

Name: Dr. Akshita Dhaliwal

Designation: Assistant Professor

Specialization: Plant Cytogenetics and Plant Taxonomy

Email: akshi2081@gmail.com

Contact Number: +91- 9478366249



Education

M.Sc. Botany (2004, Kurukshetra University, Kurukshetra),

Ph.D. (26 August, 2009, Punjabi University, Patiala)

Title of Ph. D Thesis: Exploration of Cytomorphological Diversity in Grasses from Haryana and adjoining Shiwalik Hills.

Professional Experience:

- Assistant Professor in Botany, Department of Botany, M.M. Modi College, Patiala. (11 August, 2018 to till date).
- Assistant Professor in Botany, Department of Agriculture, G.S.S.D.G.S. Khalsa College, Patiala (1 July, 2013 to 9 August, 2018).
- Assistant Professor in Botany and as Head, Department of Agriculture at Dolphin (PG) College of Life Sciences, Chunni Kalan (Fatehgarh Sahib) (1 Nov, 2012 to 30 June, 2013).
- Assistant Professor in Botany at Public College, Samana (Patiala) (20 July, 2011 to 31 Oct, 2012).
- Research Fellow at School of Agricultural Biotechnology, Punjab Agricultural University, (24 May, 2010 – 20 May, 2011).
- Project Fellow (UGC/ASIST) Department of Botany, Punjabi University Patiala (15 June, 2007 – 10 Feb, 2009).

Teaching Interests:

- Cytology and Genetics
- Plant Taxonomy
- Plant Ecology
- Plant Physiology

Research Interest:

Plant Cytogenetics, Plant Taxonomy and Plant Ecology

Publications

1. Raghbir Chand Gupta, Rajdeep Singh Dhaliwal and **Akshita Gupta**. Structural hybridity in golden tickseed (*Coreopsis tinctoria* Nutt.). *Ind. J. Bot. Res.* (2008) Vol.4 (1): 161-163.
https://drive.google.com/file/d/1-Lw7rI_93pHTGAWONBGd2ZsU4EwERK1k/view
2. **Akshita Gupta**, Rajdeep Singh Dhaliwal and Raghbir Chand Gupta. Meiotic studies on some populations of *Phalaris minor* Retz. from Haryana and adjoining Shiwalik hills. *Bionature*. (2008) **28** (1): 17-23. ISSN: 0970-9835.
<http://globalpresshub.com/index.php/BN/article/view/351>
3. Puneet Kumar, Rajdeep Singh Dhaliwal & **Akshita Gupta**. Invasion of Alien Plant Species: A Threat to Native Flora. *Ind. J. Bot. Res.* (2008) **4** (1): 137-142.
<https://drive.google.com/file/d/1-Yak118PB7srxp4bxjAQIac8bKZCyTwa/view>
4. Dhaliwal Rajdeep Singh, Puneet Kumar & **Akshita Gupta**. Phytoremediation: A Scientific Approach to Tackle Pollution. *Ind. J. Multi. Res.* (2008) **4** (1): 45-48.
<https://drive.google.com/file/d/1-LQQJJYgjb6JBUMVHM5Ls9dkldHcBKR7/view>
5. Raghbir Chand Gupta, Rajdeep Singh Dhaliwal and **Akshita Gupta**. Morpho-cytogenetic studies on autotriploid of *Coreopsis tinctoria* Nutt. *J. Cytol. Genet.* (2008) Vol.10 (NS) **2**: 23-27.
<https://drive.google.com/file/d/1-ZHA-qSK1YV1yqJpzyYR7Tio1r8bg55P/view>
6. **Akshita Gupta** and Raghbir Chand Gupta. Population Cytogenetics IV. Variability in *Sorghum halepense* (L.) Pers. from Haryana. *Bionature* (2008) **28** (2): 85-89. ISSN: 0970-9835.
<http://globalpresshub.com/index.php/BN/article/view/395>
7. **Akshita Gupta**, Rajdeep Singh Dhaliwal and Raghbir Chand Gupta. Genetic diversity in wild oat (*Avena sativa* L.) populations from Haryana (India). *Indian Journal Botanical Research* (2010) **6** (1&2): 69-74.
https://drive.google.com/file/d/1-ZTIkOBoq4oamflqS_OyKvkh0jXHkxID/view
8. **Akshita Gupta**, Rajdeep Singh Dhaliwal and Raghbir Chand Gupta. Prevalence of Supernumerary chromosomes in Indian Grasses. *Bionotes* (2010) **12**(2):56.
<https://drive.google.com/file/d/1-ZiMCtY4m6ASkTncgQTvLLraBGEiLT6B/view>

9. **Akshita**, Rajdeep Singh Dhaliwal and Raghbir Chand Gupta. A note on high frequency of Polyploidy in Family Gramineae. *Bionotes* (2010) **12(4)**: 120-121.
<https://drive.google.com/file/d/1-ZuBDDIAMT3l0to9zZW6Czk5V1cidpSs/view>
10. Harpreet Kaur, **Akshita Gupta**, Santosh Kumari and Raghbir Chand Gupta. Meiotic studies in *Poa annua* L. from altitudinal ranges of North India. *Cytologia*. (2010) **75 (3)**: 313-318.
https://www.jstage.jst.go.jp/article/cytologia/75/3/75_3_313/_article/-char/en
11. **Akshita**, Rajdeep Singh Dhaliwal and Raghbir Chand Gupta. Cytological study on three cytotypes of Bermuda grass (*Cynodon dactylon* (L.) Pers.) from Haryana and Shiwalik Hills. *Journal of Basic and Applied Biology* (2011) **5(1)**: 7-12.
[http://www.cbioresearch.in/Journal%20\(12\)%202011/JBAB,%20Vol%205,%20No%201%20&%20\(2011\),%20pp.7-12%20Dhaliwal.pdf](http://www.cbioresearch.in/Journal%20(12)%202011/JBAB,%20Vol%205,%20No%201%20&%20(2011),%20pp.7-12%20Dhaliwal.pdf)
12. **Akshita Dhaliwal**, Rajdeep Singh Dhaliwal and Raghbir Chand Gupta. Cytological Study in Wild oat (*Avena fatua* Linn.) populations from North West India. *Bionature* (2012) **32(2)**: 37-42.
<http://globalpresshub.com/index.php/BN/article/view/550>
13. Raghbir Chand Gupta, **Akshita Gupta** and Navjot Kaur. Meiotic Studies in Some Members of Tribe Andropogoneae (Poaceae) from Semi Desert Area of North India. *Cytologia* (2017) **82(2)**:105-113.
https://www.jstage.jst.go.jp/article/cytologia/82/2/82_MS1861/_article/-char/en
14. Raghbir Chand Gupta, **Akshita Gupta** and Navjot Kaur. Cytological Diversity in Some Members of Tribe Agrostideae and Eragrosteae (Poaceae) from Haryana and Adjoining Shiwalik Hills *Cytologia* (2017) **82(5)**: 501-505.
https://www.jstage.jst.go.jp/article/cytologia/82/5/82_MS1979/_article/-char/en
15. **Akshita Dhaliwal**, Navjot Kaur and Raghbir Chand Gupta. Cytology of Some Grasses from Haryana and Shiwalik Hills. *Cytologia* (2018) **83(1)**: 22-30.
https://www.jstage.jst.go.jp/article/cytologia/83/1/83_D-17-00011/_article/-char/en
16. **Akshita Dhaliwal**, Rajdeep Singh Dhaliwal, Navjot Kaur and Raghbir Chand Gupta. Cytomorphological Study in Genus *Cenchrus* L.: An Important Medicinal Plant from North India (Family: Poaceae). *Cytologia* (2018) **83(1)**: 45-52.
https://www.jstage.jst.go.jp/article/cytologia/83/1/83_D-17-00024/_article/-char/en

17. Raghbir Chand Gupta, **Akshita Dhaliwal** and Navjot Kaur. Cytological Study in Some Members of Tribe Paniceae (Poaceae) from Haryana and Adjoining Shiwalik Hills. *Cytologia* (2018) **83**(1): 73-79.
https://www.jstage.jst.go.jp/article/cytologia/83/1/83_D17-00020/_article/-char/en

Book/Book chapter

1. Rajdeep Singh Dhaliwal and **Akshita Dhaliwal**. 2012. (In Punjabi) “Jeev Vibhinta De Hot Spots”. In Vatavaran Samasyava. Publ. Lok Geet Prakashan, Chandigarh. Pp. 89-98. ISBN: 978-93-5068-098-8.
2. Rajdeep Singh Dhaliwal and **Akshita Dhaliwal**. 2016. Study on Economically Important Grasses of Tribe: Andropogoneae (Family: Poaceae). In proceeding National Conference on “Recent Trends in Environment, Science and Technology” March 11, 2016. Pp 197-199. ISBN: 978-93-84935-82-5.
3. **Akshita Dhaliwal**, Rajdeep Singh Dhaliwal and Raghbir Chand Gupta. 2018. Cytological study on two species of *Cymbopogon* Spreng.: A Grass with Medicinal Importance. In book *Emerging Trends and Challenges in Bio-sciences* Publ. Daya Publishing House, New Delhi. Pp. 73-77. ISBN: 978-93-5124-988-7.
4. **Akshita Dhaliwal**. 2020. Exploration of Cytomorphological Diversity in Genus *Panicum* (Family: Poaceae). In book *Advancement in Biosciences*. Zohra Publication. Patiala. Pp 180-188. ISBN: 978-93-82376-95-8.
5. **Akshita Dhaliwal** and Rajdeep Singh Dhaliwal. 2021. Cytological study in members of Tribe Chlorideae (Poaceae) from Haryana and adjoining Shiwalik Hills. In book *Challenges to Biodiversity Conservation and Sustainable Development*. Publ. Daya Publishing House, New Delhi. Pp. 146-153. ISBN: 978-93-90435-93-7.

Conference / Seminars

A) Resource Person / Invited Lectures:

Chaired a technical session on the theme “**Agriculture & Food Production System**” and acted as Judge in Poster Presentation Session in 19th APG International Conference on Sustainable Agriculture, Food Security and Environment at GSSDGS Khalsa College, Patiala from on 2-3 Nov, 2018.

B) Paper presented:

1. Research Paper entitled “**Cytological studies in some grasses from Haryana**” in Tenth All India Conference on Cytology and Genetics held at Visakhapatnam from 8th-10th December, 2005.
2. Research Paper entitled “**Chromosomal diversity in some grasses from Haryana**” at National Symposium on Germplasm Evaluation: Present Trends held at Botany Department, Punjabi University Patiala from 23rd -25th January, 2006.
3. Research Paper entitled “**Cytogenetical studies in some Aneuploids of *Coreopsis tinctoria* Nutt.**” at 9th Punjab Science Congress held at Guru Nanak Dental College, Sunam from 7th-9th February, 2006.
4. Research Paper entitled “**Meiotic abnormalities in different populations of *Phalaris minor* from Haryana and adjoining Shiwalik Hills**” at National Symposium on Plant Cytogenetics: Recent trends held at Department of Botany, Punjabi University, Patiala from 15th-16th February, 2008.
5. Research Paper entitled “**Cytological study in wild oat (*Avena sativa* L.) population from North West India**” at 12th Punjab Science Congress held at PAU, Ludhiana from 7th-9th February, 2009.
6. Research Poster entitled “**Anthropogenic Impact on Climate Change and Ecosystems**” at National Conference on Environmental Degradation and its impact on Mankind held at Punjabi University, Patiala from 19th- 20th Nov, 2010.
7. Research Paper entitled “**Presence of Apomixis in Grass Family: Need for Molecular Analysis**” at UGC sponsored National Conference on Recent Trends in Biotechnology held at DAV College, Amritsar on 1st Sep, 2010.
8. Research Poster entitled “**Chromosomal diversity in Bermuda grass (*Cynodon dactylon* (L.) Pers.) with in different environmental conditions**” at International Conference on Environmental Challenges: A Global Concern held at Kanya Maha Vidyalaya, Jalandhar from 15th- 16th Oct, 2010.
9. Research Poster entitled “**Molecular mapping of QTL’s for heat tolerance components from cultivated and wild wheat germplasm**” at International Conference on: “Preparing Agriculture for Climate Change” organized by Crop Improvement Society of India at PAU, Ludhiana, from 6th-8th February, 2011.

10. Research Paper entitled “**Ecological Importance, Genetic Diversity and Utilization of Grasses in India**” at National Seminar on ‘Ecological Crisis’ at Department of Distance Education, Punjabi University, Patiala from 8th-9th September, 2011.
11. Research Paper entitled “**Genetic Diversity in Family Gramineae: A study from North West India**” at National Conference on Impact of Science and Technology on Societal Development at SUS Group of Institutions, Tangori, Mohali: Punjab from 3rd-5th November, 2011.
12. Research Poster entitled “**Chromosomal Diversity & Abnormal meiotic course in *Cenchrus species***” at 4th International Conference on: Life Science Research for Rural & Agricultural Development (ICLRAD-2011) held at Central Potato Research Station, Patna from 27th-29th Dec, 2011.
13. Research Paper entitled “**Cytological Analysis of Family Gramineae from Ecologically fragile Shiwalik Hills & adjoining areas**” at 4th International Conference on: Life Science Research for Rural & Agricultural Development (ICLRAD-2011) held at Central Potato Research Station, Patna from 27th-29th Dec, 2011.
14. Research Paper entitled “**Cytological study in Wild Oat (*Avena fatua* Linn.) populations from North West India**” at National Symposium on Plant Cytogenetics: New Approaches held at Department of Botany, Punjabi University, Patiala from 23rd-24th Feb, 2012.
15. Research Poster entitled “**New chromosome reports for *Setaria verticillata* (L.) P. Beauv. from India**” at National Symposium on Plant Cytogenetics: New Approaches held at Department of Botany, Punjabi University, Patiala from 23rd-24th Feb, 2012.
16. Research Poster entitled “**Existence of enormous genetic variability in Grass family and need for its conservation**” at National Conference on Plant & Microbial Biodiversity, Present Scenario, Threats & Conservation Strategies held at Department of Botany, Panjab University, Chandigarh from 1st -2nd March, 2012.
17. Research Paper entitled “**Cytomorphological study in genus *Cenchrus* L. (Family: Poaceae)**” at 17th Punjab Science Congress organized by Punjab Technical University, Kapurthala from 14th -16th Feb, 2014.
18. Research Paper entitled “**Cytological studies in Grasses from Haryana and adjoining Shiwalik Hills: Tribe - Andropogoneae**” during the National Symposium on “Emerging

Trends in Botanical Sciences” organized by Department of Botany, Punjabi University, Patiala from 17th -18th February, 2014.

