



Faculty Details proforma for DU Web-site

Title	Professor	First Name	Renu	Last Name	Deswal	Photograph
Designation	Professor					
Address	Molecular Plant Physiology and Proteomics Laboratory (Lab. # 21) Room # 12, Botany Department, University of Delhi, Delhi - 110007.					
Phone No Office	Nil					
Residence	91-11-25453208					
Mobile	9711742276					
Email	rdeswal@botany.du.ac.in renudeswal@yahoo.co.in deswalr@hotmail.com					
Educational Qualifications						
Degree	Institution				Year	
Ph.D.	Ph.D. (Biochemistry), Jawaharlal Nehru University, New Delhi.				1994	
M.Phil.	M.Phil. (Life Sciences), Jawaharlal Nehru University, New Delhi.				1988-89	
PG	M.Sc. (Life Sciences), Jawaharlal Nehru University, New Delhi				1987	
UG	B.Sc. (Gen. B), University of Delhi				1985	
Any other qualification	Bioinformatics Courses (Online), Singapore University Radiation safety Officer course, AERB, India				2005-2010	

Career Profile		
<p>2009–continuing: Professor, Department of Botany, University of Delhi.</p> <p>2006 - 2008: Associate Professor, Department of Botany, University of Delhi.</p> <p>February, 2001 - 2006: Reader, Department of Botany, University of Delhi.</p> <p>1998- 2001: Staff Scientist III&II, National Centre for Plant Genome Research, Jawaharlal Nehru University, New Delhi.</p> <p>1995 – 1998: Research Scientist, Centre for Plant Mol. Biol., Jawaharlal Nehru University, New Delhi.</p> <p>1994 – 1995: Research Associate, School of Life Sciences, Jawaharlal Nehru University, New Delhi.</p>		
Administrative Assignments		
<p>2011- 2016, Deputy Proctor, North Campus, University of Delhi.</p> <p>2014 – Member, Internal Complaints Committee</p> <p>2011- 2014 Member, Apex Complaints Committee against Sexual Harassment.</p> <p>2007 – 2010, Member, Interim Committee against Sexual Harassment, Science Cluster.</p>		
Areas of Interest / Specialization		
<p>Abiotic stress (cold stress), Functional Genomics (Proteomics), Nitric oxide signalling and Nanobiotechnology</p>		
Subjects Taught		
<p><i>Ph.D./ M.Phil.</i></p> <p>Nanobiotechnology</p> <p><i>M.Sc.</i></p> <p>BOT 103 Physiology and Biochemistry</p> <p>BOT 307 Proteomics and Genomics (Elective paper)</p> <p>BOT 408 Topics in Plant Physiology and Biochemistry(Elective paper)</p>		

Time table of the subjects taught during the current semester

S.No.	Subject	Days	Time	Classroom
1.	BOT103	Monday	08:45am-9:40am Theory 10:35am-05:30pm Practical	LH-02 Lab-05
2.	BOT103	Thursday	08:45am-9:40am Theory 10:35am-05:30pm Practical	LH-02 Lab-05
3.	BOT 307	Wednesday	10:30am-12:30am Theory 11:00am-5:30 pm Practical	LH-01 Lab-01
4.	M.Phil/Ph.D	Friday	Nanbiotechnology 12:00 pm-2:00 pm	Committee Room and CIF/USIC

Research Guidance

Supervision of awarded Doctoral Thesis, Nine till date.

1. **Prakriti Kashyap 2016:** CBF dependent cold stress signaling in three dicots Brassica, tomato and Seabuckthorn.
2. **Ankita Sherawat 2015:** S.nitrosoproteome analysis in Brassica juncea from apoplast to nucleus indicates Nitric oxide (NO) and colds stress cross-talk in stress, signaling and redox related pathways.
3. **Ravi Gupta 2015 :** Mining of extracellular proteome of Hippophae rhamnoides seedlings for purification and characterization of antifreeze proteins

Supervision of Doctoral Thesis, under progress: Seven

- 1) **Bhavana Sharma:** H. rhamnoides leaf and berry proteome mining for antifreeze proteins. Date of Registration **03 June, 2013**
- 2) **Shruti Sharma:** Proteome analysis of Dioscorea alata in search for Biochemical and Molecular markers. Date of Registration **23 Dec, 2013**
- 3) **Meenakshi Arya:** Analysis of Cuticular proteome in Brassica species. Date of Registration – **22**

Sep, 2014

4) **Sougrakpam Yaiphabi Chanu**: Post translational modifications in Cuticleproteome. Date of Registration- **17 Feb,2015**

5) **Satya Prakash**:Study of Redox sensitive sub-proteome in *Brassica. Juncea*. Date of Registration- **16 Feb,2015**

6) **Priyanka Babuta**:Analysing de-nitrosylation in *B.juncea*.Date of Registration- **13Jan, 2016**

7) **Babita**: NO regulation of Glyoxlase in Brassica juncea. Date of Registration- **19 Dec, 2016**

Supervision of awarded M.Phil. dissertations: One (as detailed below) in 2015/2016 , Fifteen till date

M.Phil. Under Progress- Amarjeet **Singh**, Green synthesis of nanoparticles from *H. rhamnoides* fortheir nanobiotechnological Potential.

Summer trainees : 30 till date

Publications Profile(2016-2018)

1. Sharma, B. and **Deswal, R. (2018)**. Single pot synthesised nanoparticles using Hippophae rhamnoides leaf and berry extract showed shape dependent differential nonobiotechnological application. Artificial Cell, Nanomedicine, and biotechnology.1-11.
2. Singh, A., Sharma, B., and **Deswal, R. (2018)**. Green silver nanoparticles from novel Brassicaceae cultivars with enhanced antimicrobial potential than earlier reported Brassicaceae members. Journal of Trace Elements in Medicine and Biology. 1-11.
3. Sharma, P., Arya, M., and **Deswal, R. (2017)**. A simple chromatographic procedure for co-purification of calreticulin and calmodulin from Brassica juncea seedlings. Indian Journal of Biochemistry and Biophysics (IJBB) 54, pp.281-290.
4. Kashyap, P., and**Deswal, R. (2017)**. A novel class I Chitinase from *Hippophae rhamnoides*: Indications for participating in ICE-CBF cold stress signaling pathway. Plant Science 259, 62-70.
5. Sharma, S., Gupta, R., and **Deswal, R.(2017)**.*Dioscorea alata* tuber proteome analysis shows over thirty dioscorin isoforms and novel tuber proteins. Plant Physiology and Biochemistry 114, 128-137.
6. Rakhee, Sethy. N.K, Bhardwaj, A., Singh, V.K., Sharma, R.K, **Deswal, R.,** Bhargava K, Misra K. (2017). Characterization of *Ganoderma lucidum*: Phytochemical and Proteomic Approach. Journal of Proteins & Proteomics 8 (1), 25-33.
7. Chaurasia, S.P, and **Deswal, R.(2017)**. Identification and insilico analysis of major redox modulated proteins from *Brassica juncea* seedlings using 2D redox SDS-PAGE (2-Dimensional diagonal redox sodium dodecyl sulphate polyacrylamide gel electrophoresis).

The Protein Journal 36 (1), 64-76, 2017.

8. Sethy, N. K., Singh, V. K., Sharma, S., Sharma, R. K., **Deswal, R.**, Bhargava, K., & Mishra, K. (2016). Phytochemical and Proteomic Analysis of a High Altitude Medicinal Mushroom *Cordyceps Sinensis*. *Journal of Proteins & Proteomics*, 7(3).
9. Gupta, R., and **Deswal, R.** (2016). Identification and Functional Annotation of Apoplastic Phosphoproteins of *Hippophae rhamnoides* Seedlings. *Journal of Proteins & Proteomics* 7 (4), 279-296.
10. Sougrakpam, Y., and **Deswal, R.**(2016).*Hippophae rhamnoides* N-glycoproteome Analysis - A Small Step Towards Seabuckthorn Proteome Mining. *Physiology and Molecular Biology of Plants* 22(4) 473-484.
11. Sharma, B., Gupta, R., and **Deswal, R.** (2016). Mining the Protein Repertoire of a Himalayan Shrub, *Hippophae rhamnoides* for Antifreeze Proteins. *Journal of Proteins and Proteomics* 7(2) 199-211.
12. Sharma, S., Sherawat, A, and **Deswal, R.**(2016). Asada-Halliwell pathway maintains redox status in *Dioscorea alata* tuber which helps in germination. *Plant Science*, 250, 20-29.

Other Publications :

- 1) Kashyap, P., and **Deswal, R.** (2018). Phytohormones regulating the master regulators of CBF dependent cold signaling pathway. In “Genetic Enhancement of Crops for Tolerance to Abiotic Stress: Mechanisms and Approaches”, Sustainable Development and Biodiversity, Volume I, Springer Publishers.
- 2) Sehrawat, A., and **Deswal, R.** (2017). S- Nitrosylation in Abiotic Stress in Plants and Nitric Oxide Interaction with Plant Hormones. In “Mechanism of Plant Hormone Signaling under Stress”, Volume 2, pp 399-411, Wiley Blackwell publishers.
- 3) Sharma, S., and **Deswal, R.** (2016). Genomics and Proteomics tools for understanding mysterious protein Dioscorin from *Dioscorea* tuber. **Plant OMICS and Crop Breeding, in production, E-Book ISBN: 9781771884563**, Apple Academic Press.

Publications in the Last one year

1. Sharma, B., and **Deswal, R.** (2018). Single pot synthesised nanoparticles using *Hippophae rhamnoides* leaf and berry extract showed shape dependent differential nonobiotecnological application. *Artificial Cell, Nanomedicine, and biotechnology*. 1-11.
2. Singh, A., Sharma, B., and **Deswal, R.** (2018). Green silver nanoparticles from novel Brassicaceae cultivars with enhanced antimicrobial potential than earlier reported Brassicaceae members. *Journal of Trace Elements in Medicine and Biology*. 1-11.
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4. Kashyap P, and **Deswal R (2017)**. A novel class I Chitinase from *Hippophae rhamnoides*: Indications for participating in ICE-CBF cold stress signaling pathway. *Plant Science* 259, 62-70.
5. Sharma S, Gupta R, and **Deswal R(2017)**. *Dioscorea alata* tuber proteome analysis shows over thirty dioscorin isoforