

FACULTY PROFILE PROFORMA

Title (Ms/Mr/Dr/Prof)	Dr.	First Name	Ranjana Roy	Last Name	Mishra	Photograph
Designation	Associate Professor					
Department	Botany					
Address (Official)	Department of Botany Kalindi College University of Delhi Delhi-110078					
Email	ranjanaroymishra@kalindi.du.ac.in					
Education						
Subject	Institution			Year	Details/ Rank	
B.Sc. (H) Botany	Hindu College, University Of Delhi			1997	First Rank in College	
M. Sc. Botany	Department of Botany, University of Delhi			1999	Fourth Rank In University	
Qualified CSIR-UGC (J.R.F.) NET	Qualified CSIR-UGC (J.R.F.) NET			1999	Life Sciences	
Ph.D. (Botany)	Department of Botany, University of Delhi			2006	Stress tolerance studies in three tomato cultivars and <i>Agrobacterium</i> -mediated transformation of cultivar 'Pusa Ruby' with <i>bspA</i> gene for drought tolerance.	
Awarded DBT-PDF through Indian Institute of Science, Bangalore	DBT- Post Doctoral Fellow at National Research Centre on Plant Biotechnology, IARI			2006 (March-July 2006)	Investigating the mechanism of thermo-tolerance in plants and genetic transformation of Wheat for improved tolerance to drought/ heat stress	
Career Profile						

Organisation/Institution	Designation	Duration	Role
S.G.T.B Khalsa College, University of Delhi	Guest Lecturer	Oct 18-Nov 28, 2005	Teaching Botany (H) students
Kalindi College, University of Delhi	Ad-hoc Lecturer	Oct 21-Nov 22, 2005	Teaching B. Sc. Life Science Students
Sri Venkateswara College, University of Delhi	Ad-hoc Lecturer	22 Nov 2005-30 September 2006	Teaching undergraduate Botany (H) Students
Zakir Husain College, University of Delhi	Ad-hoc Lecturer	October 2006 – November 2006	Teaching undergraduate Botany (H) Students
Kalindi College, University of Delhi	Ad-hoc- Lecturer	July 2007-April 30 , 2014	Teaching undergraduate Life Sciences, Botany (H) Students
Kalindi College, University of Delhi	Assistant Professor (Permanent capacity) Academic Level 10	Ist May, 2014	Teaching undergraduate Life Sciences, Botany (H) Students
Kalindi College, University of Delhi	Assistant Professor (Senior scale) Academic Level 11	2 nd May, 2014-1st May 2019	Teaching undergraduate Life Sciences, Botany (H) Students
Kalindi College, University of Delhi	Assistant Professor (Selection Grade) Academic Level 12	2 nd May, 2019-2 nd May 2022	Teaching undergraduate Life Sciences, Botany (H) Students
Kalindi College, University of Delhi	Associate Professor(Academic Level 13A)	3rd May, 2022-Till date	Teaching undergraduate Life Sciences, Botany (H) Students

Research Interests/Specialization

Plant Tissue culture/ Plant Biotechnology

Administrative Assignments / Contribution to corporate life

1. Convenor, Plant Incubation Centre, Kalindi College (June 2024 onwards)
2. Convenor, Add on Courses, Kalindi College (March 2023 – June 2024)
3. Teacher-In –charge, Department of Botany, (June 17, 2021- May 03, 2023)
4. Governing Body Member, Kalindi College (March 21, 2022- March 20, 2023)
5. Member, Research Projects Fund Allocation Committee, Kalindi College (September 2022-March 30, 2023)
6. Member (Science), Yearly Academic Journal, Kalindi College (September 2022- March 30, 2023)
7. Green Audit Convener, August 2021- December 2022
8. Criteria 1 Convenor, AQAR for NAAC (September 2022- till date)
9. Criteria 1 Convenor, SSR, for cycle II, NAAC Accreditation (2020- December 2022)
10. Arogya Club Convenor, 2021-till date
11. All India Survey for Higher Education (AISHE) committee Co- Convenor (2021- March 2023)

