | Facile synthesization using oxidative co-polymeriza tion (pyrrole and 3 carboxyllic acid (0.2% to 5%) and heat treatment | 20ppm- 100ppm H ₂ S | 25°C | Response of 5% for 20ppm of H ₂ S and 9% for 100ppm of H ₂ S at 3% carboxylic acid. | - | Unique morphology of nano particles which avoided aggregation on carbon surface and led to good response | Kim et.al (2018) |
| SWNT- Fe ₂ O ₃ | simple annealing, prepared on flexible substrate | (i) H ₂ S (ii) NO ₂ (1,10 20, 50,100pp m) | RT | (i) Response Increases from 0 (pure SWNT) to18.3% (nano composite) for 100ppm of H₂S. (ii) increase from 16.4% (pure SWNT) to 25% (nano composite) for 100ppmof NO₂ | Response and recover time=300S | Increase in number of Locations in terms of both SWNT and Fe ₂ O ₃ for NO ₂ adsorption | Huaa et.al (2017) |
| SWNT/ ZnO | By lithographic method | NO ₂ (1, 10, 50, 250, 500,1000 ppm) | 25-300°C | maximum response of 0.7 at room temperature for 1ppm NO ₂ detection, however response increased at high temperature and at higher concentrations | High response and recovery time | Increase in porosity increases the response | Wassef . et al (2014) |
| SWNT/ ZnO | Wet chemical method | NO ₂ (50, 100, 250, 500, 1000ppm) | 25-300 ⁰ C | Maximum responsivity of ~9.6% at 150 ⁰ C for 1000ppm | Response Time=100S, Recovery time=100S | The combination of n-type ZnO with SWNT shows improved sensing and mechanical properties as compared to their pristine counterparts. | Barth wala et al (2018) |

| SWNT/ ZnO | Microwave induced defects with varying concentration of ZnO (0.5, 1, 2 and 3%) | (i)NO ₂ (ii) SO ₂ (iii) CO (iv) C ₂ O ₅ (v) NH ₃ (5ppm) | RT | Optimum response at 1ZSWNT (i) 7.2>1.55 in pristine (ii) 2.8 (iii) 1.98 (iv) 2.3 (v) 2.6 | Response time=200- 220 S Recovery time=385- 390 S | Formation of nano heterojun Tions, Modulation of conducting channel at th interface ar generation of defects which increase activisites | of Park c et al (2019)) ne d of re |
|---------------------------|--|---|------|--|--|--|---|
| SWNT/ ZnO | Hybrid nanocomp osites | NH ₃ | RT | Increase in response to 150% for Hybrid >100% for pure SWNT | Response Time=4-5S Recovery Time=8- 10S | Increase in number of sites | Alvi et. al. (2019) |
| SWNT/ SnO ₂ | Chemical method | (i)NO ₂ (ii) NH ₃ (1-100ppm) | 23°C | (i)Response of 129.5for SWNT/SnO ₂ >79.45 for pristine SWNT (ii)Response of 4.5for SWNT/ SnO ₂ >1.79 for pristine SWNT at 100pmm of gas for 0.1 SnO ₂ | Recovery time is maximum for $0.1mg$ SnO ₂ and then decreases with increase in SnO ₂ concentrati on | Increase in surface area, formation of nano- heterojunction s, increase in active adsorption sites | Neeru et al, 2020; Gupta et al, 2021; 2022a; 2022b; Kumar et.al, 2021 |
| SWNT/ SnO ₂ | Electroche mical functionali zation method by adjusting amount of charge | (i) NH ₃ (10ppm) (ii) H ₂ (250ppm) (iii) H ₂ S (20ppm) | RT | Optimum response for 5micro coulumb Charge (i) 35% (ii) 15% (iii) 40% | | Enhanced Sensitivity is due to Formation of Oxygen defects and increase in available surface area | Mubeena et al, 2013 |
| SWNT/ SnO ₂ | By Sputtering and varied thickness of SnO ₂ to 50, 100, 200nm | NO ₂ (60ppm) | RT | Maximum response of 650% for 50nm SnO ₂ /SWN T>45% pure SWNT | | Volume portion of a property change upon exposure to gases | Hoa et al, 2009 |

| SWNT/ SnO ₂ | Electro deposition of Pd, Pt, | (i) NH3 (ii) NO2 (iii) H2S | RT | (i) Pt showed the Highest 550% increase in | | Catalytic Adsorption of gases on Pd | Myung et al, 2016 |
|---|--|--|-----------------|---|--|--|--------------------------|
| | Au and Ag on SWNT/ SnO ₂ | | | resistance on NH ₃ exposure (ii) Pt Showed 20% change in resistance for NO ₂ (iii) Pd gave 500% increase in resistance for 5ppm of H ₂ S gas | | surface and formation of electro-active elements lead to such high responsivity | |
| SWNT/ Co ₃ O ₄ | Polymer assisted deposition | (i) NO _x (20, 40, 60, 80, 100ppm) (ii) H ₂ (4%) | RT, 250°C | At RT (i)~25% response for 100ppm of NO _x (ii) ~200% for SWNT/ $Co_3O_4>15\%$ for pure SWNT> 0% for Co_3O_4 At 250°C For H ₂ 1750% for SWNT/ Co_3O_4 | Recovery time is poor | Increase in resistance for 10^2 ohm (for pristine SWNT) to 10^8 ohm for functionalized leads to high capability of charge modulation and increased adsorption capability. | Wei Li et al, 2010 |
| SWNT/ Co ₃ O ₄ - SnO ₂ | Calcination | CO (20- 1000)ppm | 25-100°C | Maximum response increases from $23mV$ (Co ₃ O ₄ - SnO ₂) to 192mV at $25^{\circ}C$ | Recovery and response time decreases with increase in temperature | Response increases due to increased number of sites | Jang et al, 2008 |
| SWNT/ TiO ₂ | Dropcasting method and colloidal suspension | NO ₂ | 120°C- 240°C | At $120^{\circ}C$ 20% for 20% for $SWNT/$ $TiO_2 > 6\%$ for pure $SWNT$ At 240°C 580% for $SWNT/$ $TiO_2 > 9\%$ for pure $SWNT$ | Response time decreases from 4 min to 1 min on and recovery time decreases from 8 min to 3 min after addition of TiO_2 at $240^{\circ}C$ | Deposition of nano particle actually modify the SWNT material | Fort et al, 2019 |

| SWNT/ TiO ₂ | Atomic layer deposition with varying thickness of TiO ₂ | NO ₂ (8ppm) | 50°C to 250°C | Optimum response of 108% is obtained for 5nm thickness of TiO ₂ at 150° C. | - | When thickness is reduced to Debye length, space charge layer gets fully developed and results in high sensitivity. | Marich y et al, 2015 |
|---|---|------------------------------|------------------|---|---|---|----------------------------|
| SWNT/ In ₂ O ₃ | One-pot hydrother mal synthesis | NO ₂ (1- 9ppm) | RT | Response factor of 3 for 9ppm | Response time decreased from 1 h to 10 min after functionali zation. Recovery time is also low i.e. 10 min | The Polycrystallin e structure of In ₂ O ₃ results in high channel conductivity | Seoa et al, 2022 |
| SWNT/ Indium tin oxide | Deposited on plastic substrate | NH ₃ (200ppb) | RT | 3 fold increase in responsivity | Low recovery time | Indium tin oxide reduces hole density and shift fermi level by injection of more electrons | Rigoni et al, 2014 |
| SWNT/ WO ₃ | WO ₃ prepared by Hydro-ther mal method and then mixed with CNT | NH ₃ | RT | Sensitive to Ammonia gas | Fast response and recovery time of a few seconds | Between CNT and WO ₃ , Schotty barriers are formed | Duy et al, 2015 |

| Nano-composites | Advantage | Challenges | Ref |
|--------------------------------------|---|---|---|
| SWNT- Fe ₂ O ₃ | Good stability at room temperature, can detect H ₂ S which was not detected by Pristine SWNTs, High performance portable sensors, excellent cycle stability | High recovery time | Kim et.al(2018) ; Huaa et.al(2017) |
| SWNT/ZnO | Shows response to Number of gases, SO ₂ , CO, NH ₃ , NO ₂ , C ₂ O ₅ , significant responsivity and selectivity. Less response and recovery times, can detect small ppm of NO ₂ | More efficient working in terms of responsivity at higher temperature, limited response at lower temperature,Sensitive to humidity, only optimum concentration of ZnO can be added | Wassef et al, 2014; Barthwala et al, 2018; Park et al, 2019; Alvi et al, 2019 |
| SWNT/SnO ₂ | High responsivity for NH_3 and NO_2 gases as compared to pristine SWNT for a wide range of gas concentration (0.5ppm-100ppm) good selectivity, efficient and stable at room temperature, Low cost, Responsivity can be enhanced by additionof metal particles like Pt, Pd etc. Pd decoration also leads to efficient sensing of H_2S gas. Recovery time can be decreased by controlling SnO2 concentration. | The maximum responsivity is obtained at an optimum concentration/ thickness of SnO ₂ only. The sensors giving maximum responsivity may have higher recovery time | Neeru et al, 2020; Gupta et al, 2021; 2022a; 2022b; Kumar et.al, 2021; Mubeena et al, 2013; Hoa et al, 2009; Myung et al, 2016 |
| SWNT/ Co ₃ O ₄ | Very high responsivity for H ₂ gas at room temperature, increases with increase in temperature, Showsgood responsivity for NO _x , Low cost,efficient sensors | Poor recovery time at room temperature. | Wei Li et al, 2010 |
| SWNT/ TiO ₂ | Responsive to NO_2 and CO gases. Low cost | Highly sensitive to humidity, Challenges | Fort et al, 2019; Marichy et al, 2015 |

Table 2: Advantages and challenges of metal-oxide functionalized SWNTs

| | gas sensors with lesser recovery time and response time as compared to pristine SWNT | for low temperature working. | |
|--|--|---|--------------------|
| SWNT/ In ₂ O ₃ | Wearable gas sensors, stable at room temperature with faster recovery time and response time | Limited responsivity | Seoa et al, 2022 |
| SWNT/WO3 | Show sensitivity for NH ₃ gas at room temperature with fast response and recovery time of a few seconds | Limited responsivity | Duy et al, 2015 |
| SWNT/Indium tinoxide | Highly sensitive chemiresistor gas sensors for NH ₃ gas monitoring at ppb level with shorter recovery time at room temperature. Low cost, low power consumption. | Are sensitive to water vapours | Rigoni et al, 2014 |
| SWNT/ Co ₃ O ₄ -SnO ₂ | High responsivity for CO gas at room temperature | Low recovery and response time only at high temperature | Jang et al, 2008 |

3. **Conclusion**

Single walled carbon nanotubes when functionalized with metal oxides show improvement in responsivity and selectivity as gas sensor. Functionalization with metal Oxides leads to formation of nano heterojunctions and increase in availability of active sites for gas adsorption. SWNT when functionalized with Fe₂O₃ become sensitive to H₂S gas and prove to be stable efficient sensors at room temperature which are portable. ZnO functionalized gas sensors show sensitivity towards NO₂ gas at high temperature. Creation of defects by microwave assistance give them high selectivity for a number of gases, SO₂, CO, NH₃, NO₂, C₂O₅ at room temperature. However, they suffer negative effect of humidity and only optimum concentration of ZnO can be used. Hybrid ZnO/SWNT show high responsivity towards NH₃ gas which has a great advantage of very low recovery and response time. ZnO functionalized SWNT prepared by lithographic method show sensitivity towards lower ppm of gases at room temperature. SnO₂ decorated SWNT show good responsivity towards NO₂ and NH₃ gases at room temperature. SnO₂ concentration can be varied to get improvement in recovery time, however maximum responsivity occurs only at optimum amount of SnO₂. Addition of metal particles like Pd and Pt improve their sensitivity for H₂S and NH₃ gases. Indium tin oxide decorated SWNT show high responsivity for NH₃ gas with low recovery time. SWNT/Co₃O₄ are responsive to CO gas at room temperature, however show low recovery time at high temperature only. SWNT/Co₃O₄ are responsive to H₂ and NO_x gas at room temperature but give better results for responsivity and recovery time at high temperature.

SWNT/TiO₂ give good responsivity for NO₂ and CO gases, however they have challenge of working at room temperature and are very sensitive to humidity. Functionalization of SWNTs with In_2O_3 reduces recovery time a lot and gives reasonable sensitivity for NO₂ gases at room temperature. SWNT/WO₂ sensors show good responsivity for NH₃ gas and work at very low response and recovery time of a few seconds. All the metal oxide functionalized sensors are low cost durable sensors, however, as per the review modified SnO_2 functionalized sensors interms of adding metal additives, varying concentration of SnO_2 , combining SnO_2 with other metal oxides make them potential candidate for efficient room temperature stable sensors withimproved recovery and response time for the environmental hazardous gases. Lots of studies are still required for getting better recovery and response time of all the above sensors with high responsivity at room temperature.

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Effect of Molarity and Annealing on Structural and Magnetic Properties of MnFe₂O₄ nanoparticles

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ABSTRACT

Co-precipitation technique was used to create $MnFe_2O_4$ nanoparticles for different sodium hydroxide molar concentrations (1, 3M, 5M). X-ray diffraction (XRD), transmission electron microscopy (TEM), and a vibrating sample magnetometer (VSM) were used to characterise the structural, morphological, and magnetic properties of nanoparticles. The particles were spherical, as shown by the TEM image. The hysteresis loops of the nanoparticles had a relatively tiny area and small coercivity. The molar concentration of NaOH was observed to affect the crystallite size (d), density (ρ), lattice parameter (a), saturation magnetization, coercivity, retentivity, and squareness ratio. The fluctuation in magnetization was explained by the ratio t/d, where t is the thickness of the dead layer. The Squareness ratio indicates uniaxial anisotropy and incomplete coupling in all the samples.

Keywords: MnFe₂O₄, Saturation magnetisation, squareness ratio, Crystallite size, Coercivity

1. INTRODUCTION

Magnetic ferrite nanoparticles with regulated size and properties are quite appealing for various science and technological applications [1-3]. One of the most important soft magnetic materials among spinel ferrites is manganese ferrite (MnFe₂O₄), which has caught the attention of researchers due to its captivating qualities, including affordability, excellent chemical stability, high permeability, large saturation magnetization, and environmental friendliness [4-5]. As a result, it is frequently employed in various devices and processes, including microwave devices, sensors, transformers, filters, magnetic recorders, biomedicine, supercapacitors, and catalysis. [6-7]. Previous studies showed that the crystalline size, crystallinity, and shape of manganese ferrite nanoparticles, which could be manipulated during the production processes, were strongly correlated with their properties. [8-9] Additionally, annealing temperatures, oxidation environments, and various synthesis techniques all impact the magnetic characteristics of spinel manganese ferrite.

Spinel manganese ferrite nanocrystals have been made using a number of manufacturing techniques, including sol-gel, ceramic, hydrothermal, and co-precipitation [10–11]. Bhandare et al. effectively created $MnFe_2O_4$ nanoparticles by employing the sol-gel auto-combustion technique and reported the dissolution of $MnFe_2O_4$ into Mn_2O_3 and $-Fe_2O_3$ phases, which was followed by a fall in saturation magnetization after annealing in air at or above 600 °C [12]. The effects of pH in the range of 8–12 on the structural and magnetic characteristics of $MnFe_2O_4$ have been investigated by Puspitasari et al. It was found that the unsintered particles were amorphous and had saturation magnetization values of less than 3 emu/g. With a rise in pH, a reduction in particle size was

seen [13]. Ahalya et al. reported the highest M_S of 31.36 emu/g for the sample at a temperature of 600°C and a pH value of 11. They studied the effects of sintering (300 - 900°C) on samples at pH values of 8 and 11 [14]. With ammonia acting as a co-precipitating agent, Islam et al. reported that sodium hydroxide was unsuitable as a precipitating agent due to the formation of larger particle sizes, which contributed to the non-stable colloidal solution [15]. The particle size and M_S were also reported to increase with an increase in pH at 300 K and at a pH value of 12. In order to control the pH of the solution and, ultimately, the size of the nanoparticles, the concentration of the co-precipitating agent is highly important. There have been reports to change the properties of MnFe₂O₄ nanoparticles by annealing the nanoparticles. In the present work, MnFe₂O₄ nanoparticle have been annealed at 300°C for 1 hour in air. To observe the effect of molarity and annealing, the properties of both unannealed and annealed samples were studied. The techniques of XRD, TEM, and VSM methods have been used to analyse the samples.

2. EXPERIMENTAL

2.1. Synthesis

The co-precipitation technique was used to generate MnFe₂O₄ nanoparticles. Deionized water was combined with measured amounts of MnCl₂.4H₂O and FeCl₃ to create 1.0 M and 2.0 M solutions, respectively. The mixture of these solutions (sol. a) was heated to 60°C on magnetic stirrer. The solution of NaOH of 1.3M in deionized water was prepared, and then it was heated. This boiling NaOH was added to solution a. For two hours, this solution mixture was stirred magnetically at 85°C.

