




## Faculty Details proforma for DU Web-site

(PLEASE FILL THIS IN AND Email it to [websiteDU@du.ac.in](mailto:websiteDU@du.ac.in) and  
cc: [director@ducc.du.ac.in](mailto:director@ducc.du.ac.in))

Title	Dr, (Mrs)	First Name	Rupam	Last Name	Kapoor	
Designation	Professor					
Address	E4/23C Model Town Delhi -110 009					
Phone No Office						
Residence	27248600					
Mobile	9818497035					
Email Web-Page	kapoor_rupam@yahoo.com					
Educational Qualifications						
Degree	Institution				Year	
Ph.D.	University of Delhi, Delhi				1998	
M.Phil. / M.Tech.	Panjab University, Chandigarh				1992	
PG	Panjab University, Chandigarh				1991	
UG	Panjab University, Chandigarh				1989	
Any other qualification						
Career Profile						
<b>Organisation / Institution</b>		<b>Designation</b>		<b>Duration</b>		<b>Role</b>
University of Delhi		Research Associate (Part time)		3rd May 1999- 14th Jan., 2002		Research
University of Delhi		Research Associate		15th Jan. 2002-14th Jan. 2007		Research and Teaching
University of Delhi		DST, Woman Scientist		15th Sept. 2004 -14th Sept., 2009		Research and Teaching
University of Delhi		Reader		10 <sup>th</sup> Oct 2007- 9 <sup>th</sup> Oct., 2010		Research and Teaching
		Associate Professor		10 <sup>th</sup> Oct., 2010 -9 <sup>th</sup> Oct., 2013		
		Professor		10 <sup>th</sup> October 2013		

Administrative Assignments					
<ol style="list-style-type: none"> <li><b>External member, Executive Council</b> Dr. Harisingh Gour University, Sagar Madhya Pradesh.</li> <li><b>University Representative</b>, General Body Lakshmi Bai College.</li> <li><b>University Representative</b>, General Body Aditi Ahavidyalaya</li> <li>Vice President (2020) Mycological Society of India</li> <li><b>Chief Returning Officer</b>, (2018 &amp; 19) Delhi University Students Union' Elections</li> <li><b>Associate Editor</b> of journal “<b>3Biotech</b>” (Agriculturally Important Pathogenic and Symbiotic Fungi) by Springer</li> <li><b>Review Editor</b> on the Editorial Board of <b>Frontiers in Plant Science - Plant Symbiotic Interactions</b>.</li> <li><b>Provost</b>, North Eastern Students' Hostel for Women (NESHW), University of Delhi</li> </ol>					
Areas of Interest / Specialization					
<b>Interaction of plants with pathogenic and symbiotic fungi; microbial biotechnology</b>					
Subjects Taught					
Pathogens and Pests of Crop Plants; Microbes and Microbial Technology; Molecular Interactions of Plants with Symbionts, Pathogens and Pests					
Time table of the subjects taught during the current semester					
	S.No.	Subject	Days	Time	Classroom (# Room/Lab Number)
	1.	<b>CC8</b> Pathogens and Pests of Crop Plants	Wednesday	Theory: 8:45-10:35 Practical: 10:35-3:15	Theory& Practicals : Google classroom
	2.	<b>CC2</b> Phycology and Microbiology	Monday	Theory: 8:45-10:35 Practical: 10:35-3:15	Theory& Practicals : Google classroom
	3.	<b>BOT 403</b> Molecular interactions of Plants with symbionts, pathogens and pests.	Friday (Theory and Practical)	Theory: 8:45-10:35 Practical: 10:35-3:15	Theory& Practicals : Google classroom
	4.	<b>Ph.D / M.Phil Coursework</b> <b>GR6:</b> Methods for microbiology and plant parasite interactions	Monday	Time: 2:00-4:00	Theory: Google classroom
Research Guidance					
<p><i>List against each head (If applicable)</i>  <b>Supervision of awarded M.Phil dissertations</b></p>					

