

MANISH KAPOOR

Professor & Head, Department of Botany

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Coordinator, Centre for Restoration of Ecosystem of Punjab (CREP)
Punjabi University, Patiala-147002 Punjab INDIA

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AREAS OF SPECIALISATION: Horticulture, Biodiversity conservation, Urban Horticulture, Floriculture, Landscaping, Crop Production, Seed Production, Mutation Breeding, Tissue Culture, Phytochemistry and Pharmacognosy

ACADEMIC QUALIFICATIONS:

- **Ph. D. Horticulture (Floriculture & Landscaping).** **October 2012**
Govind Ballabh Pant University of Agriculture & Technology, Pantnagar
Major: Floriculture & Landscaping **Minor:** Vegetable Science
Overall Grade Point Average 8.60/10.00 (GPA: 4.00/4.00)
Title of Thesis: Morphological, Physiological, Biochemical, Molecular and Mutational Studies in Different Species of *Chrysanthemum*
Honour: University Merit Certificate
- **M. Sc. Landscaping & Floriculture** **August 1999**
Punjab Agricultural University, Ludhiana
Major: Landscaping & Floriculture **Minor:** Biotechnology
Overall Credit Point Average 8.00/10.00 (GPA: 3.93/4.00)
Title of Thesis: *In vivo* and *in vitro* propagation studies in lily (*Lilium* spp.)
Honour: University Merit Certificate
- **B. Sc. Agriculture (Hon's).** **June 1997**
Guru Nanak Dev University, Amritsar
Elective: Horticulture
Percentage: 78.15% (GPA: 3.88/4.00)
Honours: Gold Medallist, First in University, University Merit Scholarship

WORK EXPERIENCE:

- i) **Coordinator, Centre for Restoration of Ecosystem of Punjab** Dec 2021 Present
 - Conservation and restoration of the ecosystem of Punjab province
 - Conservation of the rare and endangered germplasm of Punjab
 - Generating public awareness about ecosystem through social involvements.
 - Conducting seminars and symposiums to commemorate the special days viz., World water day, World environment day, Biodiversity Day.
 - Conducting Tree walks, Bird Walks, Nature Walks, Shinrin yoku (forest bathing) and Mindful Walks
 - Conducting panel discussions with the stake holders (Pollution control Boards, Government departments, industrialists and the public).
 - Conducting Environment sensitization workshops on the theme Lifestyle for environment (LIFE) in collaboration with the NSS wing of Punjabi University and Punjab State Council for Science and Technology.
- ii) **Punjabi University, Patiala, India. (June 2003 to Present)**
 - **Head, Department of Botany** April 2022 Present
 - **Professor (Botanical Garden)** June 2020 Present
 - **Associate Professor (Botanical Garden)** June 2017 June 2020
 - **Assistant Professor (Botanical Garden) (Stage 3)** June 2014 June 2017
 - **Assistant Professor (Botanical Garden) (Stage 2)** June 2009 June 2014
 - **Lecturer (Botanical Garden)** June 2003 June 2009