The product was extensively rinsed many times in deionized water before being thoroughly washed with ethanol. The material was then vacuum dried and processed with a mortar and pestle to produce powdered MnFe₂O₄ nanoparticles. For different NaOH concentrations, MnFe₂O₄ nanoparticles were produced using the aforementioned method. The samples were labelled as sample MF1, MF2 and MF5.0 and were formed for NaOH molar concentrations of 1.0M, 2.0M, and 5.0M respectively. All the samples were annealed at 300C for 1hour in air and the samples were labelled as MF1 300, MF2 300 and MF5.0 300 °C respectively.

The chemical reaction is as follows:

$$MnCl_2 + 2FeCl_3 + 8NaOH \quad \Box \quad MnFe_2O_4 + 8NaCl + 4H_2O \tag{1}$$

2.2. Characterization

To determine the crystal structure, shape, and magnetic characteristics, the samples were put through a variety of characterisation processes. The samples were subjected to X-ray diffraction (XRD) studies using CuK_{α} radiation (=1.5406Å) at 40 kV and 40 mA on the Ultima IV X-ray diffractometer for values between 10° and 80°. To examine the microstructure and morphology of the materials, transmission electron microscopy in a CRYO-TEM (TALOS) system was used. On polymer-coated copper grids, the TEM samples were made by adding a drop of an ultra-dilute nanoparticle dispersion to ethanol and drying them in the air. The hysteresis loop produced by the Microsense VSM model ADE-EV9 operating at room temperature was used to study the magnetic characteristics.

Additionally, the values of Coercivity (H_c), Remnant Magnetization (M_r), and Saturation Magnetization (M_s) were also calculated for all the unannealed and annealed samples.

Using the Debye-Scherrer formula [16], which is derived from XRD data, d is computed as follows:

$$d = \frac{0.9 \,\lambda}{\beta \cos \cos \theta}$$

where ($\lambda = 1.5406$ Å) is the X-ray wavelength, β is the full width at half maximum of the major diffraction peak expressed in radians, and θ is the Bragg angle of the strongest peak.

The relation of lattice parameter a is [16]:

$$a = \frac{\lambda \sqrt{h^2 + k^2 + l^2}}{2 \sin \sin \theta}$$

where (h k l) are plane indices for greatest intensity peak in the XRD pattern, can be used to compute the lattice constant a for various samples.

Using the following formula, the theoretical density has been computed [17].

$$\rho = \frac{8\,M}{N\,a^3}$$

where M is the molecular weight, N is the avogadro's number, and a³ is the cubic unit cell volume,

The magnetic properties of the samples were calculated from hysteresis loops of the samples.

3. **RESULTS AND DISCUSSIONS**

3.1. XRD studies

Fig. 1 displays the X-ray diffraction patterns of samples of $MnFe_2O_4$ produced for different molar concentrations of NaOH and at annealing temperature of 300 °C. Table 1 provides values for the lattice parameter (a), density (ρ), and crystallite size (d) as calculated from XRD patterns.

It was observed that samples with lower molarities < 0.8M do not show any spinel phase in their XRD patterns. This behaviour may be related to higher ion reactivity and concentration of ferric chloride compared to manganese chloride. The higher ion reactivity of ferric chloride is due to the fact that the electronegativity of iron (1.83) is higher than the electronegativity of manganese (1.55). The reflection planes (220), (311), (400), (333), and (440) in Figure 1 for the sample MF1 indicate the existence of MnFe₂O₄ with a face-centered cubic structure (Fd3m space group). The peaks fit nicely with JCPDS Data (#074-2403) and are in good agreement with the peaks reported in other investigations of manganese ferrite [18 -19]. No additional peak caused by an impurity was found. Peaks for sample MF3 had less intensity and were broader than peaks for sample MF1 indicating a decrease in crystallite size d, whereas sample MF5.0 was found to be amorphous. The crystallite size decreases with an increase in molar concentration. It seems that more nucleation sites are accessible for crystallite formation at greater molar concentrations, leading to a precipitate with more tiny particles.



Figure 1 XRD patterns of unannealed and annealed samples

| sample | cs (nm) | a (Å) | $\rho g/(cc^3)$ |
|---------|----------|-------|-----------------|
| MF1 | 26.03 | 8.46 | 5.07 |
| MF3 | 15.16 | 8.40 | 5.18 |
| | Amorphou | | |
| MF5 | s | - | - |
| MF1_300 | 23.51 | 8.31 | 5.33 |
| MF3_300 | 24.26 | 8.31 | 5.34 |
| MF5_300 | 38.61 | 8.36 | 5.25 |

Table 1 Crystallite size, lattice parameter and density of all the samples

Figure 1 also includes XRD of the samples annealed at 300C in the air for 1 hour. Crystallite size and lattice parameters are found to be less in annealed samples than in unannealed samples. Lattice parameters are comparable but lower than the value for the bulk compounds. The lower values of lattice parameters for crystalline samples with respect to bulk material are connected to the greater number of surface atoms driving the lattice to minimize the surface energy [20] Annealing of the sample leads to shifting of XRD peaks to the higher values of 20 which leads to decrease in lattice parameter. The density is observed to increase with annealing which is attributed to a decrease in crystallite size.

According to Puspitasari et al., all the unsintered samples prepared for pH of co-precipitating agent between 8 and 12 were amorphous, but after being sintering at 1000°C for three hours, the samples changed into crystals [13].

3.2. TEM studies

The TEM picture of the sample MF1 is displayed in Figure 2. The TEM micrographs show some isolated particles as well as some agglomerated particles. The crystallite size of MnFe₂O₄ nanoparticles appears to be comparable with the crystallite size determined from XRD. The picture shows the high magnetic interactions between the particles. The particles are observed to be spherical in shape.



Figure 2 TEM image of sample MF1

3.3 Magnetic studies

A variation of magnetisation with the applied field in the range from -10 kOe to 10 kOe at room temperature for samples MF1, MF3, MF5, MF1_300, MF2_300 and MF5.0_300 are shown in Figure 3. The variation of M_s , M_r , and H_c with the molar concentration of NaOH are shown in Figure 3 (a-c). These are also listed in Table 2 shows the values of M_s , M_r , and H_c for all the samples.



Figure 3. Variation of magnetisation with magnetic field for sample (a) MF1 and MF1_300, (b) MF3 and MF3_300 and (c) MF5 and MF5_300

Table 2 Magnetic parameters along with ratio t/d of all the samples

| Sample | Ms | Mr | Hc | $S = M_r/M_s$ | t/d | |
|--------|---------|---------|------|---------------|-----|--|
| _ | (emu/g) | (emu/g) | (Oe) | | | |

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| MF1 | 55.39 | 7.51 | 52.79 | 0.13 | 0.051 |
|---------|-------|------|-------|------|-------|
| MF3 | 52.84 | 6.69 | 47.94 | 0.13 | 0.057 |
| MF5 | 45.8 | 5.03 | 44.69 | 0.11 | 0.071 |
| MF1_300 | 41.29 | 641 | 62.43 | 0.15 | 0.081 |
| MF3_300 | 32.94 | 4.58 | 62.04 | 0.14 | 0.098 |
| MF5_300 | 34.8 | 5.03 | 44.69 | 0.14 | 0.094 |

Figure 3 shows that the hysteresis loops have a relatively tiny area, which suggests that the manganese ferrite materials experience a small hysteresis loss [21]. The magnetic response in $MnFe_2O_4$ is dependent on various parameters such as crystallinity, crystallite size cation distribution etc. [22]. The magnetization M_s and retentivity M_r decrease with an increase in the molar concentration of NaOH. Both M_s and M_r are less in annealed samples than unannealed samples.

The equation of saturation magnetisation M_s of nanoparticles can be expressed as [23]

$$M_S = M_{Sb} \left(1 - \frac{6t}{d} \right) \tag{5}$$

where M_{sb} denotes the saturation magnetisation of the corresponding bulk material, t is the thickness of the magnetically inactive layer and d is the crystallite size of the nanoparticles. Table 2 shows calculated values of t/d for all these samples. The table further supports the fact that the variation of M_s and M_r can be correlated with the ratio t/d.

The coercivity of $MnFe_2O_4$ nanoparticles decreases with an increase in molar concentration of NaOH and increases with annealing. The decrease in coercivity in unannealed samples with a molar concentration of NaOH and the increase in coercivity in annealed samples could be attributed to a decrease/increase in domain wall energy which restricts the free and simple motion of the domain wall. Table 2 shows that S has values in the range 0.11 – 0.15 (less than 0.5), which is explained based on the effects of the surface spin disorder. It shows that every sample has a multi-domain structure with uniaxial anisotropy and incomplete coupling.

4. CONCLUSIONS

The effect of the co-precipitating agent NaOH's molar concentration and annealing on the structural, magnetic, and optical characteristics of $MnFe_2O_4$ nanoparticles has been investigated. At extremely low molar concentrations, the samples became amorphous. Co-precipitation was used to create $MnFe_2O_4$ nanoparticles. The size of the crystallites and the lattice parameter decreased as the molar concentration of NaOH increased. XRD peaks of annealed samples shifted towards higher 20 values. The nanoparticles were spherical, as evidenced by the TEM pictures. The saturation magnetization, retentivity, coercivity, and squareness ratio depend on both the molar concentration of NaOH as well as annealing. The fluctuation in saturation magnetization and retentivity is connected with the ratio t/ d.

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वर्तमान हिन्दुस्तानी शास्त्रीय संगीत शिक्षण प्रणाली में परिवर्तनः विवेचनात्मक अध्ययन

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शोध सार

संगीत को सभी ललित कलाओं में सर्वश्रेष्ठ संगीत कला को माना है। क्योंकि अन्य ललित कलाओं का आनन्द केवल आंखों द्वारा देखकर ही उठाया जाता है जबकि संगीत कला को देखने के साथ.साथ सूनकर भी मानव दवारा आनन्द उठाया जाता है अर्थात संगीत का आनन्द अन्धे व्यक्ति भी उठाते हैं। संगीत ने न केवल मानव जाति को प्रभावित किया है अपित वनस्पति पेड़.पौधों तथा अन्य जीव.जन्तुओं को भी प्रभावित करता है। जैसेः सपेरे द्वारा बीन की धुन पर सृप का नृत्य एवं मंदारी द्वारा डमरू की आवाज पर बन्दर व बन्दरिया का नृत्य इत्यादि अनेकों उदाहरण हैं। परिवर्तन प्रकृति का नियम है तथा परिवर्तन से ही विकास सम्भव है। परिवर्तन हर क्षेत्र में होते आ रहे हैं चाहे वह विज्ञान का भौतिक विज्ञान का वाणिज्य का भौगोलिक विज्ञान का या फिर तकनीकी का क्षेत्र हो इसके अलावा सूचनाक्रांति के क्षेत्र जैसे रेडियो, टेलीविज़न, कंप्युटर, इन्टरनेट मीडिया इत्यादि के क्षेत्र अन्य कोई भी क्षेत्र हो सभी क्षेत्रों में परिवर्तन बहुत ही तेजी से हुए है और आगे भी होंगेे। इसी प्रकार सभी ललित कलाओं में भी पर्याप्त मात्रा में परिवर्तन देखने को मिला है । जैसे संगीत कला मूर्तिकला चित्रकला शिल्पकला हस्तकला उपयोग कला काव्य कला वास्तू कला इत्यादि सभी कलाओं के क्षेत्र में बहुत तेजी से परिवर्तन हुए हैं। इसी प्रकार संगीत कला में भी अनेकों परिवर्तन हुए हैं। हिन्दुस्तानी शास्त्रीय संगीत शिक्षण पद्धति भी एक है जिसमें अनेेकों परिवर्तन हुए हैंए जोकि स्वभाविक है। जैसे हिन्दुस्तानी शास्त्रीय संगीत शिक्षण पद्धति की गुरू शिष्य परम्परा गुरूकुल परम्परा तथा घरानों प्रणाली इत्यादि में संगीत शिक्षण की क्या स्थिति थी तथा अब वर्तमान संगीत शिक्षण संस्थानों की कैसी स्थिति है इसके बारे में विवेचनात्मक अध्ययन के द्वारा दर्शाने का प्रयास किया जा रहा है।

मुख्य शब्दः परिवर्तन, ललित कला, शास्त्र-पक्ष, क्रियात्मक-पक्ष, शिक्षण प्रणाली, सूचनाक्रांति, गुरूकुल, घराना,

संगीत शिक्षण संस्थाएं शिक्षण व्यवस्था, गुरूमुखी विद्या, वाद्ययन्त्र, गुरूशिष्य परम्परा, प्रयोगजीवी, प्रयोगशील श्रवणविद्या

संगीत के शास्त्र-पक्ष में परिवर्तन जैसा कि सब जानते हैं कि हिन्दुस्तानी शास्त्रीय संगीत के दो पक्ष है क्रियात्मक पक्ष एवं शास्त्रीय पक्ष। शास्त्र पक्ष की आवश्यकता संगीत के क्रियात्मक पक्ष और अधिक प्रबल बनाने के लिए महसूस हुई। जैसा कि मैंने अपने 'विद्या वाचस्पति' शोध कार्य के अध्याय-6 में पेज न. 112 पर पहले भी लिखा कि 'आवश्यकता आविष्कार की जननी' है। संगीत के क्रियात्मक रूप को और अधिक प्रबल बनाने तथा संगीत विद्यार्थियों को स्पष्ट रूप समझाने एवं सिखाने के लिए संगीत के शास्त्र पक्ष की आवश्यकता पड़ी इसलिए संगीत शास्त्र पक्ष भी प्रबल करना पड़ा। संगीत के क्रियात्मक रूप को सीखते हुए बहुत सीे ऐसी कठिनाईयों का सामना करना पड़ता है, जिनका समाधान, संगीत के शास्त्र पक्ष के बिना सम्भव नहीं हो सकता था, इसलिए संगीत का शास्त्र-पक्ष भी क्रियात्मक-पक्ष की तरह बराबर उपयोग में लाया जाने लगा, जिससे संगीत के क्रियात्मक पक्ष को अधिक स्पष्टता से समझना एवं समझाना आसान हो गया। जिसके परिणामस्वरूप आज सभी शिक्षण संस्थानों में संगीत के शास्त्र पक्ष की शिक्षा अनिवार्य हो चुकी है। अर्थात वर्तमान में हिन्दुस्तानी शास्त्रीय संगीत में जो स्थान क्रियात्मक पक्ष का है वहीं स्थान शास्त्र पक्ष को भी मिला है।

संगीत शिक्षण के पक्ष या रूप जैसा कि हम पढ़ते आए हैं कि हिन्दुस्तानी शास्त्रीय संगीत के दो पक्ष या रूप होते हैं प्रथम पक्ष शास्त्र-पक्ष है एवं द्वितीय क्रियात्मक-पक्ष। शास्त्र पक्ष संगीत का वह रूप है जिसमें विद्यार्थी पढ़कर तथा लिखकर सीखते हैं एवं क्रियात्मक-पक्ष के अन्तर्गत विद्यार्थी व्यवहारिक रूप से गुरू के मुख से सुनकर सीखते हैं या फिर किसी वाद्ययन्त्र को संगीत गुरू द्वारा हाथ से बजाकर सिखाया जाता है। हिन्दुस्तानी शास्त्रीय संगीत शिक्षण पद्धति के दोनों ही पक्षों में बहुत तेजी से परिवर्तन हुए हैं। पहले शास्त्र-पक्ष उतना प्रबल नहीं था, जितना कि क्रियात्मक-पक्ष। पहले लिखवाने की बजाय गुरूकूलों में क्रियात्मक रूप पर गुरूजन अधिक बल देते थे। चूँकि संगीत विद्या एक गुरूमुखी विद्या है इसलिए इसे गुरू के चरणों में बैठकर कठोर साधना से अनुशासन में रहकर ही सीखा जा सकता है। गुरूजनों एवं गुनीजनों की पहले से ही यही धारणा रही है कि गुरूजनों के साथ रहकर अत्यधिक कठोर साधना से और अनुशासन एवं शिष्टाचार में रहकर ही संगीत की शिक्षा ग्रहण की जा सकती है। "संगीत प्रयोगशील तथा प्रयोगजीवी कला है और इस कला का माध्यम ध्वनि-नाद है, जो लौटकर "श्रवणबोधी' रहता है, इसीलिए इस विद्या को 'श्रवणविद्या' कहा जाता है। अर्थात् उस जमाने में संगीत-शिक्षा प्रयोग द्वारा ही कार्यान्वित होती थी और उसका ग्रहण तथा अनुकरण प्रयोग द्वारा ही होता था। संगीत शिक्षा प्रणाली का इतिहास यानि ऐसी गुरू शिष्य परम्परा का इतिहास है। संगीत के इतिहास की अलग-अलग मंजिलों पर हमें संगीत पर लिखे गए ग्रंथों का भी आधार मिलता है। आज जिस प्रकार हम राग, बंदिश ताल, आलाप, तान, मुखडे, कायदे इत्यादि समूचे संगीत को स्वरलिपि लेखन के जरिये शब्दबद्ध और लेखबद्ध कर सकते है, वैसी कोई पद्धति पहले जमाने में विदयमान नहीं थी।(1)

