

RESUME

SUROCHITA BASU, Ph.D.

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ACADEMIC QUALIFICATIONS

Ph.D. (Botany)	2008	Central Institute of Medicinal and Aromatic Plants, Lucknow	University of Lucknow	Chromosome and Genome identification through conventional and molecular cytogenetic analysis in certain medicinal plants, with major emphasis on <i>Chlorophytum</i> and <i>Aloe</i>
M.Sc. (Botany)	2001	University of Calcutta	University of Calcutta	69.5 Botany (Specialisation: Cell Biology, Molecular Genetics and Plant Tissue Culture)
B.Sc (Honours) partI-1 st and 2 nd year partII-3 rd year	1999 1996-1998	Presidency College, Calcutta	University of Calcutta	61.6 Botany (Honours), Zoology, Chemistry
	1999			62.5 Botany (Honours)
Intermediate (10+2)	1995	Loreto Convent College, Lucknow	U.P. Board	69.2 Hindi, English, Biology, Physics, Chemistry
High School	1993	St. Agnes' Loreto Day I.C.S.E School, Lucknow		81.5 English, Hindi, Mathematics, Science, History Civics Geography, Sanskrit

RESEARCH APTITUDE

Qualified CSIR-UGC National Eligibility Test (NET) jointly conducted by CSIR and UGC in June 2001 as CSIR- JRF and LS. Qualified Graduate Aptitude Test in Engineering (GATE) in 2002 with 96.69 percentile score

RESEARCH EXPERIENCE

Six years research experience in Cytogenetics and Medicinal & Aromatic Plant Breeding at Central Institute of Medicinal and Aromatic Plants as Research Fellow under the supervision of Prof. U.C. Lavania from March 2002 to January 2008 (CSIR-JRF-NET & SRF) and Fourteen years research and teaching experience after Ph.D. Supervised one PhD. Candidate, Degree Awarded.

TEACHING EXPERIENCE

Two-year Teaching experience as Assistant Professor & Head In-Charge of Botany at R.K. Mahavidyalaya, Kailashahar, North Tripura; under Tripura University (April 2008-Feb2010) and more than sixteen years- as Assistant Professor of Botany at Tripura University, Suryamaninagar since Feb 2010. As Associate Professor since July 2021- Till Date. Participated in Orientation Programme 97 in 2009 and Refresher Course in Botany, Microbiology in 2013 at UGC-Academic Staff College, Lucknow University and Interdisciplinary Refresher Course on Naitalim in 2019 at FDC and Refresher course in Science and Technology in 2019, at Tripura University

AREA OF RESEARCH

Cytogenetics of medicinal plants; evolutionary evaluation of genome and chromosome structure through conventional and molecular cytogenetic analysis; Genetic manipulation of medicinal plants and progeny maintenance for crop improvement programme and evaluation of prospective better models; Fundamental research on karyotype and meiotic chromosome analysis in *Chlorophytum*, *Aloe*, *Costus* and *Ophiopogon*; Genetic manipulation and meiotic chromosome analysis of *Vetiveria*, *Withania*, *Bacopa* and *Cymbopogon*. Cytotoxicity evaluation of environmental and plant extracts using conventional and new plant bioassays

PUBLICATIONS AND HONOURS/AWARDS

Twentyone Research Papers, One Research Paper in Proceeding, Four papers as chapters in book, One US Patent and several abstracts and presentations in seminars/ conferences. Five National including two Gold Medal Awards and two International awards

RESEARCH SUPERVISION

Supervised one **INSPIRE Fellow** for Ph.D. Candidate **Debasree Lodh** awarded PhD. degree in 2018 on **“Chromosomal variations in some important plant species of Tripura used in Ayurveda”** The work led to identification of multiple cytotypes from natural populations of *Costus speciosus* and new distributional record of a species of *Mucuna* from the state of Tripura.

Supervised 42 M.Sc dissertations till date

PROJECT

Completed a Research Project on **Delineation of cytotypic diversity in *Costus Speciosus*, *Ophiopogon* and *Melastoma* of Tripura to elucidate significance of chromosomal variation in Conservation**; more than 10 lacs, funded by **CSIR, Government of India, 2016-2019.**