- Actively engaged in the co-ordination of day-to-day activities for upkeep of the Botanic Garden
- Conducting excursion trips for collection of germplasm of Punjab plains and surrounding areas of North-West Himalayas, their identification and maintenance at botanic garden.
- Preparation, maintenance and digitalization of the herbarium and museum specimens.
- Upkeep the inventory of the Live plant, herbarium and museum accessions.
- Dissemination of new technology to amateurs, farmers, and horticulture professionals.
- Guiding colleges and schools in establishment of botanic gardens at their campus for conservation of local flora.
- Conservation of elite, rare and endangered germplasm, and its propagation.
- Creating interest among students in conservation programme.
- Actively engaged in the teaching of different courses to the students of under-graduate and post-graduate courses in Botany.
- Generating public awareness about the importance of trees and plants in our life through extension lectures and public talks.
- Career counselling
- Administrative role as:
 - **Head**, Department of Botany
 - **Chairman**, Postgraduate and Under-Graduate Board of Studies in Botany, Postgraduate and Under-Graduate Board of Studies in Agriculture.
 - **President**, Botanical Society
 - **Executive Member** of the Punjabi University Environmental Committee.
 - **Member**, Post Graduate Board of Studies in M.Sc. Horticulture, Mata Gujri College, Fatehgarh Sahib; Inspection committee for B.Sc. Agriculture, B.Sc. Horticulture and M. Sc. Agriculture courses of Punjabi University.; Post-Graduate Board of Studies in Botany, Punjabi University, Patiala; Under-Graduate Board of Studies in Botany, Punjabi University, Patiala; Graduate Board of Studies in Agriculture, Punjabi University, Patiala; Graduate Board of Studies in B. Voc. Green House Technology, Khalsa College, Patiala; Graduate Board of Studies in B. Voc. Agriculture, Khalsa College, Patiala; Graduate Board of Studies in B. Voc. Green House Technology, Govt. Mohindra College, Patiala; Graduate Board of Studies in B.Sc. Agriculture (Hon's), Mata Gujri College, Fatehgarh Sahib; Post Graduate Board of Studies in M.Sc. Agronomy, Mata Gujri College, Fatehgarh Sahib; Post Graduate Board of Studies in M.Sc. Botany, Mata Gujri College, Fatehgarh Sahib; Course curriculum amendment committee of various courses as per the industry need.
 - **Subject Expert** for interviews of Assistant Professor in Agriculture/Horticulture.; and Assistant Professor in Botany
 - **Courses taught at P.G. and U.G. Level**
Environmental Studies and Road Safety; Agriculture Botany; Applied Ecology and Phytogeography; Basics of Horticulture; Plant Resource Utilization; Plant Reproduction; Plant Development; Taxonomy of Angiosperms; Plant Cell, Tissue & Organ Culture; Plant Diversity & Conservation; Biostatistics and Computational Skills; Plant Growth & Development; Morphology & Reproduction in Angiosperms; Biology for Chemists; Basic Research Techniques; Introductory Microbiology; Drug Abuse: Problem, Management and Prevention.

Duties	Percentage workload
Academia/ Teaching	50%
Research	25%
Administrative	25%

Students guided:

Ph.D.: Guided: 2/registered: 5/enrolled: 2
M.Phil.: Guided:1/enrolled: -
M.Sc.: Guided:12/enrolled:3

iii) **Production Manager** at Horti Flora Seeds, India (April 2003 - June 2003)

- To monitor the hybrid seed production of different flower, vegetable and herb crops.
- To conduct trials with available commercial formulations of different agrochemicals for weed

control, diseases, insect & pest control.

- To conduct conducting trials to standardize production technology for better seed production.
- To distribute stock seed to the registered farmers at different locations of the state and supervising their crop management practices and strictly enforcing quality standards.
- To transfer latest technology developed for better flower, vegetable and herb crop seed production to the farmers.
- To train the registered farmers for adopting latest techniques by organizing field days on farm training and demonstrations.
- To diagnose various diseases, insect & pests, and disorders responsible for low seed productivity in crops and making recommendation in this regard.
- To monitor the grading, packing and export of seed as per international norms.

iv) **Production Manager at Plantsman's Landscapes & Seeds, India. (Aug 1999 to April 2003)**

- To monitor the hybrid seed production of different flowers and vegetable crops.
- To conduct trials with available commercial formulations of different agrochemicals for weed control, diseases, insect & pest control.
- To conduct conducting trials to standardize production technology for better seed production.
- To distribute stock seed to the registered farmers at different locations of the state and supervising their crop management practices and strictly enforcing quality standards.
- To transfer latest technology developed for better flower, vegetable, cereal, and oilseed crop seed production to the farmers.
- To train the registered fanners for adopting latest techniques by organizing field days on farm training and demonstrations.
- To diagnose various diseases, insect & pests, and disorders responsible for low seed productivity in crops and making recommendation in this regard.
- To monitor the grading, packing and export of seed as per international norms.
- To survey the sites for landscaping.
- Designing and preparing the proposed landscape plans for the sites.
- To visit the sites where the proposed landscape plans are being executed.
- To make recommendations for the maintenance of the sites developed.

AWARDS & HONOURS:

- i) **Eminent Scientist Award-2023** by Society for Plant Research at University of Rajasthan, Jaipur, India
- ii) **Teacher Fellowship** under Faculty Improvement Programme of University Grants Commission, New Delhi.
- iii) **National Merit Scholarship** in M.Sc. Floriculture & Landscaping.
- iv) **University Merit Scholarship** in B.Sc. (Hons.) Agriculture.
- v) **Honoured on Republic Day**, 2020 by Municipal Corporation, Patiala for contribution in Swachh Bharat Mission
- vi) **Best oral presentation award** by Universal Researchers, 2016 at BIOES-2016, NJ, USA.
- vii) **Best presentation award** by ISOH, 2016 at IARI, New Delhi, India
- viii) **Best oral presentation award** by KSSRDI, 2013 at Bengaluru, India.
- ix) **Best poster presentation award** by SPS, 2012 at New Delhi, India
- x) **Young Scientist award** by ICCB-MSET, 2009 at Institute of Forest Productivity, Ranchi, India
- xi) **Thirty** invited talks.
- xii) **Six** Radio talk at All India Radio on Flower cultivation, Water conservation, Ecosystem restoration
- xiii) **Ten** TV talks/ interviews on Conserving Nature, Water conservation and Ecosystem restoration.
- xiv) **Organizers:** Member of the organizing committee of 15 national/international conferences/ symposia/ workshop

PATENT: Patent number 202211058041 published on “Method And Process To Prepare Kajal From Medicinal Plants, Ghee, And Mustard Oil”. Publication number 42/2022, Application number 202211058041 on 21/10/2022.

ASSOCIATIONS/ ORGANIZATIONS:

- i) **Advisor** to **NGO** (Non-Government Organization) Society for Conservation and Healing of Environment (**SOCH**), Ludhiana
- ii) Represented Punjabi University, Patiala during **Nature Festival and Discussion** (Kudrat Utsav avm Samvaad) Organized by Kheti Virasat Mission & Bhoomika at **Punjab Municipal Bhawan**, Chandigarh
- iii) Represented Punjabi University, Patiala during a **Round Table conference** for Nature conservation and Organic Farming on 4rd April 2022 at **Punjab Vidhan Sabha**, Chandigarh
- iv) Member, Commission on Education and Communication (CEC) Nature for All Network of **International Union for Conservation of Nature (IUCN)** from **2017-2021 and 2021-2025**
- v) Member, Commission on Education and Communication (CEC) Nature Education for Sustainable Network of **International Union for Conservation of Nature (IUCN)** from **2017-2021 and 2021-2025**
- vi) Member, Commission on Education and Communication (CEC) Youth Engagement and International Partnerships Network of **International Union for Conservation of Nature (IUCN)** from **2017-2021 and 2021-2025**
- vii) Member, Commission on Education and Communication (CEC) South and Southeastern Asia of **International Union for Conservation of Nature (IUCN)** from **2017-2021 and 2021-2025**
- viii) Member, Seed Conservation Specialist Group of Species Survival Commission (**SSC**) of **International Union for Conservation of Nature (IUCN)** from **2017-2021 and 2021-2025**
- ix) Member, Seed Conservation Specialist Group of Species Survival Commission (**SSC**) Asia of **International Union for Conservation of Nature (IUCN)** from **2017-2021 and 2021-2025**
- x) Represented **India** in 2018 (August 28 to September 15, 2018) for a fully funded training, organized by International Association of Botanic Gardens (**IABG**) (Asia Division) on Botanical Garden Development and Management at Chenshan Botanical Garden, Shanghai, China
- xi) Represented **India** in 2019 (October 13 to November 1, 2019) for a fully funded training, organized by Department of International Cooperation, Ministry of Science and Technology (**MOST**), China on Improving the Technology of Quality and Safety Testing of Fruits at Chinese Academy of Inspection and Quarantine (**CAIQ**), Beijing, China
- xii) **Executive member**, Punjabi University Environmental Society
- xiii) **Expert**, Working Group Meeting for Development of Curriculum and Course Material for Short-term Certificate course on Gardening, National Council of Educational Research and Training (**NCERT**)
- xiv) Attended four weeks Orientation course at ASC, Panjab University, Chandigarh; Three weeks Refresher course at ASC, Kurukshetra University, Kurukshetra; Three weeks Refresher course in Botany at ASC, Punjabi University, Patiala; Three weeks Refresher course in Life Science at HRDC, Punjabi University, Patiala; One week Practical Workshop in Botany at HRDC, Punjabi University, Patiala; One week Teachers Training Workshop in Botany at HRDC, Punjabi University, Patiala; Three weeks Refresher course in Research techniques in Physical and Life Sciences at HRDC, Punjabi University, Patiala.
- xv) **Member of Editorial Board**, Journal of Environmental and Agricultural Sciences; Universal Journal of Plant Science; Journal of Plant Science Researchers; American Journal of Agriculture and Forestry; Journal of Forestry,
- xvi) **Life Member**, Indian Society of Ornamental Horticulture; Punjab Science Congress; Indian Science Congress Association; International Consortium of Contemporary Biologists; The Horticultural Society of India; Indian Botanical Society; International Journal of Agriculture Sciences
- xvii) **Reviewer**, Plos One, Indian Journal of Agricultural Sciences, International Journal of Agriculture Sciences, Agricultural Research Journal, BIOTROPIA, Journal of Advances in Biotechnology, Advancement in Medicinal Plant Research, Universal Journal of Plant Science, Microbiology Research International, Plant Growth Regulation, Life Sciences in Space Research, Indian Journal of

Horticulture, Turkish Journal of Botany, International Journal of Radiation Biology, National Council of Educational Research and Training (NCERT).

xviii) General Secretary of the New Green Park Colony Resident Association since 2017

COMMUNITY SERVICES:

- i) **Rejuvenating the forest area from invasive species**, especially *Prosopis juliflora* at Bir Mehas Wildlife Sanctuary, Nabha with the reintroduction of local indigenous flora.
- ii) **Conservation of heritage/sacred and elite trees** of *Sapindus mukorossi* (Reetha plant) at Reetha Sahib Gurudwara, Champawat, which is a sacred tree in Sikhism.
- iii) **Conservation of heritage/sacred and elite tree** of *Azadirachta indica* (Meethi neem plant) at Neem Sahib Gurudwara, Patiala, which is a sacred tree in Sikhism.
- iv) **Generating public awareness** about the importance of trees and plants in our life through lectures and public talks.
- v) Motivating people about the Rainwater harvesting and ground water recharge techniques, to **conserve the water** for the future generations.
- vi) Established a social media group on 'Facebook' named '**Floriculture and Landscaping**' with more than 29,000 members, to help bring people close to nature.
- vii) **Organized** many flowers shows and exhibitions.
- viii) **Dissemination of new technology** to amateurs, farmers, and horticulture professionals' seminars/symposia.
- ix) **Delivering formal and informal extension lectures** to science students, amateurs, farmers and horticulture professionals through extension lectures, seminars, and symposia

CONSULTATION:

- **Handled more than 200 projects** related to urban forestry and landscaping of theme gardens (sacred/religious/rose etc.)/residential/institutional/corporate/government organizations.
- Rendered consultancy to schools and colleges in **establishing botanical gardens** for conserving local flora.
- **Judged** State level and district level Flower shows organized by the State Horticulture Department and other Public and Private sector agencies.