गुरुकुलों में संगीत शिक्षण व्यवस्था

गुरुकुल संगीत शिक्षण पद्धति के अन्तर्गत शिष्यों द्वारा गुरू के मुख से कठोर अनुशासन में रहकर ही ग्रहण की जाती थी अर्थात संगीत की शिक्षा गुरूकुलों में गुरू के साथ रहकर उनकी सेवा करते हुए तथा कठोर नियमों का पालन करते हुए की जाती थी। गुरू-शिष्य परम्परा के अन्तर्गत ऐसे चुने हुए शिष्य ही संगीत सीखते थे, जिनमें संगीत के प्रति आकर्षण के साथ-साथ प्रतिभा, योग्यता, लगन, जुनून होता था। उनके सामने कलाकार बनने का लक्ष्य होता था। गुरू के प्रति श्रद्धा, भक्ति एवं समर्पण द्वारा संगीत की शिक्षा ग्रहण करते थे। दिन-रात गुरू के साथ रहने से उनमें संगीत के संस्कार स्वतः उत्पन्न होते थे। हर वक्त संगीत का वातावरण रहता था। संगीत सीखने, सुनने तथा साधना करने का पर्याप्त समय उनके पास रहता था। क्योंकि उस समय के गुरू एवं शिष्य दोनों विलासिता भरे जीवन से मुक्त रहते थे। उस समय के गुरू सिद्ध कलाकार, स्पष्टवादी तथा अपने शिष्यों को संगीत कला की तालिम पूरी ईमानदारी, लगन एवं मेहनत से देते थे। जिसके अन्तर्गत उनके रहन-सहन, खान-पान तथा संगीत साधना का पूरा ध्यान गुरूजनों द्वारा ही रखा जाता था। इस प्रकार दोनों तरफ से किए जाने वाले परिश्रम के परिणाम भी अच्छे होते थे। इस प्रणाली के अन्तर्गत आधुनिक प्रणाली की तरह पाठय्क्रम, पाठ्यपुस्तक, परीक्षा प्रणाली, विशेष साधन और सुविधाएं तथा संगीत की उपाधियों जैसा कुछ भी उपलब्ध नहीं था, फिर व्यक्ति अन्त में एक बहुत बड़ा एवं निखरा हुआ कलाकार बनकर निकलता था।

"पहले संगीत की दो मुख्य शिक्षण पद्धति होती थी। 1. व्यक्तिगत संगीत पद्धति 2. संस्थागत संगीत

पद्धति। व्यक्तिगत संगीत पद्धति को ही बाद में गुरूकुल संगीत पद्धति के नाम से जाना गया। लगभग 19वीं सदी के अन्त तक गुरूकुल संगीत पद्धति से ही संगीत की शिक्षा दी जाती थी। संस्थागत संगीत शिक्षण पद्धति का प्रारम्भ लगभग सन् 1880 के बाद जामनगर में आदित्यराम, बड़ौदा में मौलाबख्श तथा कोलकटा (प्राचीन हिन्दुस्तानी नाम कलकता) के सुरेन्द्र मोहन टैगोर इत्यादि के द्वारा किया जा च्का था।" (2)

गुरूकुल पद्धति

"संगीत शिक्षा प्रणाली पर विचार करने के सिलसिले में यदि हम भारतीय शिक्षा -पद्धति पर कुछ नज़र डाले तो ऐसा लक्षित होता है कि मूलतः हमारी शिक्षा -पद्धति आश्रमकेंद्रित गुरूकुल पद्धति ही थी। शिक्षा प्रदान करने का दायित्व ऋषिमुनियों का रहता था और यह कार्य उनके आश्रमों में चलता था। गुरू के निवास यानि आश्रमों में कुछ वर्ष रहकर तथा गुरू की सेवा करके विद्यार्थी को विद्यार्जन करना पड़ता था। शिक्षार्थी राजपुत्र हो या सामान्य नागरिक, आश्रम में शिक्षार्थी के नाते सभी का स्तर समान ही माना जाता था। पुराणकालीन एवं इतिहाकालीन ऋषिमुनियों के उल्लेख हमें जगह-जगह मिलते हैं। संगीत-शिक्षा की यहीं पद्धति गुरू-शिष्य परम्परा या प्रणाली के नाम से पहचानी जाती है।"3

गुरूकुल पद्धति के दोष एवं समस्याएं

यद्यपि गुरूकूल संगीत शिक्षण पद्धति अथवा गुरू-शिष्य परम्परा गुरूओं एवं शिष्यों दोनों के लिए बहुत कारगर सिद्ध हुई एवं बहुत लम्बे अर्से तक चली परन्तु फिर भी इसके कुछ दोषों के कारण इस पद्धति में प्रायः व्यक्तित्व का विकास नहीं हो पाता था, जिससे कलाकार एकांगी एवं सीमित होकर रह जाता था। समाज में प्रतिष्ठा पाने के लिए जिन गुणों की आवश्यकता होती थी उनका पूर्ण रूप से विकास ना हो पाने के कारण समाज से कटा हुआ सा रहता था। व्यक्तिगत योग्यता हो तथा संगीत में प्रयाप्त रूचि होने पर भी कभी-कभी शिष्य गुरू की व्यक्तिगत रूचि, राग द्वेष तथा मनमौजीपन का शिकार होकर संगीत की शिक्षा से वंचित रह जाता था।

प्रवेश सम्बंधी समस्या

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गुरूकुल में संगीत की साधना बहुत कठिन परीक्षा देने के बाद उन परिक्षाओं पर खरा उतरने के बाद ही शिष्यों के प्रवेश प्राप्त होता था, जिसके कारण कभी-कभी साधारण शिष्य लगभग फेल होने के कारण संगीत शिक्षा ग्रहण कर पाने से वंचित रह जाते थे या उन्हें लम्बे समय तक इंतजार करना पड़ता था। गुरूकुल में संगीत के क्रियात्मक पक्ष पर अधिक बल दिया जाता था, इसलिए विद्यार्थियों का क्रियात्मक पक्ष बहुत अधिक प्रबल हो जाता था, और एक मंजा हुआ कलाकर बनकर निकलता था, लेकिन शास्त्र पक्ष उतना प्रबल नहीं हो पाता था। गुरूकुल में संगीत की शिक्षण के दौरान कठोर नियमों का पालन करते हुए तथा शिष्टाचार का पालन करते हुए तथा गुरूकुल के नियमों को ध्यान में रखते हुए वहीं पर रहकर संगीत की शिक्षा ग्रहण की जाती थी, इसलिए शिष्यों अपने घर-परिवार से अलग रहना एवं बिछौड़ा सहन करना पड़ता था। उपरोक्त सभी कारणों से गुरू शिष्य परम्परा के साथ-साथ घराना संगीत पद्धति का विकास हुआ।

घरानों में संगीत शिक्षण व्यवस्था

गुरूकुल संगीत पद्धति से आगे चलकर घरानों की शुरुआत हुई। धीरे-धीरे परिवर्तन हुए और हिन्दुस्तान में कुछ बाहरी शक्तियों ने छल-बल से अपना प्रभुत्व स्थापित करने में कामयाब हो गए। जिसका हिन्दुस्तानी संस्कृति के साथ-साथ संगीत शिक्षण पर भी गहरा प्रभाव पड़ा। फलस्वरूप हिन्दुस्तानी संगीत की यह दुर्दशा हो गई कि खुलेआम संगीत का प्रचार-प्रसार एवं संगीत शिक्षण पर पाबन्दी लगा दी गई। जिसके कारण हिन्दुस्तानी संगीत गुरूजनों द्वारा अपने-अपने घरों में रहकर केवल अपने या अपने सगे-सम्बंधियों के बच्चों को सिखाया जाने लगा। जिसके कारण हिन्दुस्तानी संगीत पारदर्शिता समाप्त हो गई। घरों में संगीत सिखाए जाने के कारण ही 'घराना' शब्द की उत्पत्ति हुई। जिसके फलस्वरूप हिन्दुस्तानी संगीत शिक्षण के घरानों का जन्म हुआ। आगे चलकर हिन्दुस्तानी शास्त्रीय संगीत के अनेकों घराने विकसित हुए, जैसेः बनारस घराना, केराना घराना, लखनऊ घराना, आगरा घराना, ग्वालियर घराना, डुमराव घराना, दिल्ली घराना, पटियाला घराना, पंजाब घराना, तलवंडी घराना, जयपुर घराना, रामपुर सहसवान घराना, फरुखाबाद घराना, मेवाती घराना, भेंदीबाजार घराना इत्यादि घराने आज भी कायम है। उपरोक्त सभी घरानों का प्रतिनिधित्व अलग-अलग गुनिजनों द्वारा किया गया तथा आज भी सभी घरानों को उनके प्रतिनिधियों के नाम से ही जाना जाता है। जैसे केराना घराने का प्रतिनिधित्व भारतरत्ल पंडित शीमसेन जोशी ने किया, बनारस घराने का प्रतिनिधित्व पंडित शारदा सहाय, पंडित किशन महाराज तथा पंडित सामता प्रसाद ने किया, पटियाला घराने का प्रतिनिधित्व उस्ताद बड़े गुमाल अली खां ने किया, पंजाब घराने का प्रतिनिधित्व उस्ताद अल्ला रखा ने किया, ग्वालियर घराने का प्रतिनिधित्व उस्ताद बड़े इनायत हुसैन खां ने किया, जयपुर अतरौली घराने का प्रतिनिधित्व किशोरी अमोनकर ने किया, रामपुर सहसवान घराने का प्रतिनिधित्व उस्ताद हाफिज़ अली खां तथा उस्ताद वज़ीर खां साहब ने किया, मेवाती घराने का प्रतिनिधित्व सेनी बीनकार ने किया तथा शेंदी बाजार घराने का प्रतिनिधित्व उस्ताद अमान अली खां साहब इत्यादि ने किया।

हांलाकि उपरोक्त सभी घरानों में भी संगीत विद्यार्थियों के लिए प्रवेश आसान नहीं था, फिर भी गुरूकुल की भॉति संगीत के घरानों के नियम उतने कठोर नहीं थे। घरानों में उतनी कठोर परीक्षाएं नहीं होती थी, अतः गुरूकूल के अपेक्षा घरानों में प्रवेश थोड़ा सहज था और घराना प्रथा के अन्तर्गत शिष्य दिनभर या निर्धारित समय के अन्तर्गत अपनी संगीत शिक्षा को आसानी से प्राप्त करने के बाद अपने घर पर आ जाते थे। घरानों में संगीत के शास्त्र पक्ष को जरूरत के मुताबिक ही इस्तेमाल भी किया जाता है, इसलिए दोनों पक्षों पर समान रूप से ध्यान दिया जाता है। गुरूकुल की भॉति घरानों में भी संगीत शिक्षण के दौरान कठोर नियमों का पालन करते हुए तथा शिष्टाचार का पालन करते हुए तथा नियमों का पालन करते हुए साधना की जाती थी। परन्तु संगीत शिक्षण के बाद घर आने की आजादी थी। घर पर आने के बाद सभी विद्यार्थी अपने को सहज महसूस करते थे तथा कड़ी मेहनत से रियाज नहीं करते हैं, इसलिए विद्यार्थियों में असफता की सम्भावना बढ़ जाती थी। गुरूकुल की तरह घरानों में एक ही गुरू से सीखने को मिलता था। उसमें इतनी कठोर नियम नहीं होने के कारण उसमें थोड़ी बहुत पारदर्शिता होती थी, और अपने गुरू की आजा से वे अन्य कलाकारों का संगीत सुन भी सकते थे और अपना सुना भी सकते थे।

मुस्लिम शासन के उतरार्ध से चली आ रही गुरू-शिष्य परम्परा का स्तर गिरता चला गया। कुछ सामान्य अपवादों को छोड़ दे तो मुस्लिम शासक प्रायः संगीतनुरागी नहीं थे। उस समय कला और धर्म का गठबन्धन हो गया था, इससे मुस्लामानी धर्मप्रचार की दृष्टि से संगीतकला हिन्दु धर्म की द्योतक बन गई। फलस्वरूप मुस्लिमों के धार्मिक वर्चस्व स्थापित करने के अभियान में संस्कृति-रक्षक संगीत-कला और हिन्दुस्तानी कलाकार आक्रमण के शिकार बन गए। मुस्लिम शासकों के दरबारों में संगीत को जो स्थान मिला वह केवल मनोरंजन करनेवाली

वर्तमान हिन्दुस्तानी शास्त्रीय संगीत शिक्षण प्रणाली में परिवर्तनः विवेचनात्मक अध्ययन

और भोगविलास का पोषण करनेवाली कला के रूप में ही मिला। उच्च स्तर की तथा सुनिश्चित शास्त्रकार रखने वाली कला के रूप में संगीत का अध्ययन तथा अध्यापन हो इस पर पूर्वकाल में जो ध्यान दिया जाता था, उसका हास इस कालखंड में शीघ्र होने लगा। तदापि इस प्रकार के अध्ययन के लिए जिन छोटी-छोटी रियासतों में प्रोत्साहन मिल सका वहाँ पर गुरूशिष्य परम्परा के अनुसार संगीत-शिक्षण जारी रहा। संगीत को मनोरजंन तथा भोगविलास के साधन के रूप में देखने की प्रवृति के कारण यह कला ऐसे मात्र हल्के रंजन के पीछे पड़े हुए निम्न स्तर के लोगों के हाथ में पहुँची और उसकी शिक्षा भी केवल तांत्रिक बातों की तालीम देने तक सीमित रहने लगी।

घराना शिक्षण पद्धति के दोष

घराना शिक्षण पद्धति काफी लम्बे समय तक चली एवं हिन्दुस्तानी शास्त्रीय संगीत शिक्षण की प्रगति के लिए बहुत ही कारगर सिद्ध हुई, परन्तु इसके भी कुछ दोष रहे हैं, घराना संगीत शिक्षण पद्धति मंे रागों के स्वरूप में एवं तालों के बोलों में पारदर्शिता की कमी थी। अर्थात विभिन्न घरानों में सिखाए जाने वाले रागों के चलन में, गायन में प्रस्तुति के ढ़ग में स्वाभाविक रूप से थोड़ा-थोड़ा फर्क आता चला गया, फलस्वरूप पारदर्शिता समाप्त हो गई। इसी प्रकार तालों के बोलों में भी कुछ-कुछ परिवर्तन हुए जैसेः तीनताल के बोल कुछ घरानों में धा धिं धिं धा तथा कुछ घरानों में ना धिं धिं ना बोलते है, इस प्रकार अनेकों उदाहरण हैं, जिससे एक घराने के कलाकार को दूसरे घराने के तबला वादक की तालों को समझने में कठिनाइयों का सामना करना पड़ता था। दूसरा संगीत का शास्त्र पक्ष भी अधिक प्रबल नहीं होने के कारण क्रियात्मक पक्ष को समझना एवं समझाना कठिन कार्य था।

शिक्षण संस्थाओं में संगीत शिक्षण व्यवस्था

उपरोक्त सभी कारणों से संगीत शिक्षण के अधिक विकास हेतू विभिन्न विद्यालयों, महाविद्यालयों, विश्वविद्यालयों तथा विभिन्न संगीत संस्थाओं में संगीत को अनिवार्य किया गया। हिन्दुस्तानी शास्त्रीय संगीत को शिक्षण संस्थाओं तक पहुँचाने तथा उनमें लागू करवाने का श्रेय पूरी तरह से दो महान हस्तियों को जाता हैः 1 पंडित विष्णु दिगम्बर पुलस्कर तथा 2 पंडित विष्णु नारायाण शतखण्डे। जिन्होंने अनेक संगीत संस्थाएं खुलवाई एवं जगह-जगह जाकर संगीत का प्रचार-प्रसार किया। जिसके कारण हिन्दुस्तानी शास्त्रीय

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संगीत विश्वविद्यालयों एवं महाविद्यालयों में एक विषय के रूप में मान्यता मिली एवं आधुनिक समय में संगीत शिक्षण इतना आसान व सुलभ हो गया है कि एक आम संगीत शिक्षाभिलाषी के लिए भी संगीत शिक्षा ग्रहण करना काफी आसान हो गया है। हिन्दुस्तानी शास्त्रीय संगीत शिक्षण के लिए आधुनिक समय में विद्यालयों, महाविद्यालयों, विश्वविद्यालयों तथा अनेकों संगीत शिक्षण संस्थाओं का जाल पूरे भारत में बिछाया जा चुका है। भारत में हिन्दुस्तानी संगीत शिक्षण की अनेंको ऐसी प्राईवेट संस्थाऐ भी है, जिनमें शास्त्रीय संगीत शिक्षण के क्षेत्र में अपना-अपना महत्पूर्ण योगदान दे रही है। पहले संगीत की विभिन्न घराने होते थे, इसलिए संगीत शिक्षण में पारदर्शिता नहीं थी, लेकिन अब संगीत शिक्षण में काफी पारदर्शिता आ चुकी है, अब कोई भी व्यक्ति किसी भी घराने का संगीत सीख सकता है, समझ सकता है एवं समझा भी सकता है, क्योंकि सभी शिक्षण संस्थाओं ने विभिन्न घरानों के कलाकारों एवं गुनीजनों को एक साथ लाकर खड़ा कर दिया है।