1. Role of Arbuscular Mycorrhiza in Alleviation of Salt Stress by Regulation of Molecular Engines – Polyamines and Aquaporins – Deep Insights and Major Challenges (2020)
2. Phylogenetic Position of *Fusarium oxysporum* Schlecht. f. sp. *carthami* Klis. and Hous. in *F. oxysporum* Species Complex on the Basis of Conserved Marker Genes and Presence of Secreted in Xylem Genes (2019)
3. Interactive effects of arbuscular mycorrhiza and arsenic toxicity on arsenic uptake and oxidative stress in *Triticum aestivum* L. (2016).
4. Ameliorative role of *Rhizophagus intraradices* in wheat against Arsenic toxicity induced oxidative stress (2015).
5. Cultural, Morphological and Molecular Characterization of *Alternaria carthami* isolates causing leaf spot disease of safflower (2013)
6. Biocontrol mechanisms in *Trichoderma* and molecular advancements to improve its biocontrol potential – A review (2009)
7. Standardization of the technique for monoxenic culture of arbuscular mycorrhizal fungus through root organ culture (2009)
8. Arbuscular Mycorrhiza in Synergism with *Trichoderma viride* and *Pseudomonas* sp. for Biocontrol of *Fusarium oxysporum* f. sp. *lycopersici* ≡ An Integrated Approach.(2007)
9. Arbuscular Mycorrhizal in Conservation and Improving Growth of *Curculigo orchoides*: a Vulnerable Medicinal Plant. (2006)
10. Effect of Arbuscular Mycorrhiza on Growth and Productivity of *Artemisia annua* L. (2005)

***Supervision of awarded Ph.D. thesis***

1. Mansi Gogna (2021)
2. Archana Kumari (2021) Nitric Oxide Mediated Modulation of Glycine Betaine Homeostasis, Aquaporin Expression, Ionic Balance and Proteome in Sunflower (*Helianthus annuus* L.) Seedlings Subjected to Salt Stress.
3. Neeraja Singh (2019) Assessment of Virulence and Genetic Diversity in *Fusarium oxysporum* Schlecht. f. sp. *carthami* Klis. & Hous. Isolates in India, and Development of a SCAR Marker for its Detection in Safflower Seedlings and Soil
4. Esha Sharma (2018) Characterization of mutants to identify the roles of three genes in virulence of *Botrytis cinerea* Persoon ex. Fries
5. Piyush Mathur (2016) Effect of elevated CO<sub>2</sub> on Plant-pathogen interactions in *Brassica juncea* L. (Czern. & Coss.)
6. Shantanu Mandal (2016) Unravelling the mechanisms involved in Arbuscular mycorrhizal fungi mediated increase in Secondary metabolite produced in *Artemisia annua* L. and *Stevia rebaudiana* Bertoni
7. Sarita Kumari (2014) Analyses of genetic and pathogenic variation among *Botrytis cinerea* isolates.
8. Rashmi Saini (2014) A Computational, Cultural and Metagenomic Approach to Study Carbon Dioxide Utilizing Microorganisms (2014)
9. Pamil Tayal (2013) Tagging pathogenicity genes in *Botrytis cinerea* by insertional mutagenesis.
10. Heikham Evelin (2013) AM symbiosis and salinity tolerance: alleviation of ionic, osmotic and oxidative stress in *Trigonella foenum-graecum* L. colonized by *Glomus*

*intraradices* Schenck and Smith.

11. Transcriptional regulation of *cry4A* gene of *Bacillus thuringiensis israelensis* (2011).

Publications Profile (in the last five years)

