

BIODATA

NAME : Dr. Ashutosh Kumar Verma

DESIGNATION : Associate Professor
Department of Botany, Siddharth University-272202

FIELD OF SPECIALIZATION : Cytogenetics and Plant Breeding

SPECIAL INTEREST : Taxonomy & Cytotaxonomy, Study of Floristic diversity

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ACADEMIC QUALIFICATIONS:

1. 10th / UP Board/1998
2. 12th/UP Board/2000
3. B.Sc/ University of Lucknow/ 2003
4. M.Sc(Botany)/University of Lucknow/2005
5. Ph.D(Cytogenetics & Plant Breeding)/ University of Lucknow/2011

Title of the thesis: Cytogenetic variability and improvement in *Catharanthus roseus* (L.) G. Don.

RESEARCH AND ACADEMIC EXPERIENCE:

S.N.	Name of organization	Designation	Duration
1	Botanical Survey of India, CRC, Allahabad	Scientist-C	2018-23
2	Botanical Survey of India, CRC, Allahabad	Scientist-B	2016-18
3	Botanical Survey of India, CBL, Howrah	Scientist-B	2015-16
4	CSIR- CIMAP, Lucknow	SERB-Young Scientist	2013-15
5	Dept. of Botany, University of Lucknow, Lucknow	Subject Expert (Plant Genetics)	2012-13
6	Dept. of Botany, University of Lucknow, Lucknow	UGC Research Fellow	2008-11
7	CSIR-CIMAP, Lucknow	Project Assistant-II	2006-07
8	CSIR-NBRI, Lucknow	Project Assistant-III	2005-06

COMPLETED RESEARCH PROJECTS:

- 1. Investing in Nature – Conservation of threatened plants of India and establishment of Indian Botanical Network** (*Team Member*)
Funding agency: **BGCI-IIN India (NBRI-Lucknow)**
Duration: August 2005 to June 2006
- 2. Inventorizing Medicinal and Aromatic Plants (MAPs) Resources of Madhya Pradesh”(GAP-131)** (*Team Member*)
Funding agency: DBT, New Delhi
Duration: June 2006 to November 2006
- 3. Molecular and biochemical investigations in antidiabetic plant *Gymnema sylvestre* (R.) Br.** (*Principal Investigator*)
Funding agency: **DST-SERB, New Delhi**
Duration: Nov 2013 to Nov 2016.
- 4. Cytological investigations of some selected angiosperms of Acharya Jagdish Chandra Bose Indian Botanic Garden, Howrah.** (*Principal Investigator*)
Funding agency: Annual Action Plan Project- **BSI, India.**
Duration: April 2015 to March 2016.
- 5. Cyto-taxonomical studies in some selected taxa of Indian subtribe *Cassiinae* Irwin & Barneby.** (*Principal Investigator*)
Funding agency: Annual Action Plan Project- **BSI, India.**
Duration: April 2017 to March 2019.
- 6. Flora of Chhattisgarh (Monocot) - Family Eriocaulaceae, Potamogetonaceae, & Cyperaceae.** (*Team Member*)
Funding agency: Annual Action Plan Project- **BSI, India.**
Duration: April 2016 to March 2018.
- 7. Flora of India Vol-19 (Scrophulariaceae)** (*Team Member*)
Funding agency: Annual Action Plan Project- **BSI, India.**
Duration: April 2019 to March 2021.
- 8. Morphological and cytological studies of selected plants form CRC, Garden, Allahabad.** (*Principal Investigator*)
Funding agency: Annual Action Plan Project- **BSI, India.**
Duration: April 2020 to March 2021.
- 9. Flora of Kuno National Park, Madhya Pradesh** (*Principal Investigator*)
Funding agency: Annual Action Plan Project- **BSI, India.**
Duration: April 2021 to March 2023
- 10. Flora of Madhya Pradesh Vol-I including Pictorial Checklist**(*Team Member*)
Funding agency: Annual Action Plan Project- **BSI, India.**
Duration: April 2022 to March 2024 (**Ongoing**)

LIST OF PUBLICATIONS:

A. Research articles/papers:

1. MISHRA T., SINGH A, MADHUKAR VK, **VERMA AK**, MISHRA S AND RS CHAUHAN. 2023. Assessment of morpho-agronomic and yield attributes in gamma –irradiated mutants of Kalanamak rice (*Oryza sativa* L.). *Journal of Applied Biology and Biotechnology*. DOI: [10.7324/JABB.2023.110093](https://doi.org/10.7324/JABB.2023.110093)
2. RANJANA, M. BINWAL, **A.K. VERMA**, D.U. BAWANKULE, N. TIWARI AND K. SHANKER 2022. Stimulation of glucose uptake by glycosides from *Alectra parasitica* subsp. *chittrakutensis* (M.A. Rau) K.K. Khanna & An. Kumar: An *in-vitro* study of TNF- α induced insulin resistance in L6 myoblasts. *Natural Product Research* DOI: [10.1080/14786419.2022.2112957](https://doi.org/10.1080/14786419.2022.2112957)
3. **VERMA, A.K.** AND A. GARG 2022. Male meiosis, sporad analysis and pollen viability in a threatened medicinal plant *Oroxylum indicum* (L.) Kurz. *Journal of Medicinal Botany* Vol-6 DOI: <https://doi.org/10.25081/jmb.2022.v6.7950>
4. DAS, P., K. KHARE, R.P. SINGH, V. YADAV, P. TRIPATHI, A. KUMAR, V. PANDEY, P. GAUR, A. SINGH, R. DAS, C. HIREMATH, **A.K. VERMA**, A.K. SHUKLA AND K. SHANKAR 2021. Arsenic- induced differential expression of oxidative stress and secondary metabolite content in two genotypes of *Andrographis paniculata*. *Journal of Hazardous Materials* <https://doi.org/10.1016/j.jhazmat.2020.124302>.
5. KUMAR R., A.K. KHARE, **A.K. VERMA** AND K.A. BHARTI 2020. Diversity of angiosperms in Bareilly, Uttar Pradesh, India. *Indian J. of Forestry* 43(3): 212-227.
6. **VERMA A.K.**, S. SRIVASTAVA, O.N. MAURYA, R.S. CHUHAN AND R. LAHIRI 2020. Realization of paleopolyploidy through cytogenetic and phylogenetic characterization of ten species of Senna Mill., Fabaceae-Caesalpinioideae. *International Journal of Plant and Environment*. 6(4): 283-291.
7. LAHIRI, R., JYOTSHANA, **A.K. VERMA**, K. SHANKER AND R.K. LAL 2020. Inheritance pattern and association study of agronomical traits in 47 elite accessions/ genotypes of Opium poppy (*Papaver somniferum* L.). *Trends in Phytochemical Research*. 4(1)25-20.
8. JYOTSHNA, A.C GUPTA, D.U. BAWANKULE, **A.K. VERMA** AND K. SHANKER 2020. Nanoemulsion preconcentrate of a pentacyclic triterpene for improved oral efficacy: Formulation design and *in-vivo* antimalarial activity. *Journal of Drug Delivery Science and Technology*. <https://doi.org/10.1016/j.jddst.2020.101734>.
9. LAHIRI, R., JYOTSHANA, **A.K. VERMA**, K. SHANKER AND R.K. LAL 2020. Diallel analysis of seven promising genotypes of opium poppy for assessment of their combining ability and efficacy in future genetic improvement programmes. *Environmental and Experimental Biology*. 18: 161–168.
10. **VERMA, A.K.** 2019. Study of Relative Antioxidant Potential of Induced Variants of *Catharanthus roseus* (L.) G. Don in Salt Stress Condition for the Effective Selection of Salt Tolerant Variant. *Free Radicals and Antioxidants*. 9 (2):73-77.

11. **VERMA, A.K.**, M. MISHRA, H. SINGH, AND K. A. BHARTI 2018. Database on chromosome count of some Indian plants. *Chromosome Botany*. 13 (1): 37-60.
12. KUMAR, R, **A.K.VERMA** AND K.A. BHARTI 2018. Checklist of Angiosperms in Shahjahanpur, Uttar Pradesh, India. *Indian Journal of Forestry* 41(2): 179-194.
13. **VERMA, A. K.** 2017. Anther dimorphism and reductional division in *Crotalaria spectabilis*. *Environmental and Experimental Biology* 15: 209–215.
14. **VERMA, A.K.**, N. K. GAUTAM AND K. A. BHARTI 2017. Macro and micro morphological characteristics of *Plantago* seeds and its implication for species identification. *Current Botany* 8: 159-163.
15. **VERMA, A.K.** AND S.S. DHAWAN 2017. Chromosomal Fragmentation: A Possible Marker for the Selection of High Gymnemic Acid Yielding Accessions of *Gymnema sylvestre* R. Br. *Pharmacognosy magazine* 13: S481-3.
16. PATHAK, M., **A.K. VERMA**, S.S. DASH, P. SINGH AND KA BHARTI 2016. Trend in research publications of Botanical Survey of India during 2001–2015. *Nelumbo* 58: 126-129.
17. **VERMA, A.K.**, M. MISHRA, L. MALLICK, **K.A. BHARATI**, S.S. DASH, H. SINGH AND P. SINGH 2016. Database on chromosome counts of plants of Acharya Jagadish Chandra Bose Indian Botanic Garden, Howrah, India. *Nelumbo* 58: 57-78.
18. **VERMA, A. K.**, L. MALLICK, M. MISHRA AND H. SINGH 2016. A meiotic study in *Solanum diphyllum* L. an exotic plant species in India. *Researches in Environment and Life Sciences* 9(10): 1270-1271.
19. **VERMA, A.K.**, S. S. DHAWAN, S. SINGH, K.A.BHARTI AND JYOTSANA 2016. Genetic and chemical profiling of *Gymnema sylvestre* accessions from central India; Its implication for quality control and therapeutic potential of plant. *Pharmacognosy Magazine* 12 (47): S4: 407-413.
20. **VERMA A.K.**, L. Mallick, K. A. BHARTI, M. MISHRA AND H. SINGH 2015. Effect of temperature and relative humidity on gymnemic acid content in *Gymnema sylvestre* (R) Br. *Bhartiya Krishi Anusandhan Patrika* 30(4): 214-216.
21. SINGH, S. AND **A.K. VERMA** 2015. A review on efforts of induced mutagenesis for qualitative and quantitative improvement in oilseed brassicas. *Journal of Pharmacognosy and Phytochemistry* (2): 298-302.
22. **VERMA, A.K.**, R.R. SINGH AND S. SINGH 2014. Variability in morphological characters and alkaloid profile of EMS induced mutants of *Catharanthus roseus* (L.) G. Don. *Indian Journal of Genetics and Plant Breeding* 74(3):362-380.
23. SINGH, C.K., **A.K. VERMA** AND R. R. SINGH 2014. Effect of mutagens on qualitative and quantitative analysis of *Plantago ovate* seed husk. *Research in Environment and Life Sciences* 7(2)85-86.
24. SINGH, C.K., **A.K. VERMA** AND R. R. SINGH 2014. Diurnal variation for anthesis and dehiscence in *Plantago ovata*. *Research in Environment and Life Sciences* 7(1):47-48.
25. **VERMA, A.K.**, C.K. SINGH AND S. SINGH 2013. *Catharanthus roseus* and purposeful exploitation of saline land. *Bhartiya Krishi Anusandhan Patrika* 28(1): 94-95.