HONOURS/ AWARDS / FELLOWSHIPS

NATIONAL

1. National Scholarship of the Government of India in 1999 for standing in merit at B.Sc. level.
2. Junior and Senior Research Fellowship (CSIR-NET-JRF) 2001.
3. “Certificate of Merit” for Best poster presented during 25th Silver jubilee conference of the Indian Botanical Society held on 27th -29th October 2002
4. “Certificate of Merit” for Best poster presented during 26th Annual conference of the Indian Botanical Society held on 28th -31st December 2003
5. “Certificate of Merit” for Best poster presented during 27th Annual conference of the Indian Botanical Society held on 29th -31st October 2004
6. “K.S. Bilgrami Gold Medal” for Young Botanist 2006 for Best poster presented 29th Annual conference of the Indian Botanical Society held at ML Sukhadia University, Udaipur during 9th -11th Oct.2006.
7. “Prof. S. N. Dixit Gold Medal” for Best Poster Presentation at the 40th All India Botanical conference of the Indian Botanical Society held at Punjabi University, Patiala during 15th -17th September 2017

INTERNATIONAL

1. “Certification Of Technical Excellence (Class II)” for excellence in Research and other uses by International Vetiver Network, USA in 2006
2. “Certification Of Excellence (The King of Thailand Vetiver Awards)” for excellence in Research in Vetiver in Agricultural Sciences by Fifth International Conference on Vetiver in 2011

MEMBERSHIP

Life member of Indian Science Congress Association
Life member of Indian Botanical Society

PATENT

1. **US Plant Patent No. PP26,47** Filing No 13/506,598 Inventors: Lavania UC, Rai SK, Lavania S, Basu S, Dubey BK, Ram Ujagir. Autotetraploid *Vetiveria zizanioides* plant useful for carbon sequestration and soil conservation named ‘CIMAP-KH 40’

RESEARCH PAPERS IN INTERNATIONAL/ NATIONAL JOURNALS

1. Srivastava S, Lavania UC, Mishra NK, **Basu S**, **2002**: Chromosome behaviour in diploid and its bearing on tetraploid meiosis in *Bacopa monnieri* (L) Pennell. *Nucleus* **45**: 57-60. (IF: **0.57**) ISSN 0976-7975.
2. Lavania UC, **Basu S**, Srivastava S, Mukai Y, Lavania S, **2005**: In Situ Chromosomal Localization of r-DNA Sites In 'Safed Musli' *Chlorophytum* Ker Gawl and their Physical Measurement by Fiber FISH. *Journal of Heredity* **96**: 155-160. (IF: **2.81**) ISSN 1465-7333.
3. Lavania UC, Misra NK, Lavania S, **Basu S**, Srivastava S, **2006**: Mining de novo diversity in palaeopolyploids. *Current Science* **90** (7): 938-941. (IF: **0.72**) ISSN 0011-3891.
4. Lavania UC, Kushwaha JS, Lavania S, **Basu S** **2010**: Chromosomal Localization of rDNA and DAPI bands in solanaceous medicinal plant *Hyoscyamus niger* L. *Journal of Genetics* **89** (4): 493-496. (IF: **1.18**) ISSN 1673-8527.
5. Lavania UC, Srivastava S, Lavania S, **Basu S**, Misra NK, Mukai Y **2012**: Autopolyploidy differentially influences body size in plants, but facilitates enhanced accumulation of secondary metabolites, causing increased cytosine methylation. *The Plant Journal* **71** (4): 539-549. (IF: **6.58**) ISSN 0960-7412.
6. Lodh D, **Basu S** **2013**: Karyomorphological analysis and cytotypic diversity in natural populations of *Costus speciosus* Koen. ex Retz. *Nucleus* **56**(3):155-162. (IF: **0.56**) ISSN 0976-7975.
7. Lavania UC, **Basu S**, Kushwaha JS, Lavania S **2014**: Seasonal temperature variations influence tapetum mitosis patterns associated with reproductive fitness. *Genome* **57**(9):517-521. (IF: **2.16**) ISSN 0831-2796.
8. **Basu S**, Lodh D **2018**: Artificial induction of polyploidy in *Andrographis paniculata* (Burm.F.) Wall ex Nees. *J. Indian Bot. Soc.* **97**(1):21-28. (IF: **0.88**). ISSN 0019-4468.
9. **Basu S** **2019**: Meiotic correlations and bound arm associations between the diploid and autotetraploid of *Withania somnifera* (L.) Dunal, and implications on genetic stability. *Nucleus* **62**(1):15-20. (IF: **0.56**) ISSN 0976-7975.
10. Das P, Pal S, **Basu S** **2020**: Metabolic adaptability in liver and gastrocnemius muscle of mice following subacute lead toxicity. *Toxicology and Industrial Health* **36**(7): 487-501. (IF: **1.71**). ISSN 0748-2337.
11. **Basu S**, Brahma R **2020**: Chromosomal aberrations in *Allium cepa* induced by drinking water samples: A case study. *Inter. J. Geo. Earth Env. Sci.* **10**(3): 100-108. ISSN 2277-2081.
12. **Basu S**, Majumdar R **2020**: Differential cytotoxicity of *Melastoma malabathricum* L. aqueous extract on root meristem cells of *Allium cepa* L. *Inter. J. Sci. Inno. Res.* **8**(1): 24-44. ISSN 2347-2189.

13. Basu S, Tripura K 2021: Differential sensitivity of *Allium cepa* L. and *Vicia faba* L. to aqueous extracts of *Cascabela thevetia* (L.) Lippold. *South African J. Botany* **139**: 67-78. (IF 2.32) ISSN 0254-6299.

14. Nath B, Basu S 2021: Genotoxic effect of *Clerodendrum infortunatum* L. aqueous leaf decoction on root meristem cells of *Allium cepa* L. *Journal of Scientific Research* **65**(5): 56-61. ISSN 0447-9483.

15. Vimala Y, Lavania UC, Singh M, Lavania S, Srivastava S, Basu S 2022: Realization of Lodging Tolerance in the Aromatic Grass, *Cymbopogon khasianus* Through Ploidy Intervention. *Frontiers in Plant Science*. May 2022, Volume 13, Article 908659:1-10. (IF 6.0) ISSN 1664-462X.

16. Basu S, Lodh D 2022: Incidence of facultative pseudovivipary in tetraploid cytotype of *Costus speciosus* (Koen. ex. Retz.) Smith. *Journal of Indian Bot. Soc.* **102** (4): 347-352. (IF 0.87) ISSN:0019-4468

17. Basu S 2023: Elucidating karyotype structure and affinity through application of karyomorphological parameters and multivariate analysis, as discerned from the study of four important legumes. *Nucleus* **66**: 39-46 (IF: 2.18) ISSN 0976-7975.

18. Uddin J.Md. Patari P, Basu S, Sil SK, Nag SK 2024: Physico-chemical characterization and antioxidant activity of *Mucuna imbricata* (MI) DC. ex Baker tinctures. *Interactions* **245**:316 (IF: 1.27) ISSN 3005-0731

19. Lekhak MM, Basu S, Chougule R, Yamamoto M, Mukai Y 2025: Cellular and molecular cytogenetics of Safed Musli (*Chlorophytum*): gaps and the way forward. *Nucleus* **67**:531-545. (IF: 2.8) ISSN 0976-7975

20. Das D, Chingakham N, Bhaladhare S, Sarma M, Basu S 2025: Cellulose-based biodegradable superabsorbent hydrogel: A sustainable approach for water conservation and plant growth in agriculture. *International Journal of Biological Macromolecules* **305**: 141176 (IF: 7.7) ISSN 1879-0003

21. Basu S, Deb U, Das R, Adhikari S 2026: Bulbil formation in stress: crucial role of triploid fitness in mixed ploidy dynamics in *Costus speciosus*. *Plant Species Biology* **41**e70035 (IF:1.33) ISSN 0913557X / 14421984

RESEARCH PAPERS IN PROCEEDINGS

1. Lavania UC, Basu S, Lavania S 2006: Towards Bio-Efficient and Non-Invasive Vetiver: Lessons from Genomic Manipulation and Chromosomal Characterization. In Proceedings of the Fourth International Vetiver Conference.

RESEARCH PAPERS IN BOOKS

1. Lodh D, Patari P, Basu S, Jasim Uddin Md 2017: Diversity, Botany and Importance of two *Mucuna* species: *M. bracteata* DC. and *M. interrupta* Gagnep. in Tripura. In Trends in Frontal Areas of Plant Science Research. Ed. S.Sinha, R.K. Sinha, Narosa Publishing House:181- 189. ISBN 978-81-8487-605-5

2. Patari P, **Basu S** 2019: Chromosome Damage in root meristem cells of *Allium cepa* upon treatment with aqueous extract of *Mucuna monosperma* Dc. In Recent trends in Biodiversity Conservation and Bio-resource Utilization. Ed. A. Guha, D.Sen, New Delhi Publishers:293-299. **ISBN 978-93-88879-27-9**
3. Reang JS, **Basu S** 2021: Cytotoxicity assessment of *Diospyros lanceifolia* Roxb. using *Allium cepa* test. In Biological Sciences: Impacts on Modern Civilization, Current and Future Challenges. Ed. Anupam Guha, New Delhi Publishers, New Delhi: 167- 175. **ISBN 978-81-947417-4-9**, DOI: 10.30954/ndp.bio.2020.15
4. Kumar A, Neeraj, Chaurasia U, Maurya DK, Basu S, Kumar A, Maurya VK 2023: 'Omics' approaches for structural and functional insights of 'Waste to Energy' Microbiome. In Current Research Trends and Applications in Waste Management. Eds. BK. Kashyap, MK Solanki, Springer Nature Singapore: 293-299. **ISBN 978-981-99-3105-7**, doi 10.1007/978-981-99-3106-4

ABSTRACTS/ PAPERS IN CONFERENCES AND SEMINARS

1. Lavania UC, Mishra NK, Srivastava S, **Basu S**, Lavania S (2002) Bud sports in *Mentha arvensis*. *Jour. Indian Bot. Soc.* 81 S: 60.
2. **Basu S** (2003) Somatic and mitotic characterization of *Chlorophytum comosum* Jacques. *Jour. Indian Bot. Soc.* 82 S: 86.
3. Srivastava S, Mishra NK, **Basu S** (2003) Cytogenetic evaluation and breeding perspectives of induced autotetraploids vis a vis genotypic diversity in the Aromatic Grass *Cymbopogon martinii*. *Abstracts* S: 79.
4. Lavania UC, Mishra NK, Srivastava S, **Basu S**, Kushwaha JS, Lavania S (2004) Bud sport variation: A potential genetic resource for secondary metabolite prospecting in *Mentha arvensis*. *Jour. Indian Bot. Soc.* 83 S: 70.
5. **Basu S** (2006) Genomic multiplication facilitates non-invasive and bio-efficient features in Vetiver. *Jour. Indian Bot. Soc. Abstracts* S: 170.
6. **Basu S**, Kushwaha JS (2006) Mitotic patterns during syncyte formation in tapetal cells of *Cymbopogon jwarunkusha* X *C. confertiflorus*. *Jour. Indian Bot. Soc. Abstracts* S: 86.
7. **Basu S**, Lavania UC (2008) Karyotype Orthoselection in Aloe. *Jour. Indian Bot. Soc.* 86 S: 295.
8. **Basu S** (2009) Plant in Bioengineering. National Seminar. Ramkrishna Mahavidyalaya, Kailasahar
9. Lavania UC, **Basu S**, Kushwaha JS, Srivastava S, Lavania S (2011) Clonal polyploids in the aromatic grasses, the Cymbopogon, Breeding prospects and seasonal variation in reproductive fitness. *Jour. Indian Bot. Soc. Abstract*: 214.
10. **Basu S**, Verma D, Lavania S (2011) Essential oil accumulating cells in vetiver roots necessitate microbial associations for oil biogenesis. **Abstract S: 44**.

11. Lavania UC, Srivastava S, Rai SK, **Basu S**, Verma D, R Seema, Lavania S (2011) Botanical, Cytogenetical and Molecular characterization of the two common species of *Vetiveria*, and ploidy mediated reduced fertility. **Abstract S: 44**
12. Rai SK, **Basu S**, Srivastava S (2013) DNA marker, ITS nrDNA sequence and karyomorphology based characterization of oleiferous and non-oil species of *Vetiveria* L. **100th ISCA**
13. Lodh D, **Basu S** (2013) Chromosomal characteristics of *Ophiopogon japonicas* (L.f) KerGawl. **100th ISCA**
14. **Basu S** (2014) Cytotoxic effect of *Diospyros lanceifolia* Roxb. on root cells of *Allium cepa*. *Jour. Indian Bot. Soc.* **92 S.**
15. **Basu S** (2015) Mitigation of genetic variation in *Withania somnifera* through polyploid intervention. **102nd ISCA**
16. Lodh D, **Basu S** (2015) Facultative pseudovivipary and ant interaction in *Costus speciosus* (Koen. ex. Retz.) **102nd ISCA**
17. **Basu S** (2015) The Fascinating World of FISH. Seminar on Advances in Modern Biotechnology, State Biotech Hub, Tripura University
18. **Basu S** (2016) Cytotoxic effect of Indian cedar aqueous wood extract on meristem cells of *Allium cepa*. *Jour. Indian Bot. Soc. Abstract S.*
19. **Basu S** and Srivastava S (2017) Karyomorphological variations vis-a-vis polyploidy and speciation in *Chlorophytum* Ker Gawl. *Jour. Indian Bot. Soc. Abstract S.*
20. **Basu S** and Nath B. (2017) Evaluation of cytotoxic potential of *Clerodendrum infortunatum* L. using *Allium cepa* test. In **104thISCA**
21. **Basu S** (2020) Cytotoxic effects of *Melastoma malabathricum* L. water extract on *Allium cepa* L. In **107th ISCA**
22. **Basu S** (2021) Development of Shoot apical meristem: A perspective. *Jour. Indian Bot. Soc. Abstract S.*
23. **Basu S** (2022) Karyotype of four plant species of Fabaceae. *Jour. Indian Bot. Soc. Abstract S*