**Research papers published in Refereed/Peer Reviewed Journals**

- Sharma K, Gupta G, Thochchom S D, Jangir P, **Kapoor R** 2021 Arbuscular Mycorrhiza-Mediated Regulation of Aquaporins and Polyamines during Abiotic Stress: Deep Insights on the Recondite Players. *Frontiers in Plant Science* (accepted)
- Verma K, Mehmood T, Uniyal P, **Kapoor R**, Sharma Y.P. 2021 Two new species of genus *Lactarius* (Russulaceae) from North-western Himalaya, India. *Phytotaxa* (accepted).
- Jangir P, Mehra N, Sharma K, Singh N, Mamta Rani and **Kapoor R** 2021. Secreted in Xylem genes: drivers of host adaptation in *Fusarium oxysporum*. *Frontiers in Plant Science* in the section **Plant-Pathogen Interaction** [doi.org/10.3389/fpls.2021.628611](https://doi.org/10.3389/fpls.2021.628611)
- Gupta S, Thokchom SD, **Kapoor R** 2021. Arbuscular mycorrhiza improves photosynthesis and restores alteration in sugar metabolism in *Triticum aestivum* L. grown in arsenic contaminated soil. *Frontiers in Plant Science* <https://doi.org/10.3389/fpls.2021.640379>
- Thokchom SD, Gupta S, **Kapoor R** 2020. Arbuscular mycorrhiza augments essential oil composition and antioxidant properties of *Ocimum tenuiflorum* L. - a popular green tea additive. *Industrial Crops and Products* 153 112418.
- Hajong S, **Kapoor R** 2020 An amalgam of pathogenic and beneficial endophytic fungi colonizing four *Dendrobium* species from Meghalaya, India. *Journal of Basic Microbiology* DOI: 10.1002/jobm.201900631
- Kumari A, **Kapoor R** and Bhatla S C 2019. Nitric oxide and light co-regulate glycine betaine homeostasis in sunflower seedling cotyledons by modulating betaine aldehyde dehydrogenase transcript levels and activity. *Plant Signaling & Behavior*, DOI:10.1080/15592324.2019.1666656
- Anand G and **Kapoor R** 2019. Nested PCR assay for specific and sensitive detection of *Alternaria carthami*. *Archives of Microbiology* (accepted)
- Singh N, Anand G and **Kapoor R** 2019. Incidence and Severity of Fungal Diseases of Safflower in India. *Crop Protection* 10.1016/j.cropro.2019.104905
- Singh N, Anand G and **Kapoor R** 2019. Virulence and genetic diversity among *Fusarium oxysporum* f. sp. *carthami* isolates of India using multilocus RAPD and ISSR markers. *Tropical Plant Pathology* [doi.org/10.1007/s40858-019-00303-1](https://doi.org/10.1007/s40858-019-00303-1)
- Evelin H, Thokchom SD, Gupta S, Kapoor R 2019. Mitigation of salinity stress in plants by arbuscular mycorrhizal symbiosis: current understanding and new challenges. *Frontiers in Plant Science* (Plant abiotic stress) [doi.org/10.3389/fpls.2019.00470](https://doi.org/10.3389/fpls.2019.00470)
- Singh N and **Kapoor R** 2018. Quick and accurate detection of *Fusarium oxysporum* f. sp. *carthami* in host tissue and soil using conventional and real-time PCR assay *World Journal of Microbiology and Biotechnology* [doi.org/10.1007/s11274-018-2556-y](https://doi.org/10.1007/s11274-018-2556-y)

- Anand G and **Kapoor R** 2018. Population structure and virulence analysis of *Alternaria carthami* isolates of India using ISSR and SSR markers. *World Journal of Microbiology and Biotechnology*, 34(9), 140.
- Mathur P, Singh V P and **Kapoor R** 2018. Interactive effects of CO<sub>2</sub> concentrations and *Alternaria brassicae* (Berk.) Sacc. infection on defense signalling in *Brassica juncea* (L.) Czern. & Coss. *European Journal of Plant Pathology* 151: 413–425.
- Sharma E, Tayal P, Anand G, Mathur P and **Kapoor R**. 2018. Functional analysis of Diacylglycerol O-acyl transferase 2 gene to decipher its role in virulence of *Botrytis cinerea*. *Current Genetics* 64(2), 443-457.
- Narayan OP, Verma N, Singh AK, Oelmüller R, Kumar M, Prasad D, **Kapoor R**, Dua M, and Johri AK 2017. Antioxidant enzymes in chickpea colonized by *Piriformospora indica* participate in defense against the pathogen *Botrytis cinerea*. *Scientific Reports* 7: 13553. doi: 10.1038/s41598-017-12944-w
- Sharma E and **Kapoor R** 2017. Insights into the molecular interplay of virulence factors in *Botrytis cinerea*. *Australasian Plant Pathology* 46(6): 551-561 (DOI 10.1007/s13313-017-0519-7)
- Sharma E and **Kapoor R** 2017. Expression of a novel gene encoding predicted protein affects pathogenicity in *Botrytis cinerea*. *Kavaka* 48:52-63.
- Tayal P, Raj S, Sharma E, Kumar M, Dayaman V, Verma N, Jogawat A, Dua M, **Kapoor, R** and Johri A 2017. A *Botrytis cinerea* KLP-7 Kinesin acts as a Virulence Determinant during Plant Infection. *Scientific Reports* | 7: 10664 | DOI:10.1038/s41598-017-09409-5.
- Sharma S, Anand G, Singh N, **Kapoor R** 2017 Arbuscular mycorrhiza augments arsenic tolerance in wheat (*Triticum aestivum* L.) by strengthening antioxidant defense system and thiol metabolism. *Frontiers in Plant Science* (section Plant Traffic and Transport). doi: 10.3389/fpls.2017.00906.
- Sharma E, Anand G and **Kapoor R** 2017 Terpenoids in plant and arbuscular mycorrhiza-reinforced defence against herbivorous insects. *Annals of Botany* 119: 791-801
- **Kapoor R**, Anand G, Pooja, Mandal S 2017 Insight into the mechanisms of enhanced production of valuable terpenoids by arbuscular mycorrhiza. *Phytochemistry Reviews* Volume 16: 677–692. doi: 10.1007/s11101-016-9486-9.

### ***Other publications***

#### **EDITED BOOK**

- Bhatnagar A K and Kapoor R 2018 *Plant Diversity in India* . IK International Publishing House Pvt. Ltd. New Delhi. ISBN: 9789385909696
- Kapoor R, Kaur I and Koul M (editors) 2015. *Plant Reproductive Biology and Conservation*. IK International Publishing House Pvt. Ltd. New Delhi. ISBN 978-93-82332-90-9.

#### ***(Chapters in Edited Books.)***

- Thokhom SD, Gupta S, Kapoor R 2019 Arbuscular Mycorrhizal Fungi in Alleviation of Cold Stress in Plants. In *Advancing Frontiers in Mycology & Mycotechnology* Eds. Tulasi Satyanarayana, Sunil Kumar Deshmukh, and Mukund V. Deshpande. DOI:

10.1007/978-981-13-9349-5\_17

- Sharma S, Singh N and Kapoor R 2017 Arbuscular Mycorrhizal Fungi in Redeeming Arsenic Toxicity in Plants. In A. Varma et al. (eds.), Mycorrhiza - Eco-Physiology, Secondary Metabolites, Nanomaterials, Springer International Publishing AG DOI 10.1007/978-3-319-57849-1\_7.
- **Kapoor R** and Singh N 2016 Arbuscular Mycorrhiza and Reactive Oxygen Species. In: Q.-S. Wu (ed.), Arbuscular Mycorrhizas and Stress Tolerance of Plants, Springer Nature Singapore Pte Ltd. 2017 DOI 10.1007/978-981-10-4115-0\_10.
- Sharma S and **Kapoor R** 2017 Arbuscular Mycorrhizal Fungi in Quenching the Detrimental Effects of Heavy Metals for Sustainable Agriculture of Crop Plants 75-92. In: Bagyaraj D.J. and Jamaluddin (Eds.) Microbes for Restoration of Degraded Ecosystems. New India Publishing Agency, New Delhi.

#### Conference Organization/ Presentations (in the last three years)

##### **Organization of a Conference**

- Organizing Secretary, National Conference on Plant Science Research: Looking Beyond 21<sup>st</sup> Century for Environmental and Agricultural Revolution” under the aegis of Society for Plant Research and Department of Botany, University of Delhi during February 5-7, 2016. University of Delhi.

##### **Participation as Paper Presenter**

- Presidential address on “**Arbuscular Mycorrhiza in Sustainable Agriculture: Prospective and Challenges**” in National Conference on Biodiversity and Biotechnology of Fungi & 47th Annual Meeting of Mycological Society of India, organized by Department of Botany, Punjabi University, Patiala February 22-24, 2021.
- **Prof. K. Natarajan Memorial Lecture on “Understanding the role of some novel components in modulating virulence of necrotrophic fungus *Botrytis cinerea*”** in National Conference on Biodiversity and Biotechnology of Fungi & 47th Annual Meeting of Mycological Society of India, organized by Department of Botany, Punjabi University, Patiala February 22-24, 2021.
- Delivered an invited lecture on “Arbuscular mycorrhiza in improving the productivity of terpenoids in medicinal plants” in National Seminar on Biotechnology research in India: Current status and future prospects, organized by Department of Biotechnology, School of Chemical & Life Sciences, Hamdard University 26<sup>th</sup> and 27<sup>th</sup> March 2019.
- Delivered an invited lecture in Symposium on Avenues in Plant Sciences: A Hope for Sustainable Future, Deshbandu College, University of Delhi, 8<sup>th</sup> March, 2019.
- Delivered a plenary lecture on “Arbuscular Mycorrhiza in Sustainable Agriculture” in national Conference on Plant and Microbial Research: Present Scenario, organized by Department of Botany, Punjabi University, Patiala, February 18-19, 2019.
- Present an oral presentation on “Identification of Novel Determinants Contributing to pathogenicity of *Botrytis cinerea*” in International Symposium on Fungal Biology: Advances, Applications and Conservation & 4th Annual Meeting of Mycological Society of India, Organised by National Fungal Culture Collection of India (NFCCI)



and MAC's Agarkar Research Institute, November 19-12, 2018.

- Presented a Plenary lecture on “Arbuscular mycorrhiza (AM) and sustainable agriculture of medicinal plants” in the national conference on “Emerging Environmental Challenges and Sustainable Development” jointly organized by Swami Shraddhanand College, Department of Botany, University of Delhi, Delhi and Society for Environment and Development, (SED India), New Delhi 21-23 March 2018.
- Delivered an invited lecture on “Arbuscular mycorrhiza (AM) in augmenting the yield of medicinal plants” in the 13<sup>th</sup> J&K Science Congress “Emerging Technologies and Human Society: Applications and Constraints” University of Kashmir, Srinagar 2-4 April 2018.
- Delivered an invited lecture on “Arbuscular Mycorrhizal Fungi – Adept Companions of Plants” in the national Seminar on “New Vistas in Plant and Microbial Sciences” organized by the Department of Botany, University of Jammu, Jammu 11-12 March 2016
- Presented an invited lecture entitled “Disentangling the Mechanisms for Superior Employment of Arbuscular Mycorrhiza in Cultivation of Medicinal Plants” in National Conference on Emerging trends in Fungal Biology and Plant Protection (42<sup>nd</sup> Annual Meeting of the Mycological Society of India) February 16-18<sup>th</sup>, 2016, Banaras Hindu University, Varanasi.

#### Research Projects (Major Grants/Research Collaboration)

- (2010 – 2013) DBT Project entitled “Cost effective *Glomus fasciculatum* Formulation to Improve the Yield of Three Commercially Important Medicinal Plants- *Artemisia annua*, *Stevia rebaudiana* and *Andrographis paniculata*” to be carried out in collaboration with The Energy Resources Institute (TERI), New Delhi.
- (2010 – 2013) Ministry of Environment and Forests Project entitled “Effect of Elevated CO<sub>2</sub> on some important plant diseases of India”.
- (2009-2013) DST-University of Delhi Purse grant entitled “Genetic and genomic approaches for improvement of oilseed crop *Carthamus tinctorius* (safflower)”.
- (2013-2016) SERB project entitled “Application of *Agrobacterium tumefaciens* mediated transformation for tagging genes responsible for virulence in *Botrytis cinerea*”.
- (2020-23) SERB sponsored project entitled “Deciphering the mechanisms of reduced uptake and accumulation of Arsenic (As) in grain by arbuscular mycorrhizal fungi to develop mitigation strategies for wheat irrigated with As-contaminated ground water in India”.
- (2020-23) National Mission on Himalayan Studies sponsored project entitled “Diversity and Indigenous Knowledge on Macrofungi in Trans Himayalan District of Kargil

#### Awards and Distinctions

- **President (2020)** Mycological Society of India.

- **K. Natrajan Memorial award lecture (2020)** by Mycological Society of India
- **Elected Follow**, Mycological Society of India, 2015
- **Y. S. Murty Medal - 2010** for Young Scientist by Indian Botanical Society, India
- **DST-BOYSCAST Fellow (2008-09)** Plant-Microbe Interaction at Department of Biology, University of Alabama in Huntsville, Huntsville, USA

#### Association With Professional Bodies

- **Review Editor** on the Editorial Board of **Frontiers in Plant Science - Plant Symbiotic Interactions**.
- **President (2020)** Mycological Society of India.
- **Additional Secretary (2021-25)** International Society of Plant Morphologists
- **Associate Editor** of journal “**3Biotech**” (Agriculturally Important Pathogenic and Symbiotic Fungi) by Springer
- **Member Editorial Board** of journal “Kavaka” published by Mycological Society of India.
- **Member Editorial Board** “Journal of Mycology and Plant Pathology” (since 2015) published by Indian Society of Mycology and Plant Pathology.
- **Member Editorial Board** “Climate Change and Environmental Sustainability” (since 2015)
- **Editor-in Chief** The Botanica (an official magazine of Delhi University Botanical Society) (2011-2016)
- **Member of Council** Mycological Society of India

#### Membership

- **Member**, International Mycorrhiza Society, (member number 20121228i21271)
- **Member**, International Symbiosis Society, Boston, USA
- **Life Member** Mycological Society of India, Chennai
- **Life Member**, Indian Society of Mycology and Plant Pathology, Udaipur
- **Life Member**, Indian Botanical Society, Jaipur
- **Life Member**, Delhi University Botanical Society, Delhi
- **Life Member**, International Society of Plant Morphologists, Delhi
- **Life Member**, Society for Conservation and Resource Development of Medicinal Plants, Delhi
- **Life Member**, Association of Microbiologists of India, Hissar (LM-32-11)
- **Life Member**, Indian Science Congress Association, Kolkata

#### Other Activities



Signature of Faculty Member



