

Name: Dr. Santosh Bala

Designation: Assistant Professor

Specialization: Plant Cytogenetics & Systematics

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Education

M.Sc. Botany (With Dissertation) (2007, Punjabi University, Patiala)

M.Sc. dissertation title: Cytomorphological studies in some members of Compositae from North India

Ph.D. (11 December, 2012, Punjabi University, Patiala)

Ph.D. Thesis title: Exploration of Cytomorphological Diversity in Gamopetalae from district Kangra (H.P.)

Professional Experience

Department of Botany, Multani Mal Modi College, Patiala, Punjab (19-01-2016 to till date)

Department of Botany, Punjabi University Guru Kashi College, Damdama Sahib, Punjab (11-09-2013 to 18-01-2016)

Teaching interests:

- Cell Biology
- Systematics of Angiosperms and Gymnosperms
- Reproduction and development of flowering plants
- Diversity of Microbes & Cryptogams
- Plant Ecology

Research interest:

Plant Cytogenetics, Systematics, Cytological studies

Research Publications

- 1) **Santosh Bala**, Beena Kaushal, Henna Goyal and Raghbir C. Gupta "A case of synaptic mutant in *Erigeron karvinskianus* DC. (Latin American fleabane)". *Cytologia*. (2010) **75 (3)**: 299-304.

https://www.istage.ist.go.jp/article/cytologia/75/3/75_3_299/article

- 2) Raghbir C. Gupta, **Santosh Bala**, Henna Goyal, Reyaz A. Malik and Santosh Kumari "Cytological studies in some members of tribe Senecioneae (Asteraceae) from North and Central India". *Cytologia*. (2010) **75 (4)**: 369-378.

https://www.istage.ist.go.jp/article/cytologia/75/4/75_4_369/article

- 3) **Santosh Bala** and Raghbir C. Gupta "Chromosomal diversity in some species of *Plantago* (Plantaginaceae) from North India". *International Journal of Botany* (2011) **7 (1)**: 82-89.
<https://scialert.net/abstract/?doi=ijb.2011.82.89>
- 4) **Santosh Bala**, Raghbir C. Gupta and Preet B. Aitri "Cytological studies on the Monochlamydeae from North India". *Chromosome Botany* (2011) **6**: 45-51.
https://www.istage.ist.go.jp/article/iscb/6/2/6_2_45/article
- 5) **Santosh Bala** and Raghbir C. Gupta "Effect of secondary associations on meiosis, pollen fertility and pollen size in cape gooseberry (*Physalis peruviana* L.)". *Chromosome Botany* (2011) **6**: 25-28. https://www.istage.ist.go.jp/article/iscb/6/2/6_2_25/article
- 6) **Santosh Bala**, Henna Goyal and Raghbir C. Gupta "Intraspecific polyploidy in *Galinsoga parviflora* Ruiz & Pavon.". *Journal of Research and Development*. (2011) **10**: 37-41.
<http://cord.uok.edu.in/Main/JournalVolume.aspx?V=Volume10>
- 7) **Santosh Bala** and Raghbir C. Gupta "In Marhold, K. (Ed.). IAPT/IOPB Chromosome data 12". *Taxon* (2011) **60 (6)**: 1784-1786.
http://ibot.sav.sk/usr/Karol/docs/PDF_files/IAPT_IOPB%20Chromosome%20data%2012.pdf
- 8) **Santosh Bala** and Raghbir C. Gupta "Cytological Investigations on Some North Indian Bicarpeolatae". *Cytologia* (2011) **76 (3)**: 261-267.
https://www.istage.ist.go.jp/article/cytologia/76/3/76_3_261/article
- 9) **Santosh Bala**, Beena Kaushal and Raghbir C. Gupta. "Effect of B-chromosomes on meiotic behaviour and genetic recombination in *Artemisia nilagirica* (C.B. Clarke) Pamp.". *Chromosome Botany* (2012) **7**: 9-12.
https://www.istage.ist.go.jp/article/iscb/7/1/7_1_9/article
- 10) **Santosh Bala** and Raghbir C. Gupta "Cytomorphological Studies on Some North Indian Members of the Family Verbenaceae". *Cytologia* (2012) **77 (2)**: 187-195.
https://www.istage.ist.go.jp/article/cytologia/77/2/77_187/article
- 11) **Santosh Bala** and Raghbir C. Gupta "In Marhold, K. (Ed.). IAPT/IOPB Chromosome data 14". *Taxon* (2012) **61 (6)**: 1337.
http://ibot.sav.sk/usr/Karol/docs/PDF_files/IAPT_IOPB_Chrom_data14.pdf
- 12) **Santosh Bala** and Raghbir C. Gupta "Male meiosis and Chromosome number in Asteraceae family from district Kangra of H.P. (Western Himalayas)". *International Journal of Botany and Research* (2013) **3 (1)**: 43-58.
<http://www.tjprc.org/publishpapers/--1362482479-5.Male%20meiosis.full.pdf>
- 13) Raghbir C. Gupta, **Santosh Bala**, Shilpa Sharma and Manish Kapoor "Cytomorphological studies in some species of *Chrysanthemum* L. (Asteraceae)". *Chromosome Botany* (2013) **8**: 71-76.
https://www.istage.ist.go.jp/article/iscb/8/3/8_69/article