19. Research Paper entitled “**Chromosomal Diversity in Family Gramineae: A study from North India**” during the National Conference “SCIENCE COLLOQUIUM” Emerging Trends in Basic & Applied Sciences organized by DAV College, Jalandhar (Pb.) from 6th -7th March, 2014.
20. Research Poster entitled “**New Chromosome report for *Digitaria ciliaris* (Retz.) Koel. From India**” at 17th Punjab Science Congress organized by Punjab Technical University, Kapurthala from 14th -16th Feb, 2014.
21. Research Poster entitled “**Cytological investigations in *Imperata cylindrica* from Haryana, India**” at National Symposium on “Emerging Trends in Botanical Sciences” organized by Department of Botany, Punjabi University, Patiala from 17th -18th February, 2014.
22. Research Poster entitled “**Chromosomal Diversity in Bermuda grass (*Cynodon dactylon* (L.) Pers.)**” at National Conference on “Perspectives & Trends in Plant Sciences & Biotechnology” organized by Department of Botany, Panjab University, Chandigarh & Society for Plant Research, India from 21st -23rd February, 2014.
23. Research Poster entitled “**Cytological Investigations in wild oat (*Avena fatua* Linn.) Populations from North India**” at 19th Punjab Science Congress organized by SUS Group of Institutions, Tangori, S.A.S. Nagar (Mohali) from February 7-9, 2016.
24. Research Poster entitled “**Cytomorphological study in *Dichanthium annulatum* (forssk.) Stapf.**” at 19th Punjab Science Congress organized by SUS Group of Institutions, Tangori, S.A.S. Nagar (Mohali) from February 7-9, 2016.
25. Research Paper entitled “**Cytological investigations in *Dichanthium annulatum* (forssk.) Stapf. From Haryana, India.**” During UGC sponsored National Conference on Recent Developments on Stress Tolerance and Plant Biotechnology (NCSTPB-2016) organized by Lyallpur Khalsa College, Jalandhar (Pb.) from February 11-12, 2016.
26. Research Paper entitled “**Meiotic Studies in some Populations of *Setaria verticillata* (L.) P. Beauv. From Shiwalik Hills**” During UGC sponsored National Conference on Recent Developments on Stress Tolerance and Plant Biotechnology (NCSTPB-2016) organized by Lyallpur Khalsa College, Jalandhar (Pb.) from February 11-12, 2016.

27. Research Paper entitled “**Study on Economically Important Grasses of Tribe: Andropogoneae (Family: Poaceae)**” during National Conference on “Recent Trends in Environment, Science and Technology” RTEST-2016 organized by University School of Sciences, Rayat Bahra University on March 11, 2016.
28. Research Paper entitled “**Cytology of a medicinal important grass: *Veteveria zizanoides* (L.) Nash.**” during National Conference on ‘**Basic and Applied Researches in Plants and Microbes**’ organized by Department of Botany, Punjabi University, Patiala from 3 - 5 November, 2016.
29. Research Paper entitled “**Cytological studies on some species of Tribe- Paniceae (Family- Poaceae)**” during National Conference on Biodiversity and Sustainable Utilization of Plant Resources organised by Department of Botany, Kurukshetra University, Kurukshetra from February 17-18, 2017.
30. Research Paper entitled “**Prevalence of Supernumerary Chromosomes in Indian Grasses**” in XXXX All India Botanical Conference and National Symposium on “Evaluation and Conservation of Plant Germplasm” at Department of Botany, Punjabi University, Patiala from 15-17th September, 2017.
31. Research Paper entitled “**Cytomorphological Study in Genus *Sorghum* Moench. (Family: Poaceae)**” in XXXX All India Botanical Conference and National Symposium on “Evaluation and Conservation of Plant Germplasm” at Department of Botany, Punjabi University, Patiala from 15-17th September, 2017.
32. Research Paper entitled “**Cytological Diversity in Some Members Of Tribe Agrostideae And Eragrosteae (Poaceae) From Haryana And Adjoining Shiwalik Hills**” in RACES 2018 UGC sponsored 9th National Conference on Recent Advances In Chemical, Biological & Environmental Sciences at Multani Mal Modi College, Patiala from 9-10th February, 2018.
33. Research Paper entitled “**Ployploidy: An Evolutionary Phenomenon in Family Poaceae**” in *One Day National Seminar* on “Emerging Trends and Challenges in Biosciences” at G M N (P.G.) College, Ambala Cantt on 10 March, 2018.
34. Research Paper entitled “**Impact of Growth Regulators on Growth and Yield of Potato**” in *One Day National Seminar* on “Emerging Trends and Challenges in Biosciences” at G M N (P.G.) College, Ambala Cantt on 10 March, 2018.