जैसा कि डॉ. विद्याधर व्यास जी ने भी अपनी पुस्तक 'मुक्त संगीत संवाद' के 13वें अध्याय के पेज नं0 144 पर लिखा है कि "उपर्युक्त स्थिति निःसंदेह संगीत-शिक्षा के लिए एक गतिरोध बनकर रह गई थी। किन्तु ब्रिटिश शासनकाल में इस स्थिति में कुछ-कुछ परिवर्तन होने लगा। इन शासकों को भारतीय संस्कृति एवं संगीत के प्रति कोई खास आकर्षण और प्रेम तो नहीं था, किन्तु उसके प्रति द्वेष या वैरभाव भी नहीं था। ब्रिटिशों का हिन्दुस्तान में प्रवेश होने के फलस्वरूप पश्चिमी संस्कृति, मुक्त विचार पद्धति तथा सामाजिक शैक्षिणक संस्थाओं का जो उदय हुआ उसकी बदौलत यहां पर सामाजिक परिवर्तन के लिए एक ठोस पृष्ठभूमि तैयार हो गई। इसके साथ ही औद्योगिक क्रांति के कारण सामाजिक व्यवस्था में परिवर्तन होने लगा था। ऐसी परिस्थिति में संगीत तथा संगीत शिक्षा के क्षेत्र में परिवर्तन उपस्थिति करने वाले दो अग्रद्तों का लगभग एक साथ उदय हुआ-1 पंडित विष्णु दिगम्बर पुलसकर तथा 2 पंडित विष्णु नारायाण भातखण्डे।"4

उपरोक्त सभी बातों के बावजूद शिक्षण संस्थाओं के कुछ दोष हैं, जैसे विद्यालय, महाविद्यालय, विश्वविद्यालयों या अन्य संगीत शिक्षण संस्थानों की अपेक्षा विद्यार्थियों को गुरूकुल एवं घरानों में आसानी से बिना कठोर परीक्षा दिए प्रवेश मिल जाता था, क्योंकि उस समय आजकल के मुकाबले इतनी अधिक प्रतियोगिता नहीं होती थी। आज प्रतियोगिता इतनी बढ़ गई है कि चयनकर्ताओं को विद्यार्थियों के चयन में बहुत मेहनत-मशक्कत करनी पड़ती है, इसलिए मध्यम वर्ग के विद्यार्थियों को दाखिला मिल पाना बहुत मुश्किल हो गया Peer Reviewed

वर्तमान हिन्दुस्तानी शास्त्रीय संगीत शिक्षण प्रणाली में परिवर्तनः विवेचनात्मक अध्ययन

है। संगीत शिक्षण संस्थाओं में संगीत के क्रियात्मक-पक्ष के साथ-साथ शास्त्र पक्ष पर भी जोर दिया जाता है, इसलिए विद्यार्थियों का कुछ समय शास्त्र को याद करने में व्यतित हो जाता है, इसलिए क्रियात्मक का उतना अधिक रियाज नहीं हो पाता है। गुरूकुल एवं घरानों की भॉति संगीत शिक्षण संस्थानों के नियम लचीले होते हैं, अर्थात उतने अधिक कठोर नियम नहीं होते है तथा संगीत शिक्षण संस्थानों में विद्यार्थियों की संख्या भी बहुत अधिक होती है। इसलिए उतना अनुशासन भी नहीं रह पाता है। इसलिए संगीत शिक्षण संस्थानों से गुरूकुल एवं संगीत घरानों की अपेक्षाकृत कलाकार तो अधिक निकलते हैं परन्तु कम गुणवत्ता वाले कलाकार निकलते हैं। उसमें इतनी कठोर नियम नहीं होने के कारण उसमें थोड़ी बहुत पारदर्शिता होती थी, और अपने गुरू की आजा से वे अन्य कलाकारों का संगीत सुन भी सकते थे और अपना सुना भी सकते थे। इसके अलावा इन संस्थानों में समय-समय पर संगीत के प्रोग्राम भी होते रहने से भी पारदर्शिता बनी रहती है। गुरूकुल तथा घरानों की तरह संगीत शिक्षण संस्थानों में एक ही कक्षा में अलग-अलग प्रोफेसरों द्वारा जोकि अलग-अलग घरानों के होते हैं से सीखने को मिलता है, जिसे कारण विद्यार्थियों असमंजस की स्थिति बनी रहती है। जैसे कि एक ही कक्षा में विभिन्न घरानों के गुरूजनों द्वारा बताए गए रागों के स्वरूप व तालों के बोलों को लेकर है यह दुविधा बनी रहती है कि क्या सही है और क्या गलत है? घरानों में विद्यार्थियों को एक ही गुरू का अनुसरण करने के कारण वह उसके द्वारा दी गई शिक्षा में पूरी तरह निपुण हो जाते थे। उनमें कोई असमंजस की स्थिति नहीं होती थी।

आधुनिक संगीत शिक्षण पद्धति को और अधिक प्रबल बनाने हेत् कुछ सुझावः कुल मिलाकर आधुनिक समय में संगीत शिक्षण काफी आसान एवं सुलभ हो गया है, फिर भी इसमें सुधार की गुंजाईश एवं विचार करने योग्य अनेक विषय है, जिनका वर्णन करना आवश्यक हो जाता है। 1 संगीत के विषयगत स्तर का निर्माण एवं स्थायित्व हेत् प्राथमिक विद्यालय से अनिवार्य विषय के रूप में लागू करना चाहिए न कि ऐच्छिक विषय के रूप में, जिससे साधारण विद्यार्थियों का दिमागी भार कुछ कम हो सके। 2. साधना पक्ष (स्वर, ताल, लय) को प्रबल बनाने के लिए महाविद्यालयों एवं विश्वविद्यालयों में अतिरिक्त समय का प्रावधान होना चाहिए। 3. संगीत अनिवार्य विषय होने के साथ संगीत के अध्यापकों की नियुक्ति भी प्रयाप्त मात्रा में होनी चाहिए। 4. कक्षाओं में प्रवेश सम्बन्धी नियम लौचशील होना चाहिए। 5. एक कक्षा में विद्यार्थियों की संख्या अत्यधिक नहीं हानी चाहिए ताकि अध्यापक एवं विद्यार्थी आपस में स्वर को बारीकी से सुन पाएं एवं समझ पाएं। 6 शिक्षण संस्थाओं में पाठ्यक्रम की एकरूपता होनी चाहिए। 7. शास्त्रीय संगीत के नियमित पाठ्यक्रम में उपशास्त्रीय एवं हल्का

संगीत भी शामिल होना चाहिए। ८. ख्याल गायन के साथ-साथ ध्रुपद एवं धमार भी पाठ्यक्रम में शामिल होना चाहिए। 9. विभिन्न कक्षाओं के लिए पाठ्यक्रम का निर्धारण करते समय सरल से कठिन की ओर शुद्ध से मिश्रित की ओर या प्रचलित से अप्रचलित की ओर ध्यान देते हुए रागों का चयन होना चाहिए। 10. परम्परागत बंदिशों के साथ-साथ नवीन उत्कृष्ट रचनाओं का भी प्रयोग करते हुए सामाजिक परिवेश की अन्कूलता को ध्यान में रखते हुए अच्छे रचनाकारों एवं धार्मिक काव्य को भी प्रोत्साहन देना। 11. शोध-प्रबन्धालयों का पाठ्यक्रम के अनुसार प्रयाप्त शोध-प्रबन्धों से युक्त होना तथा शोध-प्रबन्धों का स्तर ऊंचा होना जो शोध-प्रबन्ध शोधात्मक दृष्टि से लिखी गई हों, जिनमें मौलिक विचारों का समनव्य हो, जिनमें ऐतिहासिक तथ्यों को प्रमाणित किया गया हो या अप्राप्य तथ्यों को संकलित किया गया हो, जो पाठ्यक्रम के अधिकांश भाग से सम्बन्धित हो तथा जिनकी भाषा सरल व सहज हो आदि। 12. संगीत वाद्ययन्त्रों की प्रयाप्त मात्रा में उपलब्धि तथा उनका शैक्षणिक प्रयोग। 13. क्रियात्मक एवं शास्त्र दोनों पक्षों में निपुण शिक्षकों की नियुक्ति होनी चाहिए। 14. तबला-पखावज तथा अन्य वाद्ययन्त्रों के वादकों की पर्याप्त मात्रा में नियुक्ति। 15. परम्परागत शिक्षण स्वरूप को अपनाते हए आधुनिक परिवेश में शिक्षा का नवीनीकरण होना चाहिए, 16. संगीत शिक्षक के लिए मनोविज्ञान, सौन्दर्यशास्त्र, वादय विज्ञान, कंठध्वनि के विज्ञान, दर्शन तथा अध्यात्म विषयों के प्राथमिक ज्ञान मे**े**ं परिचित होना। 17. ललित कलाओं के रचनात्मक व सौन्दर्यात्मक केन्द्रों की सामंजस्यता से शिक्षकों का परिचित होना। 18. शिक्षकों के अतिरिक्त स्नातक व स्नातकोत्तर पर धरानेदार उस्तादों विशेष कौशल युक्त शिक्षकों की विशेष नियुक्ति करना। 19. शिक्षक का शैक्षणिक गुणों से सम्पन्न होने के साथ-साथ व्यवहारिक एवं स्वच्छ वयैक्तित्व तथा चरित्रवान वाला होना चाहिए। 20. संगीत शिक्षा के सांस्कृतिक महत्व पर बल देना। 21.संगीत शिक्षा के उद्देश्य निर्धारण के अन्तर्गत संगीत के प्रचार-प्रसार के साथ-साथ योग्य शिक्षक, कलाकार, श्रोता, आलोचक, शोधक, शास्त्रकार आदि उत्पन्न करना व समाज को नैतिक उत्कर्ष की ओर ले जाना आदि तत्वों का समावेश।

सन्दर्भ ग्रंथ

[1] मुक्त संगीत संवाद-डॉ. विद्याधर व्यास (अघ्याय-13 संगीत शिक्षणः स्थिति एवं अपेक्षा पेज न. 144)

[2] संगीत शिक्षण के विविद्य आयाम-डॉ . कुमार ऋषितोष (अघ्याय-6 पेज न. 116 से 138)

[3] मुक्त संगीत संवाद-डॉ. विद्याधर व्यास (अघ्याय-13 संगीत शिक्षण स्थिति एवं अपेक्षा पेज न.

143)

[4] मुक्त संगीत संवाद के अघ्याय-13 के पेज न. 144 पर - डॉ. विद्याधर व्यास।

विभिन्न संगीत विद्वानों के साथ साक्षातकार की सहायता से।

[5] प्रो. डॉ. राजीव वर्मा जी, संगीत एवं ललित कला संकाय, दिल्ली विश्वविद्यालय के निर्देशन से।

[6] प्रो. डॉ. शैलेन्द्र गोस्वामी जी, संगीत एवं ललित कला संकाय, दिल्ली विश्वविद्यालय के

मार्गदर्शन में ।

तेजेन्द्र शर्मा की कहानियों में प्रवासी जीवन की चुनौतियां :

एक अध्ययन

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शोध सार

कथाकार तेजेन्द्र शर्मा अपने कथा-साहित्य में मौलिकता और विशिष्टता की चमक के साथ अपनी कहानियों में यथार्थपरक समस्याओं को दिखाने का जोखिम उठाते रहे हैं। तेजेन्द्र शर्मा जी लंदन बसने के बाद भी वहाँ के समाज, चाहे वह भारतीय हो या पश्चिमी, इन्होंने उसको निकटता से देखा और समझा। तेजेन्द्र जी ने अपने जीवन व लेखन के अनुभव से मानवमन की चित्तवृति को समझते हुए सूक्ष्म विश्लेषण करते हैं। इनकी अधिकतर कहानियां इनके स्वानुभव का हिस्सा रही जिसमें कल्पना का पुट डाल एक निश्चित लक्ष्य तक पहुँचाया गया है। इनकी कहानियों में प्रवासी भारतीय समाज का विशद, व्यापक और सजीव चित्रण किया गया है।

बीज शब्द - प्रवासी ,चुनौतियाँ,पश्चिमी संस्कृति,भारतीय संस्कृति

प्रसिद्ध आलोचक कमल किशोर गोयनका लिखते भी हैं कि- ''भारतेत्तर देशों में भारतवंशियों के इस हिंदी साहित्य ने अपना एक भरा-पूरा संसार निर्मित किया है और उसके आकार, मात्रा एवं स्तर में निरन्तर वृद्धि हो रही है। इस प्रवासी साहित्य ने अपनी विशिष्ट पहचान बनायी है, क्योंकि वह अपनी संवेदना, सरोकार, जीवन-मूल्यों एवं रूप-रचना में अपनी अलग विशिष्टता रखता है"1।

तेजेन्द्र जी के एयर इंडिया में नौकरी तथा बाद में लंदन बसने के कारण देश-विदेश में बसे भारतीयों के जीवन की समस्याओं का इन्होंने बारीकी से निरीक्षण किया है। तेजेन्द्र जी अपनी कहानियों में मानवीय संवेदनाओं और विद्रूपताओं को प्रस्तुत करते हुए जिस समाज में रह रहे हैं उसकी मनोवैज्ञानिक ढंग से व्याख्या भी करते हैं। तेजेन्द्र जी को शहरी ठाठ का कथाकार कहा जाता है। इन्होंने समकालीन जीवन की ज्वलंत समस्याओं, चुनौतियों और त्रासदियों को प्रस्तुत किया है। इन्होंने भारतीय व पाश्चात्य मूल्यों की टकराहट एवं संस्कृति के क्षरण को भी उजागर किया है। इन्होंने अपनी कहानियों में दर्शाया है कि परदेस में जाने वाले भारतीय शारीरिक रूप से ही नहीं जाते बल्कि अपने साथ अपने देश की संस्कृति व जीवन-मूल्य भी लेकर जाते हैं। विदेशी धरती पर अपनी धरोहर को सहेज कर रखते हैं।

शशि पाधा जी लिखती हैं- "विदेशों में जाने वाले भारतीय वहाँ केवल शारीरिक रूप से नहीं जाते। अपने भौतिक सामान के साथ वे अपने मन की गठरी से चुपचाप अपनी संस्कृति, जीवन मूल्य और परम्पराएं बाँध कर ले जाते हैं और विदेशी धरती पर बड़े यत्न से इस धरोहर के रक्षण और संवर्धन में जुटे रहते हैं"2

भारतीयों का विदेश जाना तथा विदेशी परिवेश में निवास करने से प्रवासी भारतीयों की मानसिकता में परिवर्तन यथा सामाजिक, आर्थिक, सांस्कृतिक तथा भावनात्मक देखा जाता है। प्रवासी साहित्यकार प्रवासी भारतीयों का चित्रण करते हुए प्रवास में उनकी समस्याओं को अपनी कहानियों में पात्रों व चरित्रों के माध्यम से प्रस्तुत करते हैं।

''लेखक जहाँ सांस लेता है, उस परिवेश के प्रभाव से अछूता नहीं रह सकता। एक तरह से वह उसमें रच-बस जाता है। प्रवासी रचनाओं की यही विशेषता है। नए अनुभव संसार, नए संघर्ष, नए माहौल और नई सोच की अभिव्यक्ति से लिप्त रचनाओं का जो योगदान वैश्विक रचनाकार हिंदी साहित्य को दे रहे हैं, उससे वह समृद्ध ही होगा। नए देश, परिवेश की विद्रपताओं, विसंगतियों से दो-चार होते हए, यहाँ के संघर्षों और समस्याओं को आत्मसात करते वैश्विक चिंताओं और संबंधों को नए स्वरूप में प्रस्तुत करते हैं"3 मनुष्य में प्रवास की प्रवृति चिरंतन काल से चली आ रही है। विदेश मंत्रालय भारत सरकार की वर्ष 2018 की रिपोर्ट के अनुसार, भारतीय प्रवासियों की संख्या विश्व में सबसे अधिक है। वर्तमान में 3 करोड़ 20 लाख भारतीय भारत से बाहर रहते हैं। इसमें यूनाइटेड किंगडम में लगभग 18 लाख लोग रहते हैं जो वहां की जनसंख्या का 2.3% है। सामाजिक, राजनीतिक, भाषायी, नस्ल, शिक्षा, रोजगार आदि विभिन्न आयामों की दृष्टि से ब्रिटिश भारतीयों की स्थिति कई स्तरों पर बटी हुए है। वर्तमान में जहां एक ब्रिटिश भारतीय ब्रिटेन के प्रधानमंत्री हैं वहीं अन्य प्रवासी भारतीयों को मूलभूत जरूरतों के लिए भी कठिन संघर्ष करना पड़ता है। प्रवास में मनुष्य एक स्थान से दूसरे स्थान पर स्थानान्तरित ही नहीं होता बल्कि एक सांस्कृतिक संरचना से दूसरी सांस्कृतिक संरचना में भी उसका स्थानान्तरण होता है। आधुनिक परिप्रेक्ष्य में प्रवासी लेखन के माध्यम से प्रवासी जीवन का ब्यौरा हमारे समक्ष प्रस्तुत होता है। तेजेन्द्र शर्मा ने भी अपनी कहानियों के माध्यम से प्रवासी भारतीय समाज की समस्याओं और चुनौतियों को जीवंतता के साथ प्रस्तुत किया है। इसी क्रम में प्रसिद्ध प्रवासी कथाकार सुषम बेदी ने भी अमेरिका में भारतीय प्रवासियों के संघर्ष, दुख और भेदभाव का मनोवैज्ञानिक सजीव चित्रण किया है। सुषम बेदी की कहानी 'एक अधूरी कहानी' में अमेरिका में पुलिस द्वारा अश्वेत लोगों के प्रति दुर्व्यवहार और अविश्वाश की कारुणिक कहानी कहती है। वही लेखिका की कहानी 'आसमान पर पाँव ' में विवाह के बाद भारत से अमेरिका पहुँची हेमा को भारतीय और पाश्चात्य संस्कृति के संघर्षों