- 14) Vivek Sharma, Raghbir C. Gupta, **Santosh Bala** and Bikram Singh “New chromosome number reports in some medicinally important Angiosperms of North India”. *Cytologia*. (2013) **78 (3)**: 285-296.
https://www.istage.jst.go.jp/article/cytologia/78/3/78_285/article
- 15) Raghbir C. Gupta, **Santosh Bala** and Suruchi “Cytogenetical Studies in Seven Ornamental Species of *Chrysanthemum* (Asteraceae)”. *Cytologia*. (2013) **78 (4)**: 439-448.
https://www.istage.jst.go.jp/article/cytologia/78/4/78_439/pdf
- 16) **Santosh Bala** and Raghbir C. Gupta “Aberrant meiotic behaviour in some members of family Solanaceae from North India”. *International Journal of Botany and Research* (2014) **4 (3)**: 11-22.
https://www.academia.edu/7700319/ABERRANT_MEIOTIC_BEHAVIOUR_IN_SOME_MEMBERS_OF_FAMILY_SOLANACEAE_FROM_NORTH_INDIA
- 17) **Santosh Bala** and Raghbir C. Gupta “Meiotic behaviour in two triploids: *Erigeron annuus* and *Eupatorium adenophorum* (Asteraceae)”. *Biolife Journal* (2014) **2 (2)**: 679-686.
https://www.academia.edu/8024508/679_Biolife_2014_Vol_2_Issue_2_MEIOTIC_BEHAVIOUR_IN_TWO_TRIPLOIDS_ERIGERON_ANNUUS_AND_EUPATORIUM_ADENOPHORUM_ASTERACEAE
- 18) **Santosh Bala**, Reyaz A. Malik, and Raghbir C. Gupta “New chromosome counts in some Gentians from Western Himalayas”. *Caryologia*. (2015) **68 (2)**: 147-153.
<https://www.tandfonline.com/doi/full/10.1080/00087114.2015.1032603>
- 19) **Santosh Bala**, Reyaz A. Malik, and Raghbir C. Gupta “Male meiosis in structural heterozygotes”. *Biolife Journal* (2016) **4(3)**: 587-594.
https://www.researchgate.net/publication/310054310_Male_meiosis_in_structural_heterozygotes
- 20) Reyaz A. Malik, Raghbir C. Gupta, Vijay Singh, **Santosh Bala** and Santosh Kumari “New Chromosome reports in Lamiaceae of Kashmir (Northwest Himalaya), India”. *Protoplasma* (2017) **254 (2)**: 971-985.
<https://link.springer.com/article/10.1007%2Fs00709-016-1006-7>
- 21) Raghbir C. Gupta, Vijay Kataria, **Santosh Bala**, Reyaz A. Malik, Vikas Sharma and Kuljit Kaur “Cytomorphological variations and new reports of B-chromosomes in the genus *Plantago* (Plantaginaceae) from Northwest Himalaya”. *Flora-Morphology Distribution Functional Ecology of plants* (2017) **234**: 69-76.
<https://www.sciencedirect.com/science/article/pii/S0367253017332486?via%3Dihub>