12. Member, Sports Committee (Kalindi College (June 2021-March 2023)
13. EWS Liaison officer, Kalindi College (Since 2019- July 2022)
14. Admission Committee 2021, 2022 (TIC Botany)
15. Admission committee 2020 (Co-convenor Humanities), Kalindi College, University of Delhi
16. Co- Convenor, Entrepreneurship Cell, Kalindi College, University of Delhi (2020)
17. Member, Grievance Committee, Kalindi College, 2019.
18. Member, Compilation of data of Kalindi College for participation in Atal Ranking of Institutes on Innovation Achievement (ARIIA) 2019
19. Co-convenor, Annual Cultural Festival "Lehren 2016".
20. Deputy coordinator for the evaluation of Examination of AECC (Ability Enhancement Compulsory Course) of Ist Year (CBCS) for the Academic Session 2015-16.
21. Member, Prize committee, Annual Day-2016.
22. Convener of admission committee of Physical Sciences (2014, 2015).
23. Convenor (certificates), Annual Cultural Festival "Lehren"-2015.
24. Team member of organizing committee (Convenor, stage property), His Holiness Dalai Lama visit to the college (February, 2015).
25. Convenor, Drafting Proposals of Kalindi College for B. Voc Programme to UGC, Community College Programme and KAUSHAL KENDRA scheme of UGC (2015).
26. Represented Kalindi college for presentation during interface meeting with expert committee for assessment of proposals for community college scheme at UGC (May, 2015).

Teaching Experiences (Subject/Courses taught)

19 years of Teaching experience in the papers of Genetics, Molecular Biology and Biotechnology, Cell biology, Biochemistry in various colleges of University of Delhi.

Research Guidance

NIL

Publication (Peer Reviewed/Indexed Journals) :

ORCID ID: 0000-0001-8763-8450 <http://orcid.org/0000-0001-8763-8450>

SCOPUS AUTHOR ID: 16514291600 <https://www.scopus.com/authid/detail.uri?authorId=16514291600>

Google Scholar ID: <https://scholar.google.com/citations?user=mAXsIecAAAAJ&hl=en&authuser=5>

Total Citations: 147, H-index-5, i10 index-4

Year of Publication		Title	Journal (Name of the journal. Vol Issue ISSN)	Authors
1.	2006	Transformation of tomato cultivar ‘Pusa Ruby’ with <i>bspA</i> gene from <i>Populus tremula</i> for drought tolerance.	Plant Cell Tissue and Organ Culture 84 (1): 55-67. Online ISSN No-1573-5044, IMPACT FACTOR- 2.3, citations= 89 https://link.springer.com/article/10.1007/s11240-005-9000-3	Ranjana Roy, Ram Singh Purty, Veena Agrawal & S. C. Gupta
2.	2006	Promoterless <i>gus</i> gene shows leaky β-glucuronidase activity during transformation	Biologia Plantarum 50 (3): 352-358. Print ISSN NO. -0006-3134, Online	Ranjana Roy, Ram Singh Purty, Veena

		of tomato cultivar 'Pusa Ruby' with <i>bspA</i> gene for drought tolerance	ISSN No-1573-8264, IMPACT FACTOR-0.8, citations = 7 https://link.springer.com/article/10.1007/s10535-006-0049-6	Agrawal & S. C. Gupta
3.	2009	Comparison of drought induced polypeptides and ion leakage in three tomato cultivars.	Biologia Plantarum 53(4): 685-690. Print ISSN NO. -0006-3134, Online ISSN No-1573-8264, IMPACT FACTOR-0.8, citations = 22 https://link.springer.com/article/10.1007/s10535-009-0123-y	Ranjana Roy , Veena Agrawal & S. C. Gupta
4.	2011	Mannitol, PEG and NaCl induced polypeptide changes during <i>in vitro</i> culture of three tomato cultivars.	Biologia Plantarum 55 (3):591-595. Print ISSN NO. -0006-3134, Online ISSN No-1573-8264, IMPACT FACTOR-0.8, citations =10 https://link.springer.com/article/10.1007/s10535-011-0132-5	Ranjana Roy , Veena Agrawal & S. C. Gupta
5.	2016 (Dec' 15 - Jan' 16)	Genetically Modified Plants: Boon or Bane?	Everyman's Science 50 (5): 320-324 ISSN No. 0531-495X. citations= 1 https://sciencecongress.net.in/hindi/pdf/e-book/dec_2015_jan_2016.pdf#page=40	Ranjana Roy Mishra
6.	2017	Society, Religion and Biodiversity Conservation in India	The Clarion-Multidisciplinary International Journal 6 (2) 53-58. Print ISSN : 2277-1697, Online ISSN: 2277-937X Citations =2 https://www.cabidigitallibrary.org/doi/full/10.5555/20183174011	Ranjana Roy Mishra
7.	2020	Adoption of genetically modified crops can ensure food security in India.	National Academy Science Letters 43 (2) 213-217. https://link.springer.com/article/10.1007/s40009-019-00829-7 Print ISSN :0250-541X Online ISSN: 2250-1754 Impact factor 1.2 Citations=16	Ranjana Roy Mishra

8.	2024	Golden Rice Deserves a Chance	Science and Culture 90 (3-4) 122-125 ISSN 0036-8156 https://scienceandculture-isna.org/uploads/latestIssue/March-April_2024_Abstract-6.pdf	Ranjana Roy Mishra
9.	2024	Phytochemical analysis and comparison of some selected plants	Vegetos (Online first, 24 October) https://link.springer.com/article/10.1007/s42535-024-01062-4	Ranjana Roy Mishra
10	2025	Transgenic plants as bioreactors for the production of edible vaccines	Journal of Phytopharmacology 14(2):127-129 ISSN 2320-480X doi: DOI:10.31254/phyto.2025.14208	Ranjana Roy Mishra
11	2025	Phytochemical analysis of <i>Plectranthus scutellarioides</i> (<i>Coleus</i>)	International Journal of Pharmacy & Life Sci. 16(5): 6-9 ISSN:0976-7126 https://ijplsjournal.com/index.php/ijpls/article/view/280	Ranjana Roy Mishra

12) Publication in Peer Reviewed Proceedings of National Conference

Ranjana Roy Mishra (2017) Microalgae based biofuel is promising fuel for future. In: Proceedings of NCGE 2017, UGC sponsored National Conference on "Clean & Green Energy: The Chemical and Environmental Aspects" (NCGE-2017) organized by Department of Chemistry, Bhaskaracharya College of Applied Sciences, University of Delhi on February 16-17, 2017, Pages 45-49. ISBN 978-1-63535-362-4 (Eds. Balram Pani & Manjeet Singh Barwa) Enriched Publications Private Limited, Delhi.

Other Publications

13) Ranjana Roy, Veena Agrawal & S. C. Gupta (2009-10) *In vitro* phenolics exudation in *Mangifera indica* L. Yearly Academic Journal, Kalindi College, **Vol. 9: 86-92**. ISSN no. 2348-9014

14) Ranjana Roy, Veena Agrawal & S. C. Gupta (2010-11) Effect of osmotic and salt stresses on seed germination of two tomato cultivars. Yearly Academic Journal, Kalindi College, **Vol. 10: 109-117**. ISSN no. 2348-9014

15) Ranjana Roy Mishra (2015-16) Kalindi College: A beautiful treasure of plant biodiversity. Yearly Academic Journal, Kalindi College, **Vol. 15: 15-18** (ISSN No. 2348-9014).

16) Invited obituary Written in honour of Professor Shrish Chandra Gupta in Journal Phytomorphology (2024) **74: 171-172**. (ISSN No. 0031-9449)