26. VERMA, A.K., R. R. SINGH AND S. SINGH 2013. Mutation breeding in *Catharanthus roseus* (L.) G. Don: An Overview. *Journal of Pharmacognosy and Phytochemistry* 2(1):334-337.
27. VERMA, A.K., R.R. SINGH AND S. SINGH 2012. Improved alkaloid content in callus culture of *Catharanthus roseus* (L.) G. Don. *Botanica Serbica* 36(2):123-130.
28. VERMA, A.K. AND R.R. Singh 2010. Induced dwarf mutant in *Catharanthus roseus* with enhanced antibacterial activity. *Indian Journal of Pharmaceutical Sciences* 72 (5):655-657.
29. SINGH, J., S.P. JAIN, S.P. SINGH, A.K. VERMA, A. SHARMA AND S.P.S. KHANUJA 2006. Traditional uses of *Woodfordia fruticosa* (Dhataki)- *Journal of Medicinal and Aromatic Plant Sciences* 28:91-95.

B. Books:

1. VERMA, A.K. AND R.R. SINGH. 2014. Genetic variability and improvement in *Catharanthus roseus* (L.) G. Don. pp. 1-216. Lambert Academic Publishing House, Germany. ISBN-13: 978-3-659-41939-3, ISBN-10: 3659419397.

C. Book chapters:

1. GARG, A., O.N. MAURYA, A.N. SHUKLA, M.R. DEBTA, A.K. VERMA, A. KUMAR, S. GANTAIT, M. MUNSI AND A. KUMAR. 2020. Scrophulariaceae In S.S. DASH AND A.A. MAO (eds.) Flowering Plants of India. An annotated Checklist- Dicotyledons Vol-II 205-238. ISBN: 978-81-9452291-1.
2. VERMA S., O.N. MAURYA AND A.K. VERMA. 2018. Medicinal Plants: Green Elixir for Cancer Treatment In: A.K. AWASTHI, A.K. SINGH AND A. SHARMA (eds.) Dynamics of Ecosystem and Climate Change in India. 295-307. Serials Publications Pvt. Limited, India. ISBN 13: 9789386611476.

D. Hindi articles:

1. VERMA, A.K., R. KUMAR, S. VERMA AND K.A. BHARTI. 2017. मधुमेह की भयावहता; भारतीय परिवेश में सस्ते एवं सुलभ उपचार की उपलब्धता एवं पादप संरक्षण. वनस्पति वाणी. 26:66-67.
2. SINGH, H.B., A.K. VERMA, A.K., K.A. BHARATI, 2017. भारत के प्राकृतिक रंजक एवं उनके स्रोत/ स्वदेशी विज्ञान. 1:3 (<http://swadeshivigyan.com/naturaldyes>).
3. PATHAK, M., A.K. VERMA, S.S. DASH AND K.A. BHARTI. 2016. शोधपत्रों व पत्रिकाओं की प्रभाविकता का मूल्यांकन | वनस्पति वाणी. 25: 95-96.

E. SIGNIFICANT CONTRIBUTIONS:

1. Reported new chromosome count for 120 plant species of angiosperms.
2. Reported first chromosome count for 07 plant species of angiosperms.
3. Developed a cytological marker for identification of high gymnemic acid yielding accessions of *Gymnema sylvestre*.
4. Identified five molecular peaks for identification of *Gymnema sylvestre* based herbal formulations.
5. Completed 'Flora of Kuno National Park' – A site for Cheetah reintroduction in India

(A. K. VERMA)