Conference/ Seminar/ Symposium

a) List of papers presented

- 1) **Santosh Bala** and Raghbir C. Gupta (2010) "*Effect of Secondary associations on meiosis, pollen viability and pollen size in cape gooseberry (Physalis peruviana L.)*". In "National Symposium on Botanical Researches: Present Scenario" at Department of Botany, Punjabi University, Patiala-147002, India, 18-19 February (2010).
- 2) **Santosh Bala** and Raghbir C. Gupta (2012). "*An Inventory on chromosome number data on wild taxa of Gamopetalae from district Kangra (H.P.)*". In "National Symposium on Plant Cytogenetics: New Approaches" at Department of Botany, Punjabi University, Patiala-147002, India, 23-24 February (2012).
- 3) **Santosh Bala** and Raghbir C. Gupta (2012). "*Effect of B-chromosomes on meiotic behaviour and genetic recombination in Artemisia nilagirica (C.B. Clarke) Pamp.*" In "National Conference on Plant & Microbial Biodiversity, Present Scenario, Threats & Conservation Strategies" at Department of Botany, Panjab University, Chandigarh-160014, India, 1-2 March (2012).
- 4) **Santosh Bala** and Raghbir C. Gupta (2014). "*Meiotic studies on Bicarpellatae from district Kangra (H.P.)*". In "National symposium on Emerging Trends in Botanical Sciences" at Department of Botany, Punjabi University, Patiala-147002, India, 17-18 February (2014).
- 5) **Santosh Bala** and Raghbir C. Gupta (2014). "*New Chromosome Additions to some Gamopetalous members from District Kangra (H.P.)*". In "Perspectives & Trends in Plant Sciences and Biotechnology" at Department of Botany, Panjab University, Chandigarh-160014, India, 21-23 February (2014).
- 6) **Santosh Bala** and Raghbir C. Gupta (2014). "*Cytomorphological diversity in Some North Indian Members of the Family Verbenaceae.*" In "Perspectives in Plant and Environmental Sciences" at Department of Botanical & Environmental Sciences, Guru Nanak Dev University, Amritsar-143005, India, 11-12 March (2014).
- 7) **Santosh Bala** and Raghbir C. Gupta (2016). "*A case of Synaptic Mutant in Erigeron karvinskianus DC. (American Fleabane)*". In "8th National conference on Recent Advances in Chemical, Biological and Environmental Sciences (RACES-2016)" at Multani Mal Modi College Patiala-147001, India, 19-20 February (2016).
- 8) **Santosh Bala** and Raghbir C. Gupta (2016). "*Chromosomal database of Gamopetalae of district Kangra (H.P.)*". In "National conference on Basic and Applied Researches in Plants and Microbes in Botanical Sciences" at Department of Botany, Punjabi University, Patiala-147002, India, 3-5 November (2016).
- 9) **Santosh Bala** and Raghbir C. Gupta (2016). "*New Chromosome reports in Gamopetalae of District Kangra (H.P.)*". In "2nd National Symposium on Emerging Trends in Biological Sciences" at Department of Biological Sciences, Multani Mal Modi College Patiala-147001, India, 12 November (2016).

- 10) **Santosh Bala** and Raghbir C. Gupta (2018). "*Male meiosis in structural heterozygotes*". In "9th National conference on Recent Advances in Chemical, Biological and Environmental Sciences (RACES-2018)" at Multani Mal Modi College Patiala-147001, India, 9-10 February (2018).
- 11) **Santosh Bala** and Raghbir C. Gupta (2019). "Cytogenetical studies in seven ornamental species of *Chrysanthemum* (Asteraceae)". In "10th National conference on Recent Advances in Chemical and Environmental Sciences (RACES-2019)" at Multani Mal Modi College Patiala-147001, India, 11-12 April (2019).
- 12) **Santosh Bala** and Raghbir C. Gupta (2020). "*New Chromosome reports in Gamopetalae of District Kangra (H.P.)*". In "3rd National Conference on Innovations in Bioscience & Technology" at Department of Biological Sciences, Multani Mal Modi College Patiala-147001, India, 7 March (2020)
- 13) One Day Webinar on "NEW OPPORTUNITIES IN MEDICINAL PLANTS SECTOR FOR FARMERS AND ENTREPRENEURS" held on May 24, 2020 organized by Department of Life Sciences, Mansarovar Global University.
- 14) One Day International Webinar on "Post COVID Challenges Before Indian Education System" held on May 29, 2020 organized by CTEF & Multani Mal Modi College, Patiala.