E-Content Developed	Video lectures uploaded on various topics of Genetics, Biotechnology, Economic Botany and Ethnobotany on You tube channel Geneticsbiotechbio Link of Channel: http://www.youtube.com/@geneticsbiotechbio1954 Channel Id: UCMY5bAKhVumm_3Wpvmf8JvA
Seminar/Workshop/Conferences Presentation/Organisation	
Orientation Course	
78thOrientation Course (OR-78) at UGC Academic Staff Centre for Professional Development in Higher Education (CPDHE), University of Delhi, Delhi (November 10 to December 06, 2014).	
Refresher Course	
1. Successfully completed Swayam ARPIT course in “ Skills for New Educational Architecture” from December 1, 2020 to March 31, 2021 for Career Advancement Scheme (CAS) promotion in the proctored examination held on 21/8/2021 offered by Sant Gadge Baba Amravati University, Maharashtra. 2. Successfully completed Swayam ARPIT course in “Refresher Course on Teacher and Teaching in Higher Education” from December 1, 2020 to March 31, 2021 for Career Advancement Scheme (CAS) promotion in the proctored examination held on 21/8/2021 offered by Savitri Phule Pune University, Pune, Maharashtra. 3. Successfully completed Swayam ARPIT course in "Biotechnology" for Career Advancement Scheme (CAS) promotion in the proctored examination held on 30.03.2019 Offered by Mohanlal Sukhadia University, Udaipur, Rajasthan. 4. Successfully completed Swayam ARPIT course in “Latest Trends in Pedagogy and Assessment” for Career Advancement Scheme (CAS) promotion in the proctored examination held on 30.03.2019 Offered by Central University of South Bihar. 5. Refresher course in Environmental Sciences/ Earth Sciences at UGC-HRDC Academic Staff Centre for Professional Development in Higher Education (CPDHE), University of Delhi, Delhi (October 13 to November 04, 2015).	
Resource person in Training of Laboratory staff	
NAAC sponsored National Workshop on “Skill Enhancement at Institutions of Higher Learning: Training Today from Tomorrow” Organized by the Internal Quality Assurance Cell (IQAC), Kalindi College at Kalindi College, University of Delhi (January 11, 2019).	
Faculty Development Programme	
Online FDP:	
(a) One week Online FDP “E- content Development” (June 06-12, 2020) organized by Sanatan Dharma college, Ambala Cantt, Haryana in Collaboration with Directorate of Higher Education, Haryana.	
(b) One week Online FDP “Pedagogical Training for Effective Online Teaching & Learning” (August 03-10, 2020) organized by Deen Dayal Upadhyaya College, University of Delhi in association with K.T.H.M College, Nashik.	

(c) Three day online FDP “ Outcome Based Education” organized by Rai University, Ahmedabad, Gujrat in association with Inpods India, Pune. (22-24 July, 2020)

(d) Participated in two days Faculty Development Programme on “ Agriculture, Health and Society” organized by Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi (15-16 March, 2019).

Webinars attended

1. Webinar on “ Indo-Bangladesh strategies for combating predatory publishing practices” on January 04, 2024, organized by INYAS India and NYAB Bangladesh, in association with DST-CPR, IISc and INSA, India.
2. Webinar on National Education Policy 2020 on the theme "National Credit Framework" on 12th February 2024 ,organized by CPDHE, University of Delhi.
3. Attended webinar on “ Tools & Techniques to avoid Plagiarism in E-Content Development” organized by E-Content Development Committee, Kalindi College on November 9th 2021.
4. Online Hands on training session “ E- content development using basic tools” (September 27, 2021) organized by E-content development committee, Kalindi College, University of Delhi.
5. “ How to avoid predatory Publishing? What Researchers can do” (July 24, 2021) organized by Research Committee under the aegis of IQAC, Kalindi College, University of Delhi.
6. “GeoPolitics of Vaccine: Access, R &D and Manufacturing” (June 22, 2021) organized by Kalindi College, University of Delhi.
7. International webinar “Ecosystem Restoration” (June 5, 2021) organized by PGDAV College, University of Delhi.
8. “Tinkering with Plant Genomics” (July 06, 2020) organized by Department of Botany, Miranda House, University of Delhi.

Workshops Attended:

7. “Recent techniques in gene cloning, sequencing and DNA profiling” at CIMAP, Lucknow (Nov 20-29, 2000).
8. Workshop for teachers on Biology Laboratory Course (Course code: BY 106) for B.Sc. Programme 1st Year organized by Institute of lifelong learning and Daulat Ram College at Daulat Ram College, University of Delhi, Delhi (September 2-4, 2008).
9. Workshop for teachers on Biology Laboratory Course (Course code: LS 306) for B.Sc. Programme III Year organized by Institute of lifelong learning and Acharya Narendra Dev College at Acharya Narendra Dev College, University of Delhi, Delhi (October 21-24, 2008).
10. ILLL Workshop Tier II for capacity building of Delhi University faculty at Kalindi College, University of Delhi, Delhi (April 16-28, 2010).
11. Orientation Workshop on “Use of Technologies in Teaching” at CPDHE (Centre for Professional Development in Higher Education), Academic Research Centre, Patel Marg, University of Delhi (17th to 18th October, 2014).

12. One day Workshop “*Ankuran*” on Development of Herbal Garden organized by Eco-Club of Shivaji college (sponsored by National Medicinal Plant Board in association with Centre for Environment Education), at Shivaji College, University of Delhi, Delhi (29th January, 2015).
13. Lecture workshop on *Women in Science: A Career in Science* organized by Women in Science Panel, Indian Academy of Sciences, Bangalore and Science Foundation, Deen Dayal Upadhyaya College (University of Delhi) at Deen Dayal Upadhyaya College, Dwarka, Delhi (10-11 August, 2017).
14. Science Academies’ Lecture Workshop on “Role of Epigenetics in Health and Diseases” organized by Department of Zoology, Deen Dyal Upadhyaya College and jointly sponsored by Indian Academy of Sciences, Bengaluru, Indian National Science Academy, New Delhi and the National Academy of Sciences, Allahabad (5-6 April, 2018).
15. One day workshop on “Recent Advances in Plant Systematics and Future Prospects” on March 12, 2019 (Department of Botany, Dayal Singh College, University of Delhi).
16. Two day National Workshop on “Intellectual Property Rights” organized by Department of Botany and Zoology, Deen Dayal Upadhyaya College under the aegis of DBT star college scheme at Deen Dayal Upadhyaya College, University of Delhi (22- 23 August, 2019).
17. Two day Workshop on " DNA barcoding and Metagenomics" organized by Department of Botany, KiroriMal College under the aegis of DBT star college scheme 2019-2022 at Kirorimal College, University of Delhi (September 19-20, 2019).

Seminars, Conferences Attended:

18. National Orchid show and symposium on “Orchid Research, Production and Marketing strategies” organized by The Orchid Society of India (TOSI) at CSIR Science Centre, New Delhi. (November 8-10, 2002).
19. National seminar on “Genetically Modified and Transgenic Food Crops” organized by Delhi University Botanical Society (DUBS) at the Department of Botany, University of Delhi, Delhi – 110007 (November 26-27, 2002).
20. 2nd International Congress of “Plant Physiology on Sustainable Plant Productivity under Changing Environment” held at IARI, New Delhi (January 8-12, 2003).
21. National Seminar on Climate Change in India and its Impact on Plant Diversity and Productivity organized by Delhi University Botanical Society (DUBS) at Department of Botany, University of Delhi, Delhi-110007 (December 22-23, 2003).
22. 5th Annual Symposium on Frontiers in Biomedical Research held at Dr. B.R. Ambedkar Centre for Biomedical Research, University of Delhi, Delhi -110007 (April 14 -16, 2004).

23. International Conference on Chemistry Biology Interface: Synergistic New Frontiers held at Vigyan Bhawan, New Delhi, organized by Dr. B.R.Ambedkar Centre for Biomedical Research, University of Delhi, Delhi-110007 (November 21-26, 2004).
24. National seminar on “Genetically Modified Organisms- Biosafety Aspects” organized by Delhi University Botanical Society (DUBS) at Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi (March 10-11, 2005).
25. National Symposium on Frontiers and Avenues in Plant Sciences held at Shivaji college, University of Delhi, Delhi (January 20-21, 2011).
26. 1st International Conference on Emerging Trends of Nanotechnology in Drug Discovery organized by Sri Venkateswara College and Department of Biochemistry, University of Delhi South Campus in association with University of Madeira, Portugal on May 26-27, 2014.
27. “Training and Awareness Program on Intellectual Property rights” jointly organized by The Controller General of Patents, Designs and Trademarks, Department Of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India, Delhi University and Federation of Indian Chambers of Commerce and Industry (FICCI) on November 2, 2014 at Conference Centre, North Campus, University of Delhi, Delhi.
28. National Seminar on Relevance of Medicinal Plants in 21st Century organized by Department of Botany, Ramjas college, University of Delhi (Feb 10-11, 2015).
29. Oral Presentation of Paper “ Society, Religion and Biodiversity Conservation in India with special reference to sacred plants” in UGC sponsored National Seminar on “ Environmental Ethics, Resource Depletion and Sustainable Development ” organized by Department of Geography, Kalindi College, University of Delhi on 25th and 26th February, 2016.
30. Contributed article “ Genetically Modified Crops and Food Security” in DST and Ministry of Earth Sciences sponsored International Conference on “Spatial Decision Support System for United Nation Sustainable Development Goals” Organised by Department of Geography, Kalindi College, University of Delhi on February 1-2, 2017 at Kalindi College, University of Delhi.
31. Participated and Contributed article "Microalgae based Biofuel is Promising Fuel for Future" in UGC sponsored National Conference on "Clean & Green Energy: The Chemical and Environmental Aspects" (NCGE-2017) organised by Department of Chemistry, Bhaskaracharya College of Applied Sciences, University of Delhi on February 16-17, 2017 at Bhaskaracharya College of Applied Sciences, Dwarka, Delhi.
32. Participated in the 2nd Knowledge Conclave for Colleges and Universities organized by Centre for Science and Environment on March 6-7, 2017 at Gulmohar Hall, India Habitat Centre, Lodhi Road, New Delhi.
33. National Conference on “Biotechnology for Sustainable Agriculture - Biotikos 2019” at TERI school of Advanced studies, Vasant Kunj, New Delhi (April 17, 2019).
34. National Conference on “Biotechnology for Sustainable Agriculture - Biotikos 2019” at TERI school of Advanced studies, Vasant Kunj, New Delhi (April 17, 2019).

35. Two day National Workshop on “ Intellectual Property Rights” organized by Department of Botany and Zoology, Deen Dayal Upadhyaya College under the aegis of DBT star college scheme at Deen Dayal Upadhyaya College, University of Delhi (22- 23 August, 2019).
36. Two day Workshop on " DNA barcoding and Metagenomics" organized by Department of Botany, KiroriMal College under the aegis of DBT star college scheme 2019-2022 at Kirorimal College, University of Delhi (September 19-20, 2019).

Academic Works assigned by University

1. Appointed as member of Board of Examiners responsible for setting the question paper “ Genetics, Genomics & Molecular Biology (LS204)” for B.Sc. (Prog.) Life Science Part II Admission 2005-2009 Centenary Chance Examination 2022 for Ex-students who could not complete their degree within the span period.
2. Appointed as Convenor of Board of Examiners responsible for setting the question paper “ Molecular Biology (UPC 32161401)” for B.Sc. (H) Botany Semester LOCF (Second Phase of Undergraduate) and annual examination August, 2022 examination.
3. Appointed as Convenor of Board of Examiners responsible for setting the question paper “ Molecular Biology (UPC 32161401)” for B.Sc. (H) Botany Semester LOCF end semester June, 2022.
4. Appointed as a member of Board of Examiners responsible for setting the question paper “ Genetics (UPC 32161303)” for B.Sc. (H) Botany Semester III CBCS end semester Online Open Book examinations held in December, 2020.
5. Joint Examiner in the Board of Examiners for setting of the question paper “Plant Biotechnology” for the B.Sc. (H) Botany Erstwhile FYUP Semester VI examinations (May-June, 2016).
6. Convenor of the Board of Examiners for setting of the question paper “Genetics and Genomics” for the B.Sc. (Prog.) Life Sciences Semester V examinations (November-December, 2014).
7. Member in Board of Examiners for setting of the question paper of “environmental Sciences” paper for B.Sc. (Prog.) Applied Life Sciences, 2012.

Other Academic Work

Contributed articles in college Academic Journal (2009-10, 2010-2011)

Awards & Distinctions

1st Rank Holder In Hindu College, University of Delhi in B. Sc. (H) Botany (1997)
 4th Rank in University in M. Sc. Botany, University of Delhi (1999)
 Received UGC J. R. F (2000-2002)
 Received UGC S.R.F (2002-2005).
 Awarded DBT-Post Doctoral Fellowship through Indian Institute of Science, Bangalore (2006)

Public Service/ University Service/ Consulting Activity- Nil

Professional Societies Memberships: Life Member of The Indian Science Congress Association (Membership No. L29383)
Projects (Major Grants / Collaborations)- Nil
Other Details ORCID ID: 0000-0001-8763-8450 http://orcid.org/0000-0001-8763-8450 SCOPUS AUTHOR ID: 16514291600 https://www.scopus.com/authid/detail.uri?authorId=16514291600 Google Scholar Profile: https://scholar.google.com/citations?user=mAXsIecAAAAJ&hl=en&authuser=2 Total Citations: 147, H-index-5, i10 index-4