




## 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>External member, Executive council Dr. Harisingh Gour University, Sagar Madhya Pradesh.</li> <li>University representative, General Body Lakshmi Bai College</li> <li>Vice President (2020) Mycological Society of India</li> <li><b>Associate Editor</b> of journal "<b>3Biotech</b>" (Agriculturally Important Pathogenic and Symbiotic Fungi) by Springer</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	Monday	Theory: 15:30-17:30 Practicals 11:00-13:00 13:30-15:30	Theory: 37 Lab: 3/47
		Wednesday	Theory: 8:45- 10:45 Practicals 11:00-13:00 13:30-15:30	Theory: 37 Lab: 3/47
		Friday	Practicals 13:30 - 15:30	
2.	<b>CC2</b> Phycology and Microbiology	Monday	Theory: 15:30-17:30 Practicals 11:00-13:00 13:30-15:30	Theory: LH 1 Lab: 4
		Thursday	Theory: 8:45- 10:45 Practicals 11:00-13:00 13:30-15:30	Theory: LH 1
		Friday	Practicals 13:30 - 15:30	
3.	<b>BOT3</b> <b>Microbes and Microbial</b>	Tuesday	Theory: 8:45-9:40 Practical: 9:40-12:25	
4.	<b>Teachnology</b> <b>BOT 403</b>	Wednesday	Theory: 9:40- 10:35	
		Friday	Theory: 8:45-10:35	Theory: 208

## Research Guidance

*List against each head (If applicable)*

### **Supervision of awarded M.Phil dissertations**

- Pooja 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)
- Interactive effects of arbuscular mycorrhiza and arsenic toxicity on arsenic uptake and oxidative stress in *Triticum aestivum* L. (2016).
- Ameliorative role of *Rhizophagus intraradices* in wheat against Arsenic toxicity induced oxidative stress (2015).
- Cultural, Morphological and Molecular Characterization of *Alternaria carthami* isolates causing leaf spot disease of safflower (2013)
- Biocontrol mechanisms in *Trichoderma* and molecular advancements to improve its biocontrol potential – A review (2009)
- Standardization of the technique for monoxenic culture of arbuscular mycorrhizal fungus through root organ culture (2009)
- Arbuscular Mycorrhiza in Synergism with *Trichoderma viride* and *Pseudomonas* sp. for Biocontrol of *Fusarium oxysporum* f. sp. *lycopersici* ≠ An Integrated Approach.(2007)
- Arbuscular Mycorrhizal in Conservation and Improving Growth of *Curculigo orchioides*: a Vulnerable Medicinal Plant. (2006)
- Effect of Arbuscular Mycorrhiza on Growth and Productivity of *Artemisia annua* L. (2005)

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

- Esha Sharma (2018) Characterization of mutants to identify the roles of three genes in virulence of *Botrytis cinerea* Persoon ex. Fries
- Piyush Mathur (2016) Effect of elevated CO<sub>2</sub> on Plant-pathogen interactions in *Brassica juncea* L. (Czern. & Coss.)
- 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
- Sarita Kumari (2014) Analyses of genetic and pathogenic variation among

*Botrytis cinerea* isolates.

- Rashmi Saini (2014) A Computational, Cultural and Metagenomic Approach to Study Carbon Dioxide Utilizing Microorganisms (2014)
- Pamil Tayal (2013) Tagging pathogenicity genes in *Botrytis cinerea* by insertional mutagenesis.
- 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.
- 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**

- 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 (in press).
- 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
- 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
- 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
- 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](https://doi.org/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.
- Mandal S, Upadhyay S, Singh VP and **Kapoor R** 2015 Enhanced production of steviol glycosides in mycorrhizal plants: a concerted effect of arbuscular mycorrhizal symbiosis on transcription of biosynthetic genes. Plant Physiology and Biochemistry 89: 100-106.
- Mandal S, Upadhyay S, Wajid S, Ram M, Jain DC, Singh VP, Abdin MZ and **Kapoor R** 2015 Arbuscular mycorrhiza increase artemisinin accumulation in *Artemisia annua* by higher expression of key biosynthesis genes via enhanced jasmonic acid levels. Mycorrhiza 25: 345-357.

### ***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.)***

- Thokchom 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.
- Upadhyay S, Koul M and **Kapoor R**. 2015 Rhizosphere microflora in advocacy of heavy metal tolerance in plants. 323-337. In: Dilfuza E and Varma A (Eds.) *Plant-Growth-Promoting Rhizobacteria (PGPR) and Medicinal Plants*. Soil Biology 42 Springer
- Evelin H, Sharma E and **Kapoor R** 2015. Arbuscular mycorrhizal fungi: Potential Role in conservation of endangered plants. 424-437. In: Kapoor R, Kaur I and Koul M (Eds.) *Plant Reproductive Biology and Conservation*. IK international publishing Pvt. Ltd. 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
- **Co-convener**, Workshop “Physiological Ecology” at 7<sup>th</sup> International Conference on Mycorrhiza “Mycorrhiza for all – An Under Earth Revolution”, New Delhi 6-11, 2013

***Participation as Paper Presenter***

- 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, Deshbhandu 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 Agharkar 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 Shradhanand 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.
- Presented an invited lecture entitled “Arbuscular Mycorrhizal Fungi for Improving Production of Terpenoids in Medicinal Plants: A Sustainable Approach” in 56<sup>th</sup> annual conference of association of Microbiologists of India (AMI-2015) & International symposium on “Emerging Discoveries in Microbiology”. December 7-10 2015 at JNU, New Delhi
- Presented an invited lecture entitled “Enhancing plant secondary metabolites through AM symbiosis: An underground approach” in Indian Science Congress 2015, Mumbai
- Presented a paper entitled “ AM symbiosis and synthesis of terpenoids in aerial parts of Plant” in 7th International conference on “Mycorrhiza for all – An Under Earth Revolution”, New Delhi 6-11, 2013.

#### 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) DST-SERB project entitled “Application of *Agrobacterium tumefaciens* mediated transformation for tagging genes responsible for virulence in *Botrytis*

*cinerea*

#### Awards and Distinctions

- **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

- **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, Chennai 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