जासमान पर पार्व में वियाह के बाद मारत से अमारका पहुंचा हमा का मारताव आर पाछारव संस्कृत के संवय से गुजरती दिखाई देती हैं। प्रवासी भारतीय समाज की चुनौतियों को तेजेन्द्र शर्मा की कहानियों के परिप्रेक्ष्य में निम्न बिन्दुओं द्वारा समझा जा सकता है।
नस्लवादः-

नस्लवाद को निम्न परिभाषाओं द्वारा समझा जा सकता है ''नस्लीय भेदभाव किसी भी व्यक्ति के साथ त्वचा के रंग या नस्लीय या जातीय मूल के आधार पर कोई भी भेदभाव है। व्यक्ति एक निश्चित समूह के साथ व्यापार करने, उनके साथ सामूहीकरण करने या संसाधनों को साझा करने से इंकार करके भेदभाव कर सकते हैं।'' नस्लवाद के लिए अन्य विचार इस प्रकार है। ''नस्लवाद या प्रजातिवाद एक सिद्धान्त या अवधारणा पर कार्य करता है जिसमें एक नस्ल या जाति अपने को दूसरी से श्रेष्ठतर या निम्नतर

मानती है"।5

नस्लवाद का शिकार भारतीय लोग पश्चिमी लोगों द्वारा होते रहे हैं। जहाँ काले व गोरे रंग का भेदभाव किया जाता हैं जिसमें गोरे रंग को काले रंग से श्रेष्ठ माना जाता है। काला रंग गुलामों का तथा गोरा रंग मालिक का प्रतीक मान लिया जाता था। अपितु आज आधुनिक युग में विदेशी परिवेश में भी सैद्धांतिक रूप से इसकी अनुमति नहीं है परन्तु व्यावहारिक स्तर पर नस्लवाद को प्रश्रय दिया जाता है। विदेशों में जिन लोगों की मानसिकता में नस्लीय भेदभाव कूट-कूट कर भरा है वह भारतीय मूल के लोगों की पीड़ित करने की कोशिश करते हैं। हालांकि कई भारतीय इसके शिकार भी होते हैं। नस्लवाद का सबसे चर्चित उदाहरण महात्मा गांधी का है, जिन्हें दक्षिण अफ्रीका में अंग्रेजों द्वारा भारतीय होने के कारण चलती ट्रेन से बाहर फेंक दिया गया था। विश्व का इतिहास नस्लवाद के शिकार लोगों की घटनाओं से भरा हुआ है। तेजेन्द्र जी ने भी अपनी कुछ कहानियों में नस्लवाद के शिकार भारतीयों की पीड़ा को दर्शाया है।

तेजेन्द्र शर्मा की कहानी 'हाथ से फिसलती जमीन' के नायक नरेन भारत के जातिभेद से त्रस्त होकर लंदन आयें थे ताकि उनकी प्रतिभा का सही मूल्यांकन हो सके। परन्तु यहाँ अपनी अंग्रेज पत्नी जैकी तथा परिवार के अन्य सदस्यों से रंगभेद के कारण उपेक्षा का शिकार बनते हैं। नरेन की पत्नी जैकी नरेन को बच्चों से दूर रखती है तथा नरेन को बच्चों के स्कूल भी नहीं जाने देती है, जैकी को लगता है कि नरेन के स्कूल जाने पर उसकी ओर बच्चों की बेइज्जती हो जाएगी। ''वो क्या है कि उसके स्कूल में अधिकतर बच्चे गोरे मूल के हैं। जब तुम स्कूल जाते हो तो बाद में बच्चे जै का मजाक उड़ाते हैं"6 नरेन से जब उनकी पोती एंजेला नरेन का रंग अलग होने का कारण पूछती है तो नरेन का दिल छलनी हो जाता है। ''ग्रैडपा, आपके हाथ इतने काले

क्यों हैं?... आपका रंग मेरे जैसा सफेद क्यों नहीं है?... आप मुझसे इतने अलग क्यों दिखते हैं?"7 नरेन का परिवार पत्नी, पोते-पोती, नाते-नातिन से भरा होने का बावजूद वह उपेक्षा और अकेलेपन का शिकार होने के लिए मजबूर है। इस प्रकार कहानी 'मुझे मार डाल बेटा' में बताया जाता है कि भारतीय मूल के योग्यता प्राप्त लोगों को भी उच्च पद न देकर उसके लिए गोरे लोगों को ही प्राथमिकता दी जाती है। ''इंग्लैंड में भारतीय मूल के लोगों को हाथ के काम लाने वाले क्षेत्र में तो आसानी से काम लिया जाता है, परन्तु जहाँ कहीं प्रबंधन या उससे ऊपर की बात होती है तो गोरी चमड़ी एक अनिवार्य योग्यता बन जाती है। आपसे कहीं कम पढ़े-लिखे गोरे लोग वाया भटिंडा आपसे आगे कूदते-फाँदते निकल जाते हैं"8 ''मैंडी चिल्ला रही थी लेकिन उस कब्रिस्तान में अधिकतर मुर्दे ब्रिटिश राज के लोग थे, इस बात के शायद आदी थे कि एक गोरा युवक एक भारतीय मूल की लड़की के साथ जबरदस्ती कर रहा है।"9

भारत में उपनिवेशकाल से अंग्रेजों द्वारा भारतीयों को निम्नतर मानने की मानसिकता चली आ रही हैं जिसके अंश आज भी मिल जाते हैं। जेम्स मैंडी को अकेला छोड़कर चला जाता हैं मैंडी जैसे-तैसे अपने घर पहुँचती है। मैंडी के पिता दारजी मैंडी की हालत देख सकते में आ जाते हैं। दारजी मैंडी को हाउन्सलो पुलिस स्टेशन ले जाते हैं। वहाँ पर उनको अपनी रिपोर्ट लिखवाने के लिए प्रतीक्षा करनी पड़ती है। लेकिन जब दारजी देखते हैं कि एक अंग्रेज महिला रिपोर्ट लिखवाने आती है तो उसकी रिपोर्ट तुरन्त लिख दी जाती है, जबकि दारजी पिछले एक घण्टे से इंतजार कर रहे थे। दारजी पुलिस अधिकारी का डाँटते हैं- ''ऑफिसर, तुम्हें इस तरह हमारी बेइज्जती करने का कोई अधिकार नहीं। हम भी इस देश के टैक्स अदा करने वाले बाइज्जत शहरी हैं। मैं भी काउंसिल में ऊँचे पर पर काम करता हूँ। मुझे आपकी रिपोर्ट आपके ऊँचे अधिकारी से करनी पड़ेगी। आपका यह रेसिस्ट ऐटिट्यूड ही पुलिस की बदनामी का बायस है"10

यहाँ अंग्रेज पुलिस अधिकारी को उम्मीद नहीं थी कि ये भारतीय मूल का व्यक्ति उसे अंग्रेजी भाषा में डांटेंगा उसने तुरंत रिपोर्ट लिखी यहाँ दारजी को अपने अधिकार के लिए संघर्ष करना पड़ा। कहानी 'रेत का घरौंदा' में दीपा और नेल्सन ने प्रेम विवाह किया था। भारतीय मूल की दीपा और लंदनवासी अंग्रेज नेल्सन का विवाह ज्यादा दिन टिक नहीं पाया क्योंकि नेल्सन की माँ को भारतीय मूल की लड़की बहू के रूप में स्वीकार नहीं थी। वह दीपा का नीचा दिखाने का कोई अवसर नहीं छोड़ती थी। ''नेल्सन की माँ मुझे बार-बार याद दिलाती थी कि उसका पिता भारत में अफसर हुआ करता था और उन दिनों रेस्टोरेंट में भारतीयों और कुत्तों को अंदर आने की अनुमति नहीं होती थी। आज एक भारतीय उसकी बहू थी.... उसके लिए तो डूब मरने की बात थी। उसने अपने रिश्तेदारों से मिलना जुलना तक बंद कर दिया था।"11

नेल्सन की माँ दीपा को अपने परिवार के लायक नहीं समझती थी और इसी कारण दीपा और नेल्सन के बीच कटुता आ जाती है जिसकी क्रियान्वित संबंध विच्छेद के रूप में होती है। नेल्सन की माँ का नस्लीय भेदभाव दीपा के विवाह को तोड़ देता है। कहानी 'चरमराहट' में साम्प्रदायिक नस्लवाद को दिखाया गया है। कहानी में इन्द्रमोहन तिवारी जाति व धर्म से ऊपर उठकर मानव धर्म में विश्वास करता है, इसलिए उसने अपना नाम बदलकर आई.एम. हिन्दुस्तानी रख लिया है। वह सऊदी अरब के जेद्दाह में नौकरी करने चला जाता है। परन्तु वहाँ पर साम्प्रदायिक नस्लवाद का विभत्स रूप देखता है। ''वहाँ उसने विभिन्न स्तरों पर भेदभाव देखा। पहला फर्क तो मुस्लिम और गैर-मुस्लिम में था। मुस्लिमों में सऊदी और गैर-सऊदी का फर्क था। अरबी और गैर-अरबी मुसलमानों में अन्तर था। अमीर और गरीब देशों के मुसलमानों में अंतर था। फिर गैर-मुस्लिमों में चमड़ी का अंतर था- यानि गोरा और काला।"12 नस्लवाद बड़े पैमाने में विभिन्न स्तरों में देखा जा सकता है। भारत में यदि जातिवाद ने मनुष्यों के बीच विभेद किया है तो वैश्विक स्तर पर नस्लवाद या रंगभेद मनुष्यता का क्षरण कर रही है। इस नस्लवाद से प्रवासी भारतीय समाज किसी न किसी रूप में पीड़ित होता है। प्रवासी जीवन में यह एक चुनौती व समस्या के रूप में उन्नति और प्रगति में बाधा का काम करती है।

नॉस्टेल्जियाः-

नॉस्टेल्जिया को हिंदी के समनार्थी शब्दों गृह-विरह या गृहातुरता के रूप में भी समझ सकते हैं। गृहातुरता एक विशेष प्रकार की भावना है। ''गृहातुरता एक विशेष प्रकार की मानसिकता है। गृहातुर व्यक्ति प्रायः किसी

पुराने समय या स्थान से संबंधित अपनी मधुर स्मृतियों के आते ही उसकी प्रशंसा करने लगता है।"13 व्यक्ति में अपनी जगह या स्थान से दूसरी जगह या स्थान पर प्रवासित हो जाने पर एक द्वन्द्वात्मक स्थिति उत्पन्न हो जाती है, जिसमें वह अपने मूल स्थान को याद करता है और जहां वह आया है उसे पूरी तरह अपना भी नहीं पाता। ऐसी स्थिति को नॉस्टेल्जिया कहा जाता है। तेजेन्द्र जी की कुछ कहानियों में नॉस्टेल्जिया से पीड़ित पात्रों को देखा जा सकता है।

कहानी 'पासपोर्ट का रंग' में स्वतंत्रता सेनानी गोपालदास भारत से लंदन अपने पुत्र इंद्रेश के साथ आ तो गए हैं, परन्तु उन्हें अपने देश भारत की याद सताती है। और अब वह भारत जाना चाहते हैं। गोपालदास को जब ज्ञात होता है कि भारत मे प्रधानमंत्री ने प्रवासी भारतीयों को लिए दोहरी नागरिकता देने की घोषणा कर दी है। गोपालदास दोहरी नागरिकता नीति के तहत दफ्तरों में चक्कर काटने लगते हैं। वह बहुत प्रयास करते हैं कि उन्हें भारत की नागरिकता फिर से प्राप्त हो जाए। परन्तु अभी इस नीति का क्रियान्वयन नहीं हुआ था। अतः उन्हें भारत की नागरिकता निरि से प्राप्त हो जाए। परन्तु अभी इस नीति का क्रियान्वयन नहीं हुआ था। अतः उन्हें भारत की नागरिकता नहीं मिल पाती। इसी सदमें में उनके प्राण चले जाते हैं। कहानी में दिखाया गया है कि पुरानी पीढ़ी विदेश को जल्दी अपना नहीं पाती उनमें नास्टेल्जिक प्रभाव अधिक देखा जाता है। इसी तरह कहानी 'एक बार फिर होली' की नजमा का विवाह पाकिस्तान के कराची में पाकिस्तानी फौजी इमरान से करा दिया जाता है। विवाह के बाद नजमा हिन्दुस्तान को याद करती रहती थी। भारत के बुलन्दशहर में जन्मी और पली-बढ़ी नजमा को पाकिस्तान में वह अपनापन नहीं मिल पाता जो उसे हिन्दुस्तान में मिलता था। हिन्दुस्तान को वह अपने वजूद से अलग नहीं कर पाती। नजमा हिन्दुस्तानी खान-पान, त्यौहार, अपनी सहेलियों और अपने शहर की गलियों का बखान करती थी जिसके कारण वह इमरान और अपनी सास के तानों और उलाहनों का शिकार होती थी। उसने वहाँ शाकाहारी खाना शुरू कर दिया था क्योंकि वहाँ गाय का मीट खाया जाता था जो उसे गवारा न था क्योंकि भारतीय संस्कृति में पली थी अतः प्रतिरोधस्वरूप उसने मांसाहार का त्याग कर दिया। ''चुभती बातें, कटु वचन, हर वक्त याद दिलाया जाता कि वह हिंदुस्तान की यादों से बाहर आए... इमरान का नजमा पर अविश्वास का सीधा कारण था नजमा का हिंदुस्तानियत से बाहर न आ पाना, हिंदी भाषा का प्रयोग करना, होली में अतिरिक्त रुचि होना, उसकी स्कूल कॉलेज की सहेलियों की सूची में सभी नाम हिंदू लड़कियों के नाम होना और बार-बार अपना तकिया कलाम दोहराना कि हमारे हिन्दुस्तान में ऐसा होता है"14

नजमा के भारत के प्रति लगाव व प्रेम तथा इमरान के दुर्व्यवहार के कारण वह भारत को याद करती रहती थी तथा भारत जाने की कामना करती थी। कहानी 'अभिशप्त' का रजनीकान्त रोजगार की तलाश में अपनी रिश्तेदार के साथ लंदन आ जाता है तथा छोटा-मोटा काम करता है। ब्रिटिश नागरिकता पाने के लिए अपने से तीन वर्ष बड़ी, अमीर-बाप की बेटी निशा से विवाह कर लेता है। निशा उससे विवाह इसलिए करती है ताकि उसे गुलाम बना कर रखा जा सके। निशा के अपमान तथा तिरस्कार के बावजूद रजनीकान्त निशा के साथ रहकर जीवन से समझौता कर लेता है क्योंकि उसके पास निशा के साथ रहने के अलावा कोई चारा नहीं था। रजनीकान्त को अपमानजनक जीवन जीते हुए अपने गाँव का याद सताती है।

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शोध सार

प्रस्तुत शोध विद्यार्थियों के लिए किया गया एक प्रयास है जो व्यक्तित्व के विकास में आवश्यक तत्वों की ओर इंगित करता है। इस कार्य में व्यक्ति के बाहय आवरण के गुणों तथा आन्तरिक तत्वों दोनों को जानने की चेष्टा की गई है। जैविक तथा पर्यावरण संबंधी तत्व, व्यक्तित्व निर्माण में किस प्रकार महत्वपूर्ण भूमिका निभाते है, यह दर्शाया गया है। विकास की ओर अग्रसर विद्यार्थियों का मार्गदर्शन करने में यह शोध पत्र सफल सिद्ध होगा।

मुख्य शब्द - व्यक्तित्व, विकास, मनोविज्ञान, तत्व, बालक, संस्कृति, समाज

व्यक्तित्व: व्यक्तित्व (personality) आधुनिक मनोविज्ञान का बहुत ही महत्वपूर्ण एवं प्रमुख विषय है। व्यक्तित्व के अध्ययन के आधार पर व्यक्ति के व्यवहार का पूर्वकथन भी किया जा सकता है।

प्रत्येक व्यक्ति में कुछ विशेष गुण या विशेषताएं होती हैं, जो दूसरे में नहीं होतीं। इन्हीं गुणों एवं विशेषताओं के कारण ही हर मनुष्य एक दूसरे से भिन्न होता है। व्यक्ति के इन गुणों का समुच्चय ही व्यक्तित्व कहलाता है। व्यक्तित्व एक स्थिर अवस्था न होकर एक गत्यात्मक समष्टि है जिस पर परिवेश का प्रभाव पड़ता है और इसी कारण से उसमें बदलाव आ सकता है। आचार-विचार, व्यवहार, क्रियांओं और गतिविधियों में मानव का व्यक्तित्व झलकता है। व्यक्ति का समस्त व्यवहार उसके वातावरण या परिवेश में समायोजन करने के लिए होता है।

जनसाधारण में व्यक्तित्व का अर्थ मनुष्य के बाहय रूप से लिया जाता है, परन्तु मनोविज्ञान में इसका अर्थ व्यक्ति के रूप गुणों की समिष्ट से है, अर्थात बाहय आवरण के गुण और आन्तरिक तत्व, दोनों व्यक्तित्व की परिभाषा में सम्मिलित है। मनोवैज्ञानिकों, दार्शनिकों एवं समाज-शास्त्रियों ने व्यक्ति के

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विभिन्न पहलुओं को ध्यान में रखते हुए विभिन्न व्याख्यायं दी हैं। व्यक्तित्व की सैकड़ों परिभाषाओं में से कुछ इस प्रकार हैं-

मार्टन प्रिंस के अनुसार- व्यक्तित्व, व्यक्ति की समस्त जैविक, जन्मजात विन्यास, उद्वेग, रूझान, क्षुधाएं, मूल प्रवृत्तियां तथा अर्जित विन्यासों एवं प्रवृत्तियों का समूह है।कैम्फ (1919) के अनुसार- व्यक्तित्व उन प्राभ्यास संस्थाओं का या उन अभ्यास रूपों का समन्वय है जो वातावरण में व्यक्ति के विशेष संतुलन को प्रस्तुत करता है1

व्यक्तित्व के निर्धारक तत्व -व्यक्ति को प्रभावित करने में कुछ विशेष तत्वों का हाथ रहता है उन्हें हम 'व्यक्तित्व के निर्धारक' (Determinants of personality) कहते हैं। ये ही तत्व मिलकर व्यक्तित्व को पूर्ण बनाने में सहयोग देते हैं। इन्हीं तत्वों के अनुरूप व्यक्तित्व का विकास होता है। कुछ विद्वानों ने व्यक्तित्व के निर्धारण में जैविक (Biological) आधार को प्रमुख माना है तो कुछ ने पर्यावरण संबंधी आधार को प्रधानता दी है, परन्त् व्यक्तित्व के विकास में इन दोनों निर्धारकों का हाथ रहता है।

जैविक निर्धारक निम्न चार हैं:-

- 1. आन्वांशिकता (Heredity)
- 2. शारीरिक गठन व स्वास्थ्य
- 3. सावी ग्रथियां (Endocrine Glands)
- 4. शारीरिक रसायन (Body Chemistry)

पर्यावरण सम्बन्धी निर्धारक तीन हैं -

- 1. प्राकृतिक निर्धारक
- 2. सामाजिक निर्धारक
- 3. सांस्कृतिक निर्धारक

जैविक निर्धारक-

आनुवांशिकता- व्यक्तित्व में कुछ गुण पैतृक या आनुवांशिक होते हैं। शरीर का रंग, रूप, शरीर की बनावट गुणों से युक्त हो सकते हैं। इसका कारण बालक को प्राप्त हुए अपने माता-पिता के गुणसूत्र (क्रसेमोसोम्स)

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हैं। बालक की आनुवांशिकता में केवल उसके माता-पिता की देन ही नहीं होती। बालक की आनुवांशिकता का आधा भाग माता-पिता से, एक चैथाई भाग दादा-दादी से, नाना-नानी से व आठवां भाग परदादा-दादी और अन्य पुरखों से प्राप्त होता है। अतः बालक के व्यक्तित्व पर पैतृक गुणों का प्रभाव पड़ता है। उसका रंग-रूप या शारीरिक गठन के गुण उसके माता या पिता से या उसके दादा या दादी के गुणों के अनुरूप हो सकते हैं। इसी तरह उसमें बुद्धि एवं मानसिक क्षमताओं के गुण अपने पूर्वजों के अनुरूप हो सकते हैं। कई अध्ययनों में यह देखा गया है कि पूर्वजों की मानसिक व्याधियों के गुण उनकी

पीढ़ी के किसी भी व्यक्ति में प्रकट हो सकते हैं। इस तरह हम देखते हैं कि पैतृक गुणों का व्यक्ति के व्यक्तित्व गठन पर कम या ज्यादा प्रभाव पड़ता है।

शारीरिक गठन और स्वास्थ्य-

शारीरिक गठन के अन्तगत व्यक्ति की लम्बाई, बनावट, वर्ण, बाल, आंखें व नाक नक्शा आदि अंगों की गणना होती है। ये शारीरिक विशेषताएं इतनी स्पष्ट होती हैं कि बहुत से लोग इन्हीं से व्यक्ति का बोध करते हैं। हालांकि यह दृष्टिकोण ठीक नहीं है फिर भी ये विशेषताएं व्यक्तित्व की द्योतक अवश्य हैं। शरीर से दृष्ट-पुष्ट और सुन्दर व्यक्ति को देखकर लोग प्रभावित होते है। वे उसके शरीर के गठन की प्रशंसा करते हैं। इससे उस व्यक्ति के मानसिक पहलू पर प्रशंसा का प्रभाव ऐसा पड़ता है कि दूसरों की अपेक्षा वह अपने को श्रेष्ठ समझने लगता है और उसमें आत्मविश्वास और स्वावलम्बन के भाव पैदा हो जाते हैं।

शारीरिक गठन ठीक न होने और शारीरिक अंगहीनता रहने पर व्यक्ति में हीन भावना पैदा हो जाती है। वह अपने आपको गया-बीता व हीन समझता है और उसमें आत्मविश्वास की कमी हो सकती है, वह अपने कार्य की सफलता में सदा आशंकित रहता है और अभाव की पूर्ति के लिए वह असामाजिक व्यवहार को अपना सकता है।

व्यक्तित्व विकास पर स्वास्थ्य का भी असर पड़ता है। जो व्यक्ति शारीरिक रूप से स्वस्थ रहता है वह अच्छा सामाजिक जीवन व्यतीत करता है और उसमें सामाजिकता विकसित होती है। स्वस्थ व्यक्ति अपने कार्य को सफलता से समय पर पूरा करके अपने उद्देश्य की प्राप्ति कर लेता है। इसके ठीक विपरीत अस्वस्थ व्यक्ति का व्यक्तित्व अधूरा रह जाता है। अस्वस्थता के कारण अपने कार्यों को समय पर पूरा नहीं कर पाता जिससे वह अपने लक्ष्य की प्राप्ति समय पर नहीं कर पाता। उसमें कार्य करने की रूचि भी कम रहती है। अस्वस्थ व्यक्ति दूसरों को प्रभावित भी नहीं कर सकता। इस तरह, व्यक्तित्व पर शारीरिक गठन और स्वास्थ्य का काफी प्रभाव पड़ता है।

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अंतःस्रावी ग्रंथियाँ-

व्यक्तित्व के विकास में अन्तःस्रावी ग्रंथियों का अत्यधिक प्रभाव पड़ता है। ये प्रत्येक मनुष्य के शरीर में पायी जाती हैं। इन ग्रंथियों का 'नलिकाविहीन ग्रंथियां' भी कहते हैं। ये बिना नलिकाओं के शरीर में साव भेजती हैं। इनके स्राव न्यासर या हार्मोन्स कहलाते हैं। विभिन्न ग्रंथियां एक या एक से अधिक होर्मोन्स का स्राव करती हैं। मुख्य रूप से ये ग्रंथियां 8 होती हैं। ये हैं -

- 1. पीयूष ग्रंथि (Pituitary Gland)
- 2. पीनियल ग्रंथि (Pineal Gland)
- 3. गल ग्रंथि (Thyroid Gland)
- 4. उपगल ग्रंथि (Parathyroid Gland)
- 5. थाइमस ग्रंथि (Thymus Gland)
- 6. अधिवृक्क ग्रंथि (Adrenal Gland)
- 7. अग्न्याशय ग्रंथि (Pancreas Gland)
- 8. जनन ग्रंथि (Gonad Gland)

शारीरिक रसायन-

अन्तःस्रावी ग्रंथियों एंव शरीर रचना के अतिरिक्त व्यक्तित्व के जैविक कारकों में शारीरिक रसायन का उल्लेख भी आवश्यक है। प्राचीन काल से मनुष्य के स्वभाव का कारण उसके शरीर के रसायन के तत्वों को भी माना गया है। ईसा से लगभग 400 वर्ष पूर्व यूनान के प्रसिद्ध चिकित्सक व विचारक हिपोक्रेटीज ने शरीर में पाये जाने वाले रसायनों के आधार पर व्यक्ति के स्वभाव का निरूपण किया है। लगभग इस प्रकार का वर्णन आयुर्वेद में भी किया है। ये शारीरिक रसायन चार प्रकार के होते हैं।

1. रक्त 2. पित्त 3. कफ और 4. तिल्लीद्रव्य।

रक्त की अधिकता से व्यक्ति आदतन और उत्साही (Sanguine) होता है। पित्त की अधिकता वाले व्यक्ति चिड़चिड़े या कोपशील (Choleric) प्रकृति के होते हैं। जिस व्यक्ति में कफ अथवा श्लेष्मा की प्रधानता होती है वे शान्त व आलसी होते हैं। ऐसे व्यक्ति को श्लेष्मिक (Phlegmatic) प्रकृति का कहते हैं। जिस व्यक्ति में तिल्ली द्रव्य या श्याम पित्त की प्रधानता होती है। ऐसे व्यक्ति उदास (Melancholic) रहने वाले होते हैं। इन्हीं के आधार पर हिप्पोक्रेटीज ने व्यक्तित्व के प्रकारों का वर्णन किया है।

उपरोक्त जैविक कारकों के अतिरिक्त कुछ अन्य जैविक कारक भी हैं जो व्यक्तित्व को प्रभावित करते हैं, ये कारक हैं - बुद्धि, रंगरूप (Colour), लिंग (Sex)।

पर्यावरण सम्बन्धी निर्धारक

| 1.प्राकृतिक निर्धारक | 2.सामाजिक निर्धारक | 3.सांस्कृतिक निर्धारक |
|----------------------|--------------------|-----------------------|
| भूगौलिक जलवायु | परिवार-समाज | संस्कृति परिस्थितियाँ |

प्राकृतिक निर्धारक-

मनुष्य प्राकृतिक पर्यावरण में रहता है उसके जीवन तथा व्यक्तित्व पर भौगोलिक परिस्थितियों एवं जलवायु का प्रभाव पड़ता है। भौगोलिक परिस्थितियों और जलवायु का उसके स्वास्थ्य, शरीर की बनावट तथा मानसिक स्थितियों पर प्रभाव पड़ता है। जैसे ठण्डी जलवायु में रहने वाले व्यक्तियों का रंग गोरा होता है जबकि गर्म जलवायु में रहने वाले व्यक्ति सांवले रंग के होते हैं। भौगोलिक परिस्थितियों का भी शारीरिक गठन पर प्रभाव पड़ता है जैसे पहाड़ी लोगों का शारीरिक गठन। जिन जगहों पर भूकम्प या प्राकृतिक आपदांए ज्यादा होती हो वहां के लोगों में सुरक्षा की भावना कम होती है। यदि व्यक्ति की भौगोलिक परिस्थितियाँ या जलवायु बदल दी जाये तब उनके व्यक्तित्व में भी परिवर्तन आ जाता है। जैसे ऊष्ण प्रदेश में रहने वाले लोगों को शीत प्रदेश में रखा जाए तो उनके कार्य करने की क्षमताएं घट सकती हैं और स्वास्थ्य पर बुरा असर पड़ सकता है। इसी तरह ठण्डे प्रदेश में रहने वाले व्यक्तियों को यदि ऊष्ण प्रदेश में रखा जाए तो ऐसा ही प्रभाव उन लोगों पर पड़ता है।

सामाजिक निर्धारक -

व्यक्ति सामाजिक प्राणी है और समाज की ईकाई भी। जन्म से लेकर मृत्यु पर्यन्त वह समाज में रहता है। अतः समाज का, समाज की संरचना का और समाज के लोगों का उस पर बहुत प्रभाव पड़ता है। परिवार के लोगों से लेकर समाज के लोगों तक का व्यक्ति के व्यक्तित्व पर प्रभाव पड़ता है।

परिवार या घर का प्रभाव-माता-पिता का प्रभाव - सभी मनोवैज्ञानिकों का यह मानना है कि व्यक्तित्व के विकास में घर के परिवेश का बड़ा प्रभाव पड़ता है। परिवार के सदस्यों का भी बालक के व्यक्तित्व के

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व्यक्तित्व के विकास में आवश्यक तत्व-एक अध्ययन

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विकास पर प्रभाव पड़ता है। जन्मकाल से ही मनुष्य के व्यक्तित्व का विकास प्रारम्भ हो जाता है। जन्म के समय उसकी माता तक ही उसका परिवार सीमित रहता है। उसे अपनी सभी प्रकार की अवश्यकताओं की पूर्ति के लिए अपनी माता पर निर्भर रहना पड़ता है। अतः माता के विवेकशील और व्यवहार कुशल रहने पर तथा बालक की सही ढंग से देखभाल करने से सन्तान या बालक का व्यक्तित्व विकास उचित ढंग से होता है। शिवाजी, महाराणा प्रताप जैसे महापुरूषों के व्यक्तित्व विकास का श्रेय उनकी माताओं को ही है। माता-पिता द्वारा आवश्यकताओं की उचित पूर्ति होने से बालक आगे चलकर आशावादी, कर्मवीर व परोपकारी बनता है, किन्तु माता पिता द्वारा आवश्यकताओं की उचित पूर्ति होने से बालक आगे चलकर आशावादी, कर्मवीर व परोपकारी बनता है, किन्तु माता पिता द्वारा आवश्यकताओं की उचित पूर्ति न करने से तथा पर्याप्त स्नेह न देने से बालक कर्महीन व निराशावादी बन जाता है। बाल्यकाल में तिरस्कृत रहने पर वह हीन भाव एवं असुरक्षित भाव से पीड़ित रहता है तथा उसमें आत्मविश्वास की कमी रहती है। आगे चलकर वह परावलम्बी स्वभाव का हो जाता है। वह अपनी छोटी-छोटी आवश्यकताओं को पूर्ति के लिए भी दूसरों का मुंह देखता रहता है। फलस्वरूप उसके व्यक्तित्व का विकास उचित दिशा में नहीं होता।

माता-पिता के प्रेम के अभाव का सभी बालकों पर एक सा प्रभाव पड़ता है क्योंकि इसमें बालक के जन्मजात स्वभाव और प्रवृतियों का बड़ा महत्व है। माता-पिता के प्रेम की अवहेलना और ताड़ना से एक बालक दब्बू बन सकता है परन्तु दूसरा बालक दबंग और उद्दंड बन सकता है। आलपोर्ट के अनुसार "वहीं आग जो मक्खन को पिघलाती है अण्डे को कठोर बनाती है।" माता-पिता द्वारा बच्चे को झिड़कना और गोद में न लेना भी उसके व्यक्तित्व को प्रभावित करता है।

परिवार के प्रभाव में माता-पिता के अलावा घर के अन्य सदस्यों व जन्म क्रम का प्रभाव भी माना गया है। यदि परिवार के सदस्यों में आपराधिक प्रवृत्तियाँ हो तो उसका प्रभाव भी बालक के व्यक्तित्व के विकास पर पड़ता है और बालक में भी आपराधिक प्रवृत्तियाँ जन्म लेती हैं। इसके विपरीत यदि परिवार में सभी लोग आशावादी, कर्मठ, उच्च पद पर आसीन हैं तो बालक इन्हें प्रेरणा स्त्रोत के रूप में देखता है, आदर्श मानता है।

सामाजिक निर्धारकों में विद्यालय के अर्थात शिक्षा के प्रभाव की भी गणना की जाती है। जिसमें शिक्षा पद्धति, शिक्षकों, सहपाठियों व विद्यालय की भौगोलिक स्थिति वर्णित है।

समाज का प्रभाव -

जैसा कि पूर्व में लिखा जा चुका है कि व्यक्ति समाज का अंग और इकाई है। अतः समाज का व्यक्तित्व विकास पर प्रभाव पड़ना स्वाभाविक है। समाज की परम्पराओं रीति-रिवाजों, सामाजिक नियमों का व्यक्ति के व्यक्तित्व के विकास पर व्यापक प्रभाव पड़ता है। व्यक्ति समाज के लोगों के आचरण तथा प्रतिमानों को अपनाता है। जाति, वर्ण तथा व्यवसाय के अनुसार प्रत्येक व्यक्ति की समाज में स्थिति अलग-अलग होती है। परिवार की सामाजिक स्थिति से बालकों के व्यक्तित्व पर भी प्रभाव पड़ता है।

सांस्कृतिक निर्धारक-

व्यक्ति के व्यक्तित्व के विकास पर संस्कृति की अहम भूमिका है। व्यक्ति का व्यक्तित्व संस्कृति के अनुरूप होता है। जन्मकाल से ही शिशु का पालन-पोषण तथा समाजीकरण उसकी सांस्कृतिक परम्परा के अनुरूप होता है। प्रत्येक संस्कृति में शिशु के सामाजीकरण की एक विधि होती है क्योंकि इसी विधि के द्वारा संस्कृति अपने को सुरक्षित रखती है। संस्कृति और व्यक्तित्व एक दूसरे के पूरक होते हैं। आज के अधिकतर मनोवैज्ञानिकों का यह विचार है कि संस्कृति और व्यक्तित्व दो भिन्न वस्तुएं नहीं हैं, बल्कि एक ही वस्तु के दो पहलू हैं। जिस संस्कृति में बालक का लालन-पालन होता है उसी संस्कृति के गुण उसके व्यक्तित्व में आ जाते हैं2

मैकाईवर और पेज के शब्दों में "संस्कृति हमारे रहने व सोचने के ढंगों में, दैनिक कार्यकलापों में, कला

में, साहित्य में, धर्म में, मनोरंजन और सुखोपभोग में हमारी प्रकृति की अभिव्यक्ति हैं।" इस तरह संस्कृति कार्य करने की शैलियों, मूल्यों, भावात्मक लगावों और बौद्धिक अभियान का क्षेत्र है। एक संस्कृति दूसरी संस्कृति से इन्हीं गुणों के आधार पर भिन्न होती है। अलग-अलग संस्कृतियों के अलग-अलग मूल्य होते हैं। जैसे - प्राचीन काल में भारतीय लोग धर्मपरायण और आध्यात्मिक थे। आधुनिक भारतीय उतने आध्यात्मिक एवं धार्मिक नहीं हैं। फिर भी उनमें आध्यात्मिक एवं धार्मिक मूल्य उच्च स्तर के हैं। इसका कारण भारतीय संस्कृति का प्रभाव ही है। पाश्चात्य लोगों के लिए भौतिक व मानसिक मूल्य उच्च स्तर के हैं। इसी तरह अलग-अलग संस्कृति के समाजों में रहन-सहन, रीति-रिवाज, धर्म, कला, मूल्यों और परम्पराओं में भिन्नताएं देखी जा सकती हैं। कुछ संस्कृतियों की जातियों में मनुष्य हत्या को पाप समझते हैं तो दूसरी ओर नाग संस्कृति में उन लोगों का बड़ा सम्मान होता है जो नर मुण्ड काट के लाते है। जो व्यक्ति जितने ज्यादा नर मुण्ड काटता है उतनी ही समाज में उसकी प्रतिष्ठा बढ़ती है और उतने ही ज्यादा स्त्रियों के विवाह के प्रस्ताव आते हैं। जबकि दूसरी संस्कृति में नर हत्या करने वाले के साथ समाज के लोग अपनी बेटी का विवाह नहीं करना चाहते।

व्यक्ति के विकास व व्यक्तित्व निर्माण के बारे में प्रसिद्ध वैज्ञानिक आल्टन बर्ग का कहना है -

"Each tract requires both heredity and environment for its development3 वंशानुक्रम व वातावरण, मानव के सम्पूर्ण व्यक्तित्व की महत्वपूर्ण कड़ी है। इन्हीं से मनुष्य का शारीरिक एवं मानसिक विकास जुड़ा होता है। वंशानुक्रम में माता-पिता से हस्तान्तरित गुण लेकर व्यक्ति वंश-परंपरा का हिस्सा बनता है4

व्यक्तित्व निर्माण में वंशानुक्रम के आधार को महत्व देते हुए रेनवाटर (Rainwater) कहते

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 $\vec{\xi}$: "Personality is formed from the interaction of significant figures (first the mother, later the father and siblings, later extra familial figures) with the child. The child brings to this interaction a certain biological constitution, certain needs and drives, and certain intellectual capacities which determine his reactions to the way in which he is acted upon by these significant figures"5

बालक अपने पारिवारिक संबंधों के साथ अपने जैविक संविधान, कुछ आवश्यकताओं तथा कुछ बौद्धिक क्षमताओं का संबंध स्थापित करता है जो उसकी प्रतिक्रियाओं का निर्धारण करती हैं। अतः व्यक्तित्व विकास में सहायक होती हैं।

वंश सूत्र-

व्यक्ति के जीवन का आरम्भ माता के गर्भ में प्रवेश करते ही हो जाता है। ऐसा माना जाता है कि अपने पैतृक गुण-दोष इसी अवस्था में बालक प्राप्त करता है। इस संदर्भ में महाभारत कालीन युग की एक कथा स्मरण होती है। जब अर्जुन अपनी पत्नी सुभद्रा को चक्रव्यूह भेदने की विधि समझा रहे थे, उस समय अभिमन्यु सुभद्रा के गर्भ में था और उनकी सारे बातें सुन रहा था। चक्रव्यह में जाना और उसे

भेदना तक की सारी क्रिया उन्होंने माता के गर्भ में ही सीखी तथा महाभारत के युद्ध में उसका उपयोग किया।

वंशानुक्रम के अंतर्गत पैतृक गुण एक पीढ़ी से दूसरी पीढ़ी तक हस्तान्तरित होते हैं। एक उच्च कोटि का कलाकार बनने के लिए वंश परंपरा एवं वातावरण दोनों ही महत्वपूर्ण हैं। किसी भी व्यक्ति को कोई भी गुण पैतृक या अपैतृक, किसी भी प्रकार मिले किन्तु उसके पोषण व उचित विकास के लिए उपयुक्त वातावरण अनिवार्य तत्व है। वंशानुगत प्राप्त योग्यता केवल एक बीज की तरह होती है। जिस प्रकार खाद-पानी व सूर्य की किरणें, बीज के रूपान्तरण में सहायक होती हैं, उसी प्रकार किसी भी मनुष्य की योग्यता को सही वातावरण दवारा सींचा जाता है।

वातावरण शब्द के लिए पर्यावरण शब्द का भी प्रयोग किया जाता है। पर्यावरण दो शब्दों के योग से बना है - 'परि आवरण। परि का अर्थ है - 'चारों ओर' तथा 'आवरण' का अर्थ है 'ढकने वाला'। अर्थात वह वस्तु जो सभी ओर से ढके हुए है। अतः यह कहा जा सकता है कि मनुष्य के चारों ओर जो कुछ विद्यमान है, वह उसका वातावरण है। वुडवर्थ के अनुसार - वातावरण में सब बाहम तत्व आ जाते हैं जिन्होंने व्यक्ति को जीवन आरम्भ करने के समय से प्रभावित किया है। स्पष्ट है कि वातावरण बाहम तत्वों का वह समूह है जो व्यक्ति के विकास में वांछित सहायता प्रदान करता है।

जन्म व पालन पोषण-बालक ईश्वर की सर्वोत्तम कृति मानी जाती है। उसके विकास में माता-पिता, गुरू, समाज सभी की संयुक्त भूमिका होती है। इनमें से एक की भी भूमिका विघटित होती है तो उसका सामाजिक

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दृष्टि से विकास अवरूद्ध व व्यक्तित्व कुंठित हो जाता है। जिस प्रकार शिल्पकार पत्थर में छिपी मूर्ति को तराशकर प्रकट करता है उसी प्रकार, माता-पिता, शिक्षक और समाज, बालक को सँवार कर खूबसूरत व्यक्तित्व प्रदान करते हैं। माता-पिता बच्चों के व्यक्तित्व और चरित्र दोनों को प्रभावित करने में सर्वाधिक महत्वपूर्ण भूमिका अदा करते हैं।

बालक के व्यक्तित्व के प्रत्येक पक्ष पर भौगोलिक, सामाजिक और सांस्कृतिक वातावरण का प्रभाव पड़ता है। उचित वातावरण न मिलने पर संपूर्ण विकास अवरूद्ध हो जाता है। एक ओर वह वंश परंपरा से कुछ अंश लेकर उत्पन्न होता है तथा दूसरी ओर स्वस्थ वातावरण में उसका उचित मानसिक व बौद्धिक विकास होता है। कुछ मनोवैज्ञानिकों का मत है कि व्यक्तित्व के निर्माण व विकास में वंशानुक्रम की अपेक्षा वातावरण अधिक प्रभावशाली तत्व है। व्यक्ति का विकास आंतरिक क्षमताओं का विकास करके और नवीनताओं को ग्रहण करके किया जाता है। इन दोनों ही परिस्थितियों के लिए स्वस्थ वातावरण अनिवार्य है। बच्चों के इष्टतम विकास को समाज के लिए महत्वपूर्ण माना जाता है और इसलिए बच्चों के सामाजिक, संज्ञानात्मक, भावनात्मक और शैक्षिक विकास को समझना ज़रूरी हैं। बाल विकास, मनुष्य के जन्म से लेकर, किशोरावस्था के अंत तक उनमें होने वाले जैविक और मनोवैज्ञानिक परिवर्तनों को कहते हैं, जब वे धीरे-धीरे निर्भरता से और अधिक स्वायत्तता की ओर बढ़ते हैं। चूंकि ये विकासात्मक परिवर्तन काफी हद तक जन्म से पहले के जीवन के दौरान आनुवंशिक कारकों और घटनाओं से प्रभावित हो सकते हैं। इसलिए आनुवांशिकी और जन्म पूर्व विकास को आमतौर पर बच्चे के विकास के अध्ययन के हिस्से के रूप में शामिल किया जाता है।

छोटे बच्चों में सीखने, याद रखने और जानकारी का प्रतीक बनाने और समस्याओं को हल करने की क्षमता सामान्य स्तर पर होती है। वे संज्ञानात्मक कार्य कर सकते हैं जैसे चेतन और अचेतन प्राणियों में भेदभाव करना या कम संख्या वाली वस्तुओं की पहचान करना। सीखने और जानकारी को संसाधित करने की यह गति धीरे-धीरे बढ़ती जाती है, स्मृति भी बढ़ती जाती है और संकेत, उपयोग और संक्षेपण की क्षमता में तब तक विकास होता है जब तक किशोरावस्था लगभग वयस्क स्तर तक नहीं पहुँच जाती।

इन सभी तत्वों के अध्ययन का सार यही है कि हर विद्यार्थी आन्तरिक क्षमताओं का विकास करके और नवीनताओं को ग्रहण कर, निर्भरता से अधिक स्वायत्तता की ओर बढ़े। यही विकास है।

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रामायण और पूर्वमीमांसा दर्शन में नारी : एक अवलोकन डॉ शालिनी मिगलानी

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शोध सार

भारतीय संस्कृति में नारी की स्थिति सदैव एक समान नहीं रही है। इसमें सदैव परिवर्तन होते रहे हैं। स्त्री को नारी, वामा, अबला सुन्दरी, प्रमदा, महिला, माता आदि अनेक नामों से अभिव्यक्त किया जाता रहा है। रामायण में नारी को अनेक रूपों में यथा कहीं पुत्री, कहीं पत्नी, कहीं बहिन, कहीं माता के रूप में चित्रित किया गया है। रामायण काल में नारी को शिक्षा प्राप्ति, राजनीतिक, आर्थिक, सांग्रामिक, धार्मिक, सामाजिक, पारिवारिक आदि सभी कार्यों में पूर्ण सहभागिता प्राप्त थी। नारियां समाज तथा राष्ट्र के सांस्कृतिक उत्थान में अमूल्य योगदान करती थी। उस समय नारी से सम्बन्धित कुछ दोष यथा कन्या त्याग, सीता अपहरण, स्त्री त्याग आदि भी प्राप्त होते हैं, परन्तु उससे कहीं अधिक स्त्रियों के गुण, उनके आदर सम्मान एवं अधिकारों का वर्णन रामायण में प्राप्त होता है। इसके विपरीत पूर्वमीमांसा दर्शन में नारी को स्वतन्त्र रूप में धार्मिक कार्य यज्ञादि करने का अधिकार प्राप्त नहीं था। वह केवल पति के साथ ही याज्ञिक कार्य कर सकती थी क्योंकि पूर्वमीमांसा दर्शन के अनुसार स्त्रियों में सिद्ध विद्या का अभाव है। पूर्वमीमांसा दर्शन के एक पक्ष में नारी को क्रय-विक्रय की वस्तु भी कहा गया है। इसके अतिरिक्त नारी को धन प्राप्ति का भी अधिकार नहीं है। वह जो भी धनार्जन करती है, उस पर भी उसके पति या पिता का ही अधिकार है। ऐसा कहा जा सकता है कि उस समय की सामाजिक परिस्थितियों के आधार पर ही पूर्वमीमांसा दर्शन में स्त्रियों के अधिकारों का इस प्रकार का वर्णन प्राप्त होता है, जिसका विस्तृत विवेचन प्रकृत शोध पत्र में किया जाएगा। वर्तमान समय में नारी अपने अधिकारों के प्रति अधिक सचेत है। नारी, विद्यालय, महाविद्यालय, कार्यालय आदि सभी क्षेत्रों में अपनी योग्यता के आधार पर कार्य कर रही है।

बीज शब्द : दहेज प्रथा , शिक्षा , विधवा पुनर्विवाह , सती प्रथा , श्रद्धा तथा सम्मान

भूमिका :

यत्र नार्यस्तु पूज्यन्ते रमन्ते तत्र देवताः। यत्रैतास्तु न पूज्यन्ते सर्वास्तत्राफला क्रियाः।। शोचन्ति जामयो यत्र विनश्यत्याशु तत्कुलम्। न शोचन्ति तु यत्रैता वर्धते तद्धि सर्वदा।।¹

जहां नारी का सम्मान होता है, वहां देवता निवास करते हैं। जहां नारी का सम्मान नहीं होता, वहां सभी कार्य निष्फल हो जाते हैं। जिस घर की स्तियां संतप्त एवं दुःखी रहती हैं, वह कुल शीघ्र नष्ट हो जाता है और जहां यह संतप्त नहीं होती, उस कुल का अभ्युदय होता है। भारतीय संस्कृति में नारी को उन्नत स्थान प्राप्त है। भारतवर्ष की नारी अपनी गरिमा, तेजस्विता के कारण सम्पूर्ण विश्व में पूजनीय है। भारतवर्ष मे आदि शक्ति दुर्गा को भी माता के रूप में अभिव्यक्त कर उनके प्रति भक्तिभाव को प्रकट करते हुए इस संसार की जननी माना गया है-

> या देवी सर्वभूतेषु मातृरूपेण संस्थिता। नमस्तस्यै नमस्तस्यै नमस्तस्यै नमो नमः।।²

नारी समाज का आधार तथा परिवार का केन्द्र बिन्दु है। स्त्री को नारी, वामा, अबला, सुन्दरी, प्रमदा, मानिनी, महिला, जाया, माता आदि अनेक नामों से अभिव्यक्त किया गया है। सायण नारी शब्द की व्युत्पत्ति करते हुए कहते हैं कि नरों का उपकारक या शत्रु का न होना ही 'नारी' है।³ वामा का अर्थ सौंदर्य को बिखेरने वाली, यथा सीता। बल शब्द 'शक्ति' को बताता है तथा अबला शब्द शारीरिक शक्ति के अभाव को बताता है। यहां अभिप्राय यह नहीं कि नारी में शक्ति का अभाव है। यहां शक्ति का अर्थ शारीरिक शक्ति से है, मानसिक रूप से नारीअत्यधिक शक्तिशाली है यथा रावण के वश में होकर भी सीता दृढ़ विश्वास से उसका सामना करती है।⁴ जो शोभा सम्पन्न तथा चित्त को प्रसन्न करे, वह 'सुन्दरी' है यथा सीता,कौशल्या। हर्षित प्रकृति से सम्पन्न नारी 'प्रमदा' है। इसके अतिरिक्त महिला, जाया, माता आदि अनेक रूपों में स्त्रियों का वर्णन प्राप्त होता है।

रामायण और पूर्वमीमांसा दर्शन में नारी : एक अवलोकन

यदि हम सांसारिक आवरण को हटाकर नारी के व्यक्तित्व पर विचार करते हैं, तो वह इससे भी कहीं महान् है। वह साक्षात् शक्ति स्वरूप, श्री, आराध्या, भक्ति तथा श्रद्धा की देवी है। नारी के यह सभी रूप हमें रामायण में प्राप्त होते हैं। रामायण में नारी को कहीं पुत्री, कहीं पत्नी, कहीं बहन, कहीं माता के रूप में चित्रित किया है। वहां नारी को अत्यन्त सजीव तथा व्यापक रूप में प्रस्तुत किया गया है।रामायणकालीन में परिवार में माता-पिता को समान स्थान प्राप्त था। इस आधार पर ही कौशल्या राम को वन जाने से रोकते हुए कहती हैं कि 'जिस गौरव से राजा दशरथ(पिता) तुम्हारे लिए पूज्य हैं, उसी गौरव से मैं भी पूज्य हूं। अतः मैं तुम्हें वन जाने से मना कर रही हूं, तुम वन मत जाओ।⁵

व्यक्ति के जीवन में शिक्षा का अत्यन्त महत्वपूर्ण स्थान है। श्रीमद्भगवद्गीता में भगवान श्री कृष्ण ज्ञान को सबसे पवित्र तथा सत्वगुण का प्रतीक कहते हैं।6 भर्तुहरि कृत नीतिशतक में भी विद्या एवं विद्वान की प्रशंसा की गई है।7 शिक्षा ही मनुष्य में ज्ञान, ज्ञानार्जन का सामर्थ्य, चरित्र-शिक्षण, जीविकोपार्जन की कुशलता, परम्पराओं का ज्ञान आदि समाहित करती है। रामायण में पत्र के समान पत्री को भी शिक्षा दी जाती है। बालिकाएं भी सभी प्रकार की शिक्षा प्राप्त करती थी यथा संगीत शास्त्र, नैतिक शिक्षा⁸, राजनीति शास्त्र, नारी धर्म आदि। इस प्रकार कहा जा सकता है कि उस समय नारी को शिक्षा का अधिकार प्राप्त था। सीता,कौशल्या, कैकेयी आदि सभी ने विवाह से पूर्व शिक्षा प्राप्त की थी। नारी को शास्त्र ज्ञान के साथ-साथ कर्मकाण्ड का भी ज्ञान था। रामायण कालीन समाज में ब्रह्मचर्य, गहस्थ, वानप्रस्थ तथा संन्यास आश्रमों में गृहस्थाश्रम को श्रेष्ठ माना गया है।9 उन्होंने नारी को महत्व देकर प्रत्येक धार्मिक, व्यावहारिक, सामाजिक कार्यों में समान अधिकार दिया है। धार्मिक अनुष्ठानों में नारी का महत्व स्पष्ट रूप से दिखाई देता है। यज्ञ में पत्नी की उपस्थिति अनिवार्य थी।10 पत्नी को पति का अभिन्न अंग समझा जाता था। अश्वमेध यज्ञादि में कौशल्या राजा दशरथ के साथ तथा राम के राज्याभिषेक में उनके साथ सीता होती है।11 सीता त्याग करने पर राम उनकी स्वर्ण प्रतिमा को अपने साथ यज्ञ में स्थापित करते हैं।12पत्नी अकेले भी यज्ञ सम्पादन कर सकती थी।वह स्वस्तिगायन भी करती थी।13 पुरुष, पत्नी के सहयोग से ही पित ऋण, देव ऋण, ऋषि ऋण आदि से मुक्त हो सकता है। स्तिया मंत्रोच्चारण पूर्वक यज्ञादि में आहति देती थी। इसके अतिरिक्त व्यावहारिक ज्ञान. राजधर्म. नत्यादि की शिक्षा भी नारियां प्राप्त करती थी। ऐसा कोई भी ज्ञान या शिक्षा नहीं थी. जो स्तियों को प्राप्त न थी। कैकेयी को यद्ध विद्या का भी ज्ञान था, इसलिए वह युद्ध में महाराज दशरथ की सहायता के लिए साथ जाती है तथा अपने पति के प्राणों की रक्षा करती है।14

रामायण काल में माता-पिता को पुत्री विवाह की चिन्ता तो अवश्य होती थी परन्तु वह चिन्ता केवल अपने कर्तव्य पालन की पूर्ति एवं पुत्री को सदा सुखी देखने की इच्छा से होती थी। जिस प्रकार राजा जनक ने अपनी पुत्री सीता का स्वयंवर किया, जिसमें धनुष को उठाने की शर्त रखी गई। इसके पीछे उद्देश्य केवल योग्य एवं वीर वर का चयन करना था।¹⁵ स्लियों को विवाह के लिए स्वयं वर का चुनाव करने का अधिकार था यथा सीता स्वयंवर। रामायण के समय में दहेज प्रथा प्रचलित नहीं थी, परन्तु विवाह के समय माता-पिता अपनी इच्छा से कन्या को उपहार के रूप में कुछ न कुछ अवश्य देते थे।¹⁶ परन्तु उसके लिए कोई प्रतिबंध नहीं था। माता-पिता अपनी आर्थिक स्थिति के अनुसार कन्या को उपहार देते थे। यह धन कन्या की निजी सम्पत्ति होती थी। इसके अतिरिक्त विवाह में प्राप्त अन्य उपहार एवं पति से प्राप्त धन एवं उपहार पर भी उसी का अधिकार होता था। नारी अपनी इच्छा के अनुसार उसका प्रयोग करती थी। विवाह के पश्चात् नारी अपने परिवार ससुराल में स्नेह तथा सम्मान प्राप्त करती थी। रामायण काल में सती प्रथा भी नहीं थी यथा दशरथ और रावण की मृत्यु के पश्चात् उनकी पत्नी सती नहीं हुई। इसके साथ विधवा पुनर्विवाह का उल्लेख भी रामायण में प्राप्त नहीं होता है परन्तु समाज में विधवाओं को सम्मान के साथ देखा जाता था। विधवा स्त्री की भी उपेक्षा नहीं की जाती थी क्योंकि दशरथ की मृत्यु के पश्चात् भी उनकी रानियां आदर सम्मान प्राप्त करती थी। रामायणकालीन समाज में पर्दा प्रथा अधिक प्रचलित नहीं थी परन्तु फिर भी स्त्रिया पर्दा करती थी। जो उनकी इच्छा पर निर्भर था। विपत्ति काल, स्वयंवर, यज्ञ-हवन आदि धार्मिक कार्य,विवाह तथा युद्ध में पर्दा नहीं किया जाता था। अर्थात् इस समय स्त्री को देखना दोषपूर्ण नहीं था।

रामायण काल में नारी की सुरक्षा का भी ध्यान रखा जाता था। नारी को सामाजिक,व्यावहारिक,पारिवारिकादि सभी कार्यों में प्राथमिकता दी जाती थी। ¹⁷ नारियों के प्रति श्रद्धा तथा सम्मान को प्रदर्शित करने के लिए सम्बोधन प्रयोग किए जाते थे यथा अम्ब¹⁸ देवी¹⁹ आर्य²⁰ भद्रे²¹ मनस्विनी²² चारुस्मिते²³ ललने²⁴। नारी के समक्ष सम्मानपूर्ण वार्तालाप किया जाता था। नारी के सम्मुख क्रोध में आना भी मर्यादा के विरुद्ध माना गया है।²⁵ वस्तुतः नारी अपने सदाचरण से ही स्वयं को वंदनीया सम्माननीया बनाती है।²⁶ यथा सती अनुसूया अपने सदाचार एवं पातिव्रत के कारण सभी में वंदनीय है। शबरी हीन जाति की होने पर भी अपनी भक्ति के कारण ऋषियों में सम्मानित हुई।

नारी का अपहरण एक निन्दित कर्म स्वीकार किया गया है। रावण स्वयं विभीषण से कहता है कि उसने सीता का अपहरण कर धर्म विरुद्ध किया है।²⁷ सीता का अपहरण करने के कारण ही रावण के सम्पूर्ण कुल का नाश हो जाता है। रावण की पत्नी मन्दोदरी भी कहती है कि पतिव्रता के आंसू व्यर्थ नहीं जाते।²⁸ अग्नि परीक्षा के पश्चात् भी राम लोक निन्दा के भय से सीता का परित्याग कर देते हैं। यह समय राम और सीता दोनों के लिए कठिन था। एक पत्नी के समान ही जीवन यापन करने के कारण राम और अधिक पूजनीय हो गए। पत्नी का प्रमुख कर्तव्य एवं धर्म अपने परिवार की परम्पराओं एवं मर्यादाओं की रक्षा करना था। अपने इसी धर्म का परित्याग करने के कारण दशरथ कैकेयी का त्याग करते हैं। पति की आज्ञा का पालन न करना, उन्हें मृग शिकार के लिए विवश करना, जिसके कारण सीता का अपहरण एवं त्याग होता है।

रामायण में कुछ स्थानों पर ऐसे प्रसंग भी प्राप्त होते हैं, जिससे यह अनुमान लगाया जाता है कि उस समय नारियों की स्थिति कुछ दयनीय भी थी। एक स्थान पर जब राजा जनक को पृथ्वी पर पड़ी कन्या सीता दिखाई देती है।²⁹ दूसरे स्थान अशोक वाटिका में विलाप करती हुई सीता की उपमा निर्जन वन में छोड़ी हुई कन्या से करते हैं।³⁰ इन वर्णनो से यह नहीं कहा जा सकता है कि उस समय कन्या उपेक्षित थी क्योंकि सहोदरा न होने पर भी जनक की पत्नी, सीता का पालन पोषण सच्चे मातृ स्नेह से करती थी।³¹

इस प्रकार कहा जा सकता है कि रामायण में नारी जीवन का व्यापक रूप प्राप्त होता है। समाज में नारी का आदर सम्मान किया जाता था। नारी समाज तथा राष्ट्र के उत्थान में अमूल्य योगदान करती थी। नारी को शिक्षा, राजनैतिक, आर्थिक, सांग्रामिक, धार्मिक, सामाजिक, पारिवारिक आदि सभी कार्यों में सहभागिता का पूर्ण अधिकार था। सामान्यतः संसार में नारी की स्थिति सुखद ही थी।

जैमिनी कृत मीमांसा सूत्र के छठे अध्याय में अधिकार विधि का वर्णन किया गया है। जिसमें नारी के अधिकारों के विषय में दो मत प्राप्त होते हैं- एक मत ऐतिशायन का तथा दूसरा मत बादरायण का है। 'दर्शपूर्णमासाभ्यां स्वर्गकामो यजेत्³² अर्थात् दर्शपूर्णमास यागो से स्वर्ग की कामना वाला यज्ञ करें। यहां प्रश्न होता है कि स्वर्गकामः शब्द स्वर्ग प्राप्ति की इच्छा वाले पुरुष के लिए प्रयुक्त किया गया है या स्त्री के लिए या स्त्री और पुरुष दोनों को अधिकृत करके प्रयुक्त हुआ है। इस पर ऐतिशायन कहते हैं कि यजेत् स्वर्गकामः पद में लिङ्ग विशेष अर्थात् पुल्लिंग के निर्देश से पुंधर्मयुक्त पुरुष ही याग का अधिकारी है।³³ इसका समाधान करते हुए आचार्य बादरायण कहते हैं कि स्वर्ग की इच्छा स्ती और पुरुष दोनों में समान होती है। पुरुष शब्द से जाति अर्थ ग्रहण किया जाता है। जिससे स्त्री और पुरुष दोनों याग के अधिकारी हैं।³⁴ आचार्य ऐतिशायन स्त्रियों के धन सम्बन्धी अधिकार को भी स्वीकार नहीं करते, वह कहते हैं कि स्त्रियां स्वतन्त्र रूप से धन की स्वामिनी नहीं है उनका अपना कोई धन नहीं होता स्त्री स्वयं ही क्रय और विक्रय की वस्तु है, अर्थात् वह पिता के द्वारा बेची जाती है तथा पति के द्वारा खरीदी जाती है।³⁵ बेची जाने के कारण पिता के धन की स्वामिनी नहीं होती तथा खरीदी जाने के कारण पति के धन की स्वामिनी नहीं होती है।³⁶ इस पर बादरायण स्त्री के द्रव्यवती होने के पक्ष को प्रस्तुत करते हैं कि स्त्री का धन से संयोग होने से वह निर्धना नहीं है।³⁷ जो यह कहा गया है कि स्त्री का क्रय-विक्रय किया जाता है। वह भी उचित नहीं है क्योंकि विवाह पूर्ण रूप से शुद्ध धार्मिक कार्य है, जिसमें खरीदने बेचने जैसा कार्य नहीं होता जो क्रय कहा गया है वह केवल धर्म मात्र है।³⁹

यह स्वीकार कर लेने पर कि स्तियों को भी यज्ञ का अधिकार प्राप्त है पुनः एक प्रश्न होता है कि क्या पत्नी पृथक यज्ञ करे यजमान पृथक यज्ञ करें अथवा मिलकर यज्ञ करें?⁴⁰ प्रकृत शंका का समाधान करते हुए उत्तरपक्षी कहता है कि यदि यह स्वीकार कर लिया जाएगा कि स्त्नी का स्वतंत्र रूप से यज्ञ में अधिकार है तो कुछ यज्ञ ऐसे भी हैं जिन्हें पति-पत्नी दोनों को मिलकर करना होता है और यदि पुरुष या पति उसे अकेला करेगा तब स्त्नी के द्वारा किया जाने वाला कार्य 'आज्यावेक्षण' आदि का लोप हो जाएगा। इसी प्रकार यदि स्त्नी स्वतन्त्न रूप से यज्ञ करती है तो फिर उसमें पुरुष के द्वारा किये जाने वाले आज्यावेक्षण का (घी का अग्नि में डालना) लोप हो जायेगा। इस प्रकार इन यागो में वैगुण्य हो जाएगा।⁴¹ अतः कहा जा सकता है कि यज्ञ में दंपत्ति का सहाधिकार है। पुनः प्रश्न होता है कि क्या सम्पूर्ण यजमान सम्बन्धी कार्य पत्नी के द्वारा किया जाए या आशीः और ब्रह्मचर्य, इनमें से क्या उचित है? यदि यह माना जाए कि सम्पूर्ण यजमान सम्बन्धी कार्य पत्नी के द्वारा किया जाए क्योंकि वह भी पुरुष के समान यज्ञ करने की अधिकारी है। इसका उत्तर देते हुए कहते हैं कि स्त्नी पुरुष के तुल्य नहीं है इसलिए पत्नी का जितना कर्म आशीः और ब्रह्मचर्य उसे उतना ही करना चाहिए।⁴² क्योंकि यजमान पुरुष और विद्वान है।

निष्कर्षतः यह कहा जा सकता है कि पूर्वमीमांसा दर्शन में स्तियों को धार्मिक एवं आर्थिक अधिकार प्राप्त थे। स्तियों के अधिकारों के सम्बन्ध में जो मतभेद प्राप्त होते हैं वह उस समय की सामाजिक स्थिति का परिणाम हो सकता है। मनुष्य एक सामाजिक प्राणी है। परिवार सामाजिक जीवन की सबसे महत्वपूर्ण इकाई है। परिवार ही मनुष्य को मानसिक आर्थिक तथा सामाजिक सुरक्षा प्रदान करता है। संयुक्त परिवार समाज को बनाता है तथा समाज समृद्ध राष्ट्र निर्माण में सहयोग करता है।प्रारम्भिक युग संयुक्त पारिवारिक प्रणाली पर आधारित था।

मध्यकाल तक संयुक्त परिवार ही प्रचलित था परंतु पाश्चात्य संस्कृति से प्रभावित होकर संयुक्त परिवार धीरे-धीरे बिखरने लगा।ऐसा कहा जा सकता है कि समाज विकास तथा पारिवारिक जीवन को सुदृढ़ करने के लिए ही जैमिनी ने स्त्री पुरुष को एक साथ यज्ञ करने का अधिकार दिया होगा क्योंकि परिवार, समाज, देश तथा राष्ट्र के कल्याण में स्त्री की महत्वपूर्ण भूमिका होती है।अन्त में इस प्रकार कहा जा सकता है कि रामायण और पूर्वमीमांसा दर्शन में नारियों की स्थिति अच्छी थी। उन्हें सभी अधिकार प्राप्त थे। नारियों से सम्बन्धित कुरीतियां यथा सती प्रथा, बाल विवाह आदि ने जन्म नहीं लिया था।

आज नारी विज्ञान हो या समाज राजनीति हो या धर्म, पर्यावरण हो या अंतरिक्ष, विद्यालय हो या महाविद्यालय, मंत्री हो या प्रधानमंत्री, सभी क्षेत्रों में अपनी योग्यता के अनुसार कार्य कर रही है। प्रतिभा पाटिल (राष्ट्रपति), श्रीमती इंदिरा गांधी (प्रधानमंत्री) किरण बेदी (आईपीएस अधिकारी), कल्पना चावला, पी°टी° उषा, लता मंगेशकर, सानिया मिर्जा, आदि नारियों ने अपनी प्रतिभा से सभी क्षेत्रों में अपना नाम अंकित किया है।आज नारी ने स्वयं के अनुभव,अपनी मेहनत तथा आत्मविश्वास से जीवन के लक्ष्यों को प्राप्त किया है। आज इस प्रतिस्पर्धात्मक युग में नारियां अपने अधिकारों के प्रति सचेत हैं। यह सत्य है कि वर्तमान समय में नारी की स्थिति में अनेक बदलाव आए हैं परन्तु आज भी ऐसे अनेक स्थान है, जहां वह पुरुष प्रधान मानसिकता से पीड़ित हैं। आज भी दहेज प्रथा आदि कुरीतियों के कारण नारियों की दयनीय दशा का वर्णन टी°वी°, समाचार पत्रों में दिखाई देता है। शिक्षा प्रचार एवं अपने अधिकारों के प्रति जागरुकता के द्वारा इन कुरीतियों को दूर किया जा सकता है। समाज का सभ्य नागरिक होने के कारण हमारा यह कर्तव्य बनता है कि हम इस दिशा की ओर प्रयासरत हो।

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