35. Research Paper entitled “**Cytology of some Grasses from Haryana and adjoining Shiwalik Hills**” in National Conference on “Research In Plant Sciences for Sustainable Development” at Department of Botany and Environmental Science, Sri Guru Granth Sahib World University, Fatehgarh Sahib on 16-17 March, 2018.
36. Research Paper entitled “**Effect of Dehauling on Potato Seed Production**” in National Conference on “Research In Plant Sciences for Sustainable Development” at Department of Botany and Environmental Science, Sri Guru Granth Sahib World University, Fatehgarh Sahib on 16-17 March, 2018.
37. Research Paper entitled “***Vetiveria Zizanoides* (L.) Nash: An Important Medicinal and Aromatic Grass for Soil and Water Conservation**” at 19th APG International Conference on Sustainable Agriculture, Food Security and Environment held at GSSDGS Khalsa College, Patiala from 2nd -3rd Nov, 2018.
38. Research Paper entitled “**Cytological Variability In *Sorghum halepense* (L.) Pers. Populations from Haryana**” in UGC sponsored 10th National Conference on Recent Advances in Chemical & Environmental Sciences RACES-2019 at Multani Mal Modi College, Patiala from on 11-12 April, 2019.
39. Research Paper entitled “**Exploration of cytomorphological diversity in genus Panicum (Family : Poaceae)**” in 3rd National Conference on Innovation in Bioscience and Technology (NCIBT-2020) at Multani Mal Modi College, Patiala from on 7th March, 2020.
40. Presented paper entitled “**Comparative Cytological Study Of Weeds From Wheat Fields Of North West India**” in 26th Punjab Science Congress held at Sri Guru Granth Sahib World University, Fatehgarh Sahib during Feb 7- 9, 2023.
41. Presented paper entitled “**Population Based Cytological Study of Genus *Sporobolus R.Br.***” In International Conference on the Growth of Biological Sciences in 21st Century held at Punjabi University, Patiala during March 2-4, 2023.
42. Presented paper entitled “**Stomatal Study of Some Plants from Patiala Using Fevicol Technique**” in the 11th National Conference on Recent Advances in Chemical, Biological and Environmental Sciences (RACES) held at Multani Mal Modi College, Patiala during April 12-13, 2023.

C) Attended

1. **8th Punjab Science Congress** organized by Punjab Academy of Sciences held at Department of Zoology, Punjabi University Patiala from 7th-9th February, 2005.
2. **National Symposium on “Researches in Fungal Biology: Emerging trends”** organized by Department of Botany, Punjabi University, Patiala from 30th – 31st January, 2007.
3. **National Seminar on “Scaling new zeniths in Biosciences”** held at H.M.V. College Jalandhar on 26th November, 2009.
4. Attended UGC sponsored **National Seminar on “Emerging Trends in Medical Biotechnology (ETMB-2010)”** held at Doaba College, Jalandhar on 4th Sep, 2010.
5. **National Symposium on “Fundamental and Applied Phycology”** held at Department of Botany, Punjabi University, Patiala from March 25-26th, 2013.
6. **Khalsa College Global Punjabi Conference** held at GSSDGS Khalsa College, Patiala from 21-22 Feb, 2018.
7. Attended a Symposium and Participated in the Open House Discussion on “**NEP 2020-Policy Praxis**” organized by IQAC, Multani Mal Modi College Patiala in collaboration with The Council for Teacher Education Foundation (CTEF)-Punjab & Chandigarh Chapter on May 8, 2023.

Online National Webinar/ National e-Conference Attended

1. National Webinar “**Challenges & Opportunities before Indian Higher education due to Covid-19**” organized by Guru Angad Dev Teaching Learning Centre SGTB Khalsa College, University of Delhi under PMMMNMTT of MHRD held on May 2, 2020.
2. National Webinar “**Corona Pandemic and Economic Challenges in India**” organized by Guru Angad Dev Teaching Learning Centre SGTB Khalsa College, University of Delhi under PMMMNMTT of MHRD held on May 4, 2020.
3. National Webinar “**e-Content Development Methodology: Four Quadrate Model, OER’s and Copyright issues**” organized by Guru Angad Dev Teaching Learning Centre SGTB Khalsa College, University of Delhi under PMMMNMTT of MHRD held on May 15, 2020.

4. Attended Webinar on “**Applications of Molecular Markers in Plant Systematics**” organized by Department of Botany, V.O. Chidambaram College, Thoothukudi held on May 23, 2020.
5. Attended Webinar on “**Ex-situ Conservation of Threatened Angiosperm Plants**” organized by NATUCARE INDIA, Mumbai held on May 24, 2020.
6. National Webinar “**Women in Higher Education Issues and Challenges during Corona Pandemic**” organized by Guru Angad Dev Teaching Learning Centre SGTB Khalsa College, University of Delhi under PMMMNMTT of MHRD held on May 27, 2020.
7. Attended National Webinar “**Crosstalk between Ethnobotany and Immunology : A fight against COVID19**” organized by the Departments of Botany & Physiology in association with the IQAC, PRABHAT KUMAR COLLEGE, CONTAI, West Bengal, India on June 05, 2020.
8. National Webinar on World Environment Day, 2020 organized by Department of Botany and Environmental Science, SGGSWU, Fatehgarh Sahib, Punjab on June 05, 2020.
9. A National Web Series-cum-Training Programme on the topic “**Bioprospecting New Products for Pharmaceutical, Cosmetic, Enzyme and Bioremediation Industry**” organized by Department of Botany Kurukshetra University, Kurukshetra (‘A+’ Grade NAAC Accredited) In collaboration with Corporate Resource Centre (Under RUSA 2.0) held on June 09, 2020.
10. Webinar Series on “**Contemporary Prospects in Biological Sciences**” organized by Department of Biotechnology, Srinivasan College of Arts & Science, Perambalur held from 10-06-2020 to 12-06-2020.
11. National Webinar on “**Role Of Science & Technology During Covid-19 Pandemic**” organized by NCC UNIT, Dayanand College, Hisar held on 12-06-2020.
12. One day National Webinar on “**SWAYAM : An e-Learning Platform**” organized by IQAC and Library Committee, ACS College, Lanja, Maharashtra held on 12-06-2020.
13. One day National Webinar on “**Current Trends in Botany**” organized by Department of Botany and IQAC, Dr. Annasaheb G.D. Bendale Mahila Mahavidyalaya, Jalgaon on 16-06-2020.