Ph.D. Students guided/registered/enrolled:

Guided: **3**/Registered: **5**/Enrolled: **1**

S. No.	Name	Title of Thesis	Year of Completion/Registration/Enrolment
Submitted			
1.	Jyoti Rani	Cyto-morphological, biochemical and molecular characterization of Indian germplasm of <i>Catharanthus roseus</i> (L.) G. Don	August, 2019
2.	Pooja Mawal	Evaluation of genetic diversity in some species of <i>Asparagus</i> from North-West India	November, 2022
3.	Lovneet Kaur	Genetic diversity and post-harvest studies in <i>Polianthes tuberosa</i> L.	June, 2023
Registered			
1.	Gurdeep Kaur	Cytological, morphological, biochemical and molecular characterization of different species of <i>Hibiscus</i> .	2018
2.	Navneet Kaur	Morphogenetic diversity in <i>Citrullus colocynthis</i> (L.) Schrad from the Plains of North-West India	2019
3.	Chanchal Sharma	Genetic diversity evaluation of <i>Cucumis melo</i> var <i>Agrestis</i>	2019
4.	Kajal	Evaluation of genetic diversity in Indian <i>Momordica</i> species	2018
5.	Gursimran Singh	Studies on Cytomorphological and Biochemical Diversity	2021

6	Aarti	in Family Crassulaceae J.St.-Hil. From North-West India Forensic Identification and differentiation of some timber species of India	2022
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Enrolled

1.	Prithpal Kaur		2023
2.	Himshikha		2023
3.	Suchitra		2023
4.	Ankita		2023
5.			

M.Phil. Students guided/enrolled:

Guided:1/enrolled: -

S. No.	Name of the Student	Title of Thesis	Year of Completion
1.	Rajdeep Kaur	Mutational studies in <i>Calendula officinalis</i> Linn.	2015

M.Sc. Students guided/enrolled:

Guided:12/enrolled:3

S. No.	Name of the Student	Title of Thesis	Year of Completion
Guided			
1.	Gurdeep Kaur	<i>In vitro</i> and <i>in vivo</i> propagation studies in <i>Lilium</i>	2015
2.	Karamjot Kaur	<i>In vitro</i> propagation studies in <i>Tagetes erecta</i>	2016
3.	Navneet Kaur	<i>In vitro</i> propagation of <i>Gerbera jamesonii</i> .	2017
4.	Jobanjeet Singh	Cyto-morphological studies and conservation of the elite and sacred Neem tree (<i>Azadirachta indica</i> A. Juss.) of Gurduwara Nim Sahib, Patiala.	2018
5.	Arshpreet Kaur	<i>In vitro</i> propagation studies in <i>Stevia rebaudiana</i> Bertoni.	2018
6.	Komalpreet Kaur	<i>In vitro</i> propagation of <i>Catharanthus roseus</i> (L.) G. Don	2019
7.	Harneet Kaur	Inventorization and Risk Assessment of some Trees of Punjabi University campus	2019
8.	Ramandeep Kaur	Inventorization and Risk Assessment of some Trees of Botanical Gardens. Punjabi University, Patiala	2020
9.	Swati	Inventorization and Risk Assessment of some Trees of Baradari Gardens, Patiala	2021
10.	Sania	Inventorization and Risk Assessment of some Trees of Baradari Gardens, Patiala	2021
11.	Mohit Gupta	A Systematic Review of <i>Cannabis</i>	2022
12.	Maaham Chaudhary	A Systematic Review Of <i>Citrus</i> In Punjab	2022
13.	Prabhkirat Kapahi	Medicinal Potential of <i>Aegle marmelos</i>	2023
14.	Bhawandeep Kaur	Medicinally important species of <i>Zingiber</i> of India	2023
15.	Mehakpreet Kaur	<i>Momordica</i> : Nature's Bitter Treasure	2023
Enrolled			
1.	Parneet Kaur		
2.	Ashish Kumar		
3.	Swati Dharni		

Published Work/ Invited Talks /Articles / Book Chapter/ Radio or TV talks

- i) **Forty-one** Research papers.
- ii) **Twenty-three** Book chapters.
- iii) **Eleven** Popular Articles in Magazines and News Papers.
- iv) **Thirty-five** invited talk.

- v) Six Radio talk at All India Radio
- vi) Six TV talks/ interviews

LIST OF PUBLICATIONS:

RESEARCH PAPERS

1. **Kapoor, Manish;** Rani, Jyoti and Kaur, Gurdeep. 2023. Exploration of bioactive compounds of different accessions of *Catharanthus roseus* through GC-MS. Indian Journal of Physiology and Pharmacology. (Communicated) **Impact Factor: 0.13, NAAS rating: 6.13**
2. **Kapoor, Manish;** Rani, Jyoti, Sangwan, Poonam and Kaur, Gurdeep. 2023. Exploration of bioactive compounds of different accessions of *Catharanthus roseus* through GC-MS. Journal of Pharmacology and Pharmacotherapeutics. (Communicated) **Impact Factor: 0.20, NAAS rating: 6.20**
3. Rani, J; **Kapoor, Manish;** Dhull, SB; Goksen, Gulden and Jurić, Slaven. 2023. Comparative HPLC–DAD–ESI investigation of bioactive flavonoids, phenols and alkaloids: anti-cancerous compounds content of flowering herb *Catharanthus roseus* cultivars. Scientific Reports (Communicated) **Impact Factor: 4.997, NAAS rating: 10.997**
4. Rani, J; **Kapoor, Manish;** Dhull, SB; Goksen, Gulden and Jurić, Slaven. 2023. Identification and Assessment of therapeutic phytoconstituents of *Catharanthus roseus* through GC-MS Analysis. Separations. 10, 340. <https://doi.org/10.3390/separations10060340> **Impact Factor: 3.344, NAAS rating: 9.344.**
5. Singh, A; Kaur, J and **Kapoor, Manish** 2023. “Phytochemical screening and antibacterial potential of methanol, ethanol and aqueous extracts from seed, bark and leaf of *Bauhinia tomentosa* L”. Agricultural Science Digest. Vol. 43: (1): 10-17. **NAAS rating: 4.75**
6. Malhotra, PK; Sanghera, GS; Kaur, M and **Kapoor, Manish** 2022. “Optimization of selective agents for *in vitro* regeneration of sugarcane transformants using nptII gene”. Agricultural Research Journal. 59 (4) : 631-638. **NAAS rating: 4.71**
7. **Kapoor, Manish;** Kaur, Gurdeep and Rani, Jyoti 2022. Bioprospecting the Phenolic and Flavonoid Content and Assessment of Antioxidant and Anti-Microbial Activity of leaf extracts of *Hibiscus callyphylus*. Neuro Quantology. 20(9): 4282-4293. **Impact Factor: 1.576, NAAS rating: 6.576** doi: 10.14704/nq.2022.20.9.NQ44486
8. Singh, CB Singhal, VK and **Kapoor, Manish** 2022. “First record of nucleus migration in premeiotic antherial cells of *Saccharum spontaneum* L. (Poaceae)”. Caryologia. 75(2): 53-58. **Impact Factor: 0.918, NAAS rating: 6.87**
9. **Kapoor, Manish;** Rani, Jyoti; Kumar, Ajit and Ghosh, Sanchita 2021. “Phytochemical Screening, Antimicrobial and Antioxidant activity of Periwinkle.” Indian Journal of Horticulture. Vol.:78 (4): 428-435. **Impact Factor: 0.243, NAAS rating: 6.10**
10. **Kapoor, Manish;** Kaur, Gurdeep; Kaur, Navneet; Sharma, Chanchal; Batra, Kajal; and Singh Davinderpal. 2021. “The Traditional uses, Phytochemistry and Pharmacology of Genus *Hibiscus*: A Review”. European Journal of Medicinal Plants. Vol.:32 (4): 1-37. **NAAS rating: 3.75**
11. Ghosh, Sanchita; Ganga, M.; Soorianathasundaram, K.; Kumar, Ajit and **Kapoor, Manish**. 2020. “Induction of mutation in *Jasminum grandiflorum* Linn. with gamma rays and EMS and identification of novel mutants using molecular markers and SEM imaging.” Indian Journal of Horticulture. Vol.:77 (4): 709-717. **Impact Factor: 0.243, NAAS rating: 6.10.**
12. **Kapoor, Manish;** Mawal, Pooja; Sharma, Vikas and Gupta, Raghbir Chand. 2020 “Analysis of genetic diversity and structure in different *Asparagus* species using SSR markers.” Journal of Genetic Engineering and Biotechnology. Vol: 18:50 <https://doi.org/10.1186/s43141-020-00065-3> **Impact Factor: 2.93.**
13. **Kapoor, Manish;** Kaur, Navneet; Kaur, Gurdeep; Sharma, Chanchal; Kaur, Rupinder and Batra Kajal. 2020 “*Citrullus colocynthis* an Important Plant in Indian Traditional System of Medicine.” Pharmacognosy Reviews. Vol.:14 (27): 22-27. **Impact Factor: 3.57.**
14. **Kapoor, Manish;** Sharma, Chanchal; Kaur, Navneet; Kaur, Gurdeep; Kaur, Rupinder and Batra Kajal. 2020 “Phyto-pharmacological aspects of *Cucumis melo* var. *Agrestis*: A systematic review.” Pharmacognosy Reviews. Vol.:14 (27): 28-32. **Impact Factor: 3.57.**

15. Rani, Jyoti; **Kapoor, Manish** and Kaur, Rupinder. 2020 “*In-vitro* Phytochemical Screening of *Eclipta prostrata* Leaves Extracts.” Plant Archives. Vol.:20 (1): 2055-2060. **Impact Factor: 0.12, NAAS rating: 4.41.**
16. Kaur, Lovneet; **Kapoor, Manish** and Gupta, Raghbir Chand 2019 Morphological variations among various single accessions of *Polianthes tuberosa* L. under Punjab conditions. The Pharma Innovation Journal. 8(5): 832-836. **NAAS rating: 5.03.**
17. Kaur, Lovneet; **Kapoor, Manish** and Gupta, Raghbir Chand 2019 Morphological variation among various Double accessions of *Polianthes tuberosa* L. Journal of Pharmacognosy and Phytochemistry. 8(3): 2010-2013. **NAAS rating: 5.21.**
18. **Kapoor, Manish** and Rani, Jyoti. 2019. “Determination of Vindoline and Rutin Content in Five Different Morphotypes of *Catharanthus roseus* Leaves Using HPLC.” International Journal of Pharmacy and Pharmaceutical Sciences. Vol.: 11 (8): 52-57. **Impact Factor: 1.02.**
19. **Kapoor, Manish;** Gupta, R.C. and Mawal, P. 2019. “Antioxidant Potential, Total Phenolic and Flavonoid Content of Roots of Seven Asparagus Species from North-West India.” International Journal of Pharmaceutical Sciences and Research. Vol.: 10 (8): 1000-1006. **Impact Factor: 0.22.**
20. **Kapoor, Manish** and Rani, Jyoti. 2019. “Qualitative and Quantitative analysis of phytochemicals by GC-MS and antioxidant activity of *Catharanthus roseus* (L.) G. Don.” Journal of Pharmacognosy and Phytochemistry. Vol.: 8 (SP1): 378-385. **NAAS rating: 5.21.**
21. **Kapoor, Manish;** Gupta, R.C.; Mawal, P. and Pradhan, S.K. 2019. “Determination of Sugar biomarkers in *Asparagus* through High Performance Thin Layer Chromatography” Journal of Planar Chromatography - Modern TLC Vol.: 32 (2): 109-114. DOI: 10.1556/1006.2019.32.2.5 **Impact Factor: 0.856, NAAS rating: 6.46.**
22. **Kapoor, Manish** and Rani, Jyoti. 2019. “Gas Chromatography-Mass Spectrometric Analysis and Identification of Bioactive Constituents of *Catharanthus roseus* and its Antioxidant activity.” Asian Journal of Pharmaceutical and Clinical Research Vol.: 12 (3): 461-465. **Impact Factor: 0.48.**
23. **Kapoor, Manish;** Rani, Jyoti and Navneet Kaur. 2019. “*In-silico* Identification and Characterization of EST-SSR Markers from *Catharanthus roseus* for Genetic Diversity Analysis” International Journal of Agriculture and Biology Vol.:21 (6) 1293-1300. DOI: 10.17957/IJAB/15.1024 **Impact Factor: 0.892, NAAS rating: 6.87.**
24. Kumar, Ajit; Kumar, Sunil; Ghosh, Sanchita, Srivastava; Ranjan; Bhardwaj S.B.; Roy, Sumana and **Kapoor Manish.** 2017. “Effect of Integrated Weed Management Practices on Chrysanthemum cv. Thai Chen Queen (*Dendranthema grandiflora* Tzvelev.)” The Bioscan. Vol.: 12 (3): 1667-1671. **NAAS rating: 5.26.**
25. Kaur, Rajdeep; **Kapoor, Manish** and Kaur, Rupinder. 2017. “Effect of Gamma Irradiation on Cyto-Morphology, Total Phenolic Content and Antioxidant Activity of *Calendula officinalis* Linn.” Journal of Hill Agriculture. Vol.: 8 (4): 395-402. **NAAS rating: 4.94.**
26. **Kapoor, Manish;** Kumar, Ajit and Lal, Shant. 2017. “Variability induction in Ox-eye daisy (*Leucanthemum vulgare* Lam.) using gamma rays”. Indian Journal of Horticulture. Vol.: 74 (3): 410-417. **Impact Factor: 0.243, NAAS rating: 6.10.**
27. Kaur, Rupinder; Singh, Amarjeet; Kaur, Manpreet and **Kapoor, Manish.** 2017. Growth and Biochemical Responses of *Azolla microphylla* Kaulfuss under Recommended Doses of Chlorpyrifos, Butachlor and Pretilachlor Pesticides used for Agricultural Crops of Punjab. Bionature Vol.: 37 (1): 27-37. **NAAS rating: 2.70.**
28. Rani, Jyoti; **Kapoor, Manish** and Rupinder Kaur. 2017. Phytochemical screening and *in-vitro* anti-bacterial activity of crude extracts of *Catharanthus roseus* L. (G.) Don. Agricultural Science Digest. Vol. 37 (2): 106-111. **NAAS rating: 4.75**
29. Kaur, Rupinder and **Kapoor, Manish.** 2017. *In Vitro* Direct Plant Regeneration Using Shoot Tip Explants in Sugarcane (*Saccharum officinarum* L.) for Rapid Mass Cloning. Agricultural Science Digest. Vol. 37 (2): 94-99. **NAAS rating: 4.75**
30. **Kapoor, Manish.** 2017. “Managing Ambient Air Quality Using Ornamental Plants-An Alternative Approach”. Universal Journal of Plant Science. Vol. 5: 1-9. DOI: 10.13189/ujps.2017. 050101.
31. **Kapoor, Manish;** Grewal, H.S. and Singh, Kushal. 2016. “*In vitro* morphogenesis in Asiatic *Lilium* cv. Chianti”. Journal of Ornamental Horticulture. Vol. 19 (3-4): 38-42. **NAAS rating: 2.28**

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