b) List of Published abstracts

- 1) **Santosh Bala**, Santosh Kumari and Raghbir C. Gupta (2008). "*Exploration of Cytomorphological diversity in Gamopetalae from Kangra district (H.P.)*". p.67. (A.16) In: Kumari S., Gupta R.C. and Saggoo M.I.S. (eds.) "National Symposium on Plant Cytogenetics: Recent trends" in Department of Botany, Punjabi University, Patiala-147002, India, 15-16 February (2008).
- 2) **Santosh Bala** and Raghbir C. Gupta (2008). "*Cytomorphological diversity in Composites from Kangra district (H.P.)*". p.77. (A.29) In: Kumari S., Gupta R.C. and Saggoo M.I.S. (eds.) "National Symposium on Plant Cytogenetics: Recent trends" in. Department of Botany, Punjabi University, Patiala-147002, India, 15-16 February (2008).
- 3) **Santosh Bala** and Raghbir C. Gupta (2011). "*Cytomorphological Diversity in some Members of Gamopetalae from District Kangra (H.P.)*". p. 121 (154) Lakhnupal T.N. (ed.) Section XIV- Plant Sciences. Proceedings of the Ninety Eighth Session of the Indian Science Congress. Chennai, India, January (2011).
- 4) **Santosh Bala** and Raghbir C. Gupta (2012). "*Aberrant meiotic behaviour in some members of family Solanaceae from Kangra district (North India)*". p.52. (A.3) In: Atri N.S., Saggoo M.I.S., Singhal V.K. and Gupta R.C. (eds.) "National Symposium on Plant Cytogenetics: New Approaches" in Department of Botany, Punjabi University, Patiala-147002, India, 23-24 February (2012).
- 5) **Santosh Bala** and Raghbir C. Gupta (2013). "*Occurrence, Behaviour and Effect of B-Chromosomes on Male Meiosis in Some Dicots*". p. 35 (BOT 41) In: Andrabi K.I., Zargar M.A.,

Nawchoo I.A. & Ahmad F. (eds.) Ninth J&K Science Congress on “Innovations & Advances in Science & Technology” in University of Kashmir, India, 1-3 October (2013).

Training Course/FDP

- 1) Attended UGC sponsored seven day faculty development program on Academic writing from critical appreciation to publication, organized by IQAC, Multani Mal Modi College, Patiala (9-16 January, 2017).
- 2) Attended faculty development program on Emerging Issues & Challenges in Higher Education, organized by IQAC, Multani Mal Modi College, Patiala (17-22 July, 2019).
- 3) One Day Webinar on “WORLD ENVIRONMENT DAY” held on June, 5, 2020 organized by Department of Botany & Environmental Science, Sri Guru Granth Sahib World University, Fatehgarh Sahib.
- 4) 4-week Induction/Orientation Programme for Faculty in Universities/Colleges/ Institutes of Higher Education from 4 June-1 July, 2020 organized by Teaching Learning Centre, Ramanujan College, University of Delhi.
- 5) Seven days FDP on “RESEARCH METHODOLOGY FOR SOCIAL SCIENCES” from June 20-26, 2020 organized by CTEF & Multani Mal Modi College, Patiala.
- 6) One day Conference on “NATIONAL CAPABILITY ENHANCEMENT CONFERENCE: EDUCATION FOR MEANINGFUL LIFE PART-3” on July 2, 2020 organized by Multani Mal Modi College, Patiala.
- 7) 2-week FDP on “ADVANCED CONCEPTS FOR DEVELOPING MOOCS” from 2-17 July, 2020 organized by Teaching Learning Centre, Ramanujan College, University of Delhi.
- 8) Online Lecture on theme “ COVID-19 and the state of state finances” on November 10, 2020 organized by Department of Social Sciences, Multani Mal Modi College, Patiala.
- 9) International Webinar on “Current trends & future prospects of plant sciences” held on December 17, 2020 organized by Department of Botany & Government College, Patharia, India.

Training course for B.Sc. Medical and Biotechnology students

- 1) Workshop on Modern Techniques in Science Organized by Department of Biological Sciences at Multani Mal Modi College Patiala (July 11-20, 2016).
- 2) Workshop on Modern Techniques in Biological Sciences Organized by Department of Biological Sciences at Multani Mal Modi College Patiala (July 21-28, 2017).
- 3) Workshop on Modern Techniques in Biological Sciences Organized by Department of Biological Sciences at Multani Mal Modi College Patiala (July 11-20, 2016).

Resources Developed

Blog : drsantosh29.wordpress.com