14. National Webinar on “**Combating COVID with Yoga**” organized by Department of Sports Science, Punjabi University, Patiala on 21-06-2020.
15. One day National e-Conference on “**Medicinal & Wild Edible Plants-The Immunomodulators for COVID-19 Pandemic**” organized by Department of botany, Smt. Radhabai Sarada Arts, Commerce & Science College, Amravati (Maharashtra) held on 22-06-2020.
16. National Webinar on “**Role of Host Induced Gene Silencing (HIGS) in Crop Improvement**” organized by Department of Botany, Punjabi University, Patiala on 02-07-2020.
17. “**National Capability Enhancement Conference: Education for Meaningful Life Part-3**” organized by PUNJAB COMMERCE & MANAGEMENT ASSOCIATION held on 02-07-2020.
18. National webinar on the topic "**Science and Research**" organized by the Department of Biology, S.D. College, Barnala – Punjab on 14-07-2020.
19. One day Online Capacity Building Program for the teachers of affiliated colleges of Punjabi University Patiala on “**Basic Tools and Techniques for Online Teaching**” organized by UGC- Human Resource Development Centre & Centre for E-Learning and Teaching Excellence, Punjabi University, Patiala on 09-08-2020.
20. National Webinar on “**Need of R&D for Scientific Validation of Traditional Herbal Medicines**” organized by Department of Botany, Arignar, Anna Govt. Arts and Science College, Puducherry, India on 18-08-2020.
21. One Day National Webinar on the theme “**Hind Di Chadar: Sri Guru Tegh Bahadur**” organized Sri Guru Tegh Bahadur National Integration Chair, Punjabi University, Patiala on 26-08-2020.
22. National Webinar on “**Challenges in Higher Education: A Post Pandemic Technology Solution**” organized by PG Department of Botany, M. C. College, Barpeta, Assam, India on 27-08-2020.
23. National Webinar on “**Research In Higher Education Institutions**” organized by Department of Botany, Balbhim Art’s, Science & Commerce College, Beed on 28-08-2020.

24. National Webinar on “**Modern History of Botany in India & Role of Botanical Survey of India**” organized by Department of Botany in collaboration with IQAC, Basirhat College, West Bengal, India held on 29-08-2020.
25. National Webinar on Medicinal & Aromatic Plants organized by Department of Botany, Eternal University, Baru Sahib; RCFC-North-I, NMPB, Ministry of AYUSH, Govt. of India held on 11-09-2020.
26. National Webinar on “**Biodiversity Conservation and Waste Management**” conducted by joint collaboration of Department of Botany, Ekamra College, BBSR & The Vitae Learning on 23-09-2020.
27. National Webinar on “**Microbial Probiotics for Agricultural Systems (MPAS-2020)**” organized by Dolphin PG College of Science and Agriculture, Chandigarh held on 08-10-2020.
28. National Webinar on “**Environment Degradation and Human Health**” organized by Department of Sciences, PMN College, Rajpura (Punjab) on 12-10-2020.
29. National Webinar on “**Exploration of Knowledge on Science and Technological Innovations for Nation Building**” organized by the Indian Science Congress Association, Coimbatore chapter and Kongunadu Arts and Science College, Coimbatore, TN, India on 17-10-2020.
30. National Webinar on “**The Amazing power of Botanicals in to the area of Cancer therapy**” organized by Department of Botany, Karmaveer Bhaurao Patil Mahavidyalaya, Pandharpur (M.S.) India on 04-11-2020.
31. Online National Webinar on the Theme “**Solid Waste Management** ” organized by Swachhta Club, Multani Mal Modi College, Patiala on 10-11-2020.
32. One-Day National Webinar on “**Indian Biodiversity: Issues, Challenges and Initiatives**” Organized by Department of Botany, Vidyabharti College, Seloo, Dist-Wardha (MS) held on 19-01-2021.
33. National Webinar on “**Science for Peace and Development**” organized by Department of Botany and Zoology, GMN College, Ambala Cantt, Haryana on Feb 25, 2021.
34. A National Web Series-cum-Training Programme on the topic “**Feeding & fueling the future Climate Resilient Crops for Enhanced Production of Food and Fuels**”

organized by Department of Botany, Kurukshetra University, Kurukshetra on March 01, 2021.

35. National Webinar on “**Natural Farming For Atam Nirbhar Bharat**” organized by Dev Samaj College for Women, Ferozepur City on May 01, 2021.
36. National Webinar on “**Conservation of Plant Biodiversity**” organized by Department of Basic Sciences, Guru Nanak College, Sri Muktsar Sahib on May 20, 2021.
37. National Webinar on “**Role of Wetlands in Biodiversity Conservation**” organized by Department of Botany and Zoology, PMN College, Rajpura on May 21, 2021.
38. National Webinar on “**Plant Life in Antarctica**” organized by Department of Botany and IQAC, Shyampur Siddheswari Mahavidyalaya on August 22, 2021.
39. National Webinar on “**Plant Micro Techniques**” organized by Shri Shraddhanath P.G. College Todi. Research Foundation of India & RFI-CARE on Dec 24, 2021.
40. Webinar on “**Virtual Labs**” organized by Centre for E-Learning and Teaching Excellence (CELTE), Punjabi University Patiala on April 17, 2023.

International Webinar/ e-Conference Attended

1. Attended Two days International e-Conference on “**Recent Biology Perspectives**” organized by the Department of Biochemistry, V. V. Vanniaperumal College for Women, Virudhunagar, Tamilnadu, India held on 02 & 03-06-20.
2. Attended International Webinar on “**Unraveling the link between the gut microbiome, human health, and disease**” organized by Science AAAS held on 03-06-2020.
3. International Webinar on “**Molecular Biology for Mankind**” organized by the Department of Botany in association with the Internal Quality Assurance Cell, Mrinalini Datta Mahavidyapith, Kolkata on 01-12-2020.
4. International Webinar on “**Current Trends & Future Prospects of Plant Sciences**” organized by Department of Botany, Govt. College, Patharia (M.P.), India held on 17-12-2020.
5. 2nd International Conference on “**Emerging Trends in Life Sciences (ICETLS – 2021)**” Virtual Mode organized by the Department of Botany, Telangana University, Dichpally, Nizamabad held on 28-29-01-2021.
6. International Webinar on “**Genome editing for improvement of abiotic stress tolerance of rice**” Organized by Bioingene.com on April 06, 2021.

Workshops and training courses

1. Attended training course on “**Plant Tissue Culture & its Implications**” sponsored by National Bioresource Development Board, DBT Govt. of India, New Delhi at IHBT, Palampur (H.P.) from September 4th – 15th, 2006.
2. Attended “**Patent Awareness**” workshop on Patent Awareness organized by PSCST held at Thapar Institute of Engineering and Technology, Patiala on 30th September, 2005.
3. Attended two day “**National workshop on Plant Taxonomy**” under taxonomy capacity building scheme (AICOPTAX) sponsored by MOEF, New Delhi, held at Department of Botany, Punjab University Chandigarh from 9th -10th December, 2006.
4. Attended **Workshop on “Environment from to Solutions (EPS-2010)”** at Chitkara Institute of Engineering & Technology, Punjab University Campus, organized by the Dept. of Applied Sciences, in collaboration with Nature Foundation, India on 21st Oct, 2010.
5. Attended two day “**Workshop cum Training Programme on High Performance Thin Layer Chromatography (HPTLC)**” organized by STEP, Thapar University, Patiala from November 21-22, 2011.
6. Attended “**Workshop on Scientific Photography**” organized by STEP, Thapar University, Patiala on November 26, 2011.
7. Attended “**Workshop on Research Methodology**” organized by SMSS, Thapar University Patiala, Punjab on December 17, 2011.
8. Attended one week UGC sponsored “**Workshop on Analysis of Biological Data**” organized by Department of Botanical and Environmental Sciences, GNDU, Amritsar form August 27-September 2, 2012.
9. Attended two weeks DBT sponsored “**Hands on Training Workshop on Molecular Biology & Cytogenetic Techniques**” organized by Punjab State Council For Science & Technology, Chandigarh and Genetic Centre, GMCH, Chandigarh form December 3-15, 2012.

Online e-Workshop Attended

1. Two day National Level E-Workshop On “**Recent Trends in Plant Taxonomy**” organized by Department of Botany St. Ann's College For Women, Hyderabad in collaboration with Botanical Survey of India, DRC, Hyderabad on 25 & 26-11-2020.

FDP Attended

1. Attended and participated in the 7- Days Faculty Development Programme on “**Emerging Issues & Challenges in Higher Education**” organized by IQAC, Multani Mal Modi College, Patiala from 17- 22 July, 2019.

Online FDP and Orientation Course Attended

2. Attended three day workshop on “**RAP a STEP (Research as Pedagogy a Science Teacher Education Program)**” at Punjabi University, Patiala from 29 Sep - 1 Oct 2016.
3. Attended six days Online National Faculty Development Programme for “**Engendering The Next Generation Educators**” at Nehru Arts and Science College, Coimbatore during April 23-28, 2020.
4. Attended three days Online National Faculty Development Programme on “**Moodle Learning Management System**” organized by Department of Computer Science, Kaypeeyes College of Arts & Science, Kotagiri, The Nilgiris association with Spoken Tutorial Project, IIT Bombay, MHRD, Govt. of India from April 29- May 1, 2020.
5. Completed 4 week induction / orientation program for “Faculty in Universities/ Colleges/ Institutes of Higher Education” from Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of MHRD, PMMMNTT from June 04 to July 01, 2020.
6. Completed Faculty Development Program on “**Latex and it’s Applications for Researchers**” organized by Department of Information Science & Engineering, Vidyavardhaka College of Engineering, Mysur from 20-07-2020 to 24-07-20.
7. Attended FDP on “**Emerging Trends in Plant Sciences Topic III – Intellectual Property Rights: Powerhouse for Innovation**” Organized by the Department of Botany, Vivekananda College, Tiruvedakam West, Madurai on March 01, 2021.
8. Attended FDP on “**Emerging Trends in Plant Sciences Topic VI – An Insight into the Biology of Arbuscular Mycorrhizal Symbiosis**” Organized by the Department of Botany, Vivekananda College, Tiruvedakam West, Madurai on March 26, 2021.
9. Attended and participated in the 7- Days Virtual National Level Capacity Building Programme on “**Integration of Pedagogy & Technology in Teaching-Learning**” organized

by Multani Mal Modi College, Patiala in collaboration with Council for Teacher Education Foundation from 13-19 July, 2021.

10. Attended Faculty Development Programme on “**Research Methodology**” organized by IQAC, Multani Mal Modi College, Patiala from 12-19 Jan 2022.
11. Attended orientation course “**UGC Sponsored Faculty induction programme**” organized by HRDC, Punjabi University, Patiala from 14-02-2022 to 17-03-2022.
12. Attended “**Online Two Weeks Refresher Course in Botany**” organized by Teaching Learning Centre, Ramanujan College, University of Delhi during 19-11-23 to 4-12-2023.
13. Attended Short-Term Course on “**NEP Orientation and Sensitization Programme**” organized by UGC-Malaviya Mission Teacher Training Centre (HRDC), Punjabi University, Patiala from 3-01-2024 to 12-01-2024.

Invited Talks/ Radio Talks

1. Delivered Live Radio Talk on **World Earth Day** by Akash Vani Patiala (100.2 FM) on 22-04-2022.
2. Delivered Radio Talk during Van Mahotasa- “**Nari Lok Programme**” by Akash Vani Patiala (100.2 FM) on 07-07-2022.
3. Delivered Radio Talk- “**Teri meri Ek Jindari**” Programme by Akash Vani Patiala (100.2 FM) on 28-12-22.
4. Delivered invited talk on “**International day for Biodiversity 2022**” held at GSSSS, Civil Lines, Patiala on 23-05-2022.
5. Delivered invited talk on “**Introduction To Plant Taxonomy**” during One Day Workshop On Plant Taxonomy And Herbarium Techniques held at Govt. College For Girls, Patiala on March 28, 2023.

Achievements, Awards and Recognitions

- **Awarded Young Scientist Award** by Academic Council International Consortium of Contemporary Biologists and Madhawi – Shyam Educational Trust in the field of Botany during 4th International Conference on: Life Science Research for Rural & Agricultural Development (ICLRAD-2011) held at Central Potato Research Station, Patna from 27th-29th Dec, 2011.

- **Awarded Best Research Poster Award** by Punjab Academy of Sciences in Life Sciences during 17th Punjab Science Congress organized by Punjab Technical University, Kapurthala from 14th -16th Feb, 2014.
- Awarded **Third Prize in Oral Presentation** of Research Paper entitled “**Cytology of some Grasses from Haryana and adjoining Shiwalik Hills**” in National Conference on “Research in Plant Sciences for Sustainable Development” organized by Department of Botany and Environmental Science at Sri Guru Granth Sahib World University, Fatehgarh Sahib on 16-17 March, 2018.
- Honored for **Environmental Awareness activities** by District Forest Officer, Extension Division, Patiala on World Wetland Day (02-02-2022).
- Organized **National Environment Awareness Campaign 2011-12** on “**Forests And Biodiversity Conservation**” sponsored by MOEF, Govt. of India.(Regional Resource Agency: PSCST, Chandigarh) at Public College, Samana (Patiala) on 17-18th Feb, 2012.
- Organized Academic visits of B.Sc. Agriculture, B.Sc. Medical and Community College students to various places (IMD, Punjabi University Patiala, Polyhouses, Herbarium, Museum, Photo gallery, Botanical Gardens, Plant Conservatory, etc).
- Organized International Day For Biological Diversity 2016 on “**Mainstreaming Biodiversity Sustaining People and their Livelihood**” sponsored by National Biodiversity Authority, Govt. of India in collaboration with PSCST, Chandigarh at GSSDGS Khalsa College, Patiala on 31st May, 2016.
- Organized International Day For Biological Diversity 2017 on “**Biodiversity and Sustainable Tourism**” sponsored by National Biodiversity Authority, Govt. of India in collaboration with PSCST, Chandigarh at GSSDGS Khalsa College, Patiala on 31st May, 2017.

Membership

- Life Fellow, ICCB-MSET, Ranchi, Jharkhand, India.
- Member Board of Studies, Community College in Green House Technology at G.S.S.D.G.S. Khalsa College, Patiala for Session 2014-16.
- Member, Under and Post Graduate Board of Studies in Agriculture, G.S.S.D.G.S. Khalsa College, Patiala for Session 2018-19.

- Member, Under Graduate Board of Studies in Botany, G.S.S.D.G.S. Khalsa College, Patiala for Session 2018-19.
- Member, Under Graduate Board of Studies in Botany, G.S.S.D.G.S. Khalsa College, Patiala from 01-07-2021 to 01-07-2024.
- Member Alumni Association, Department of Botany, Punjabi University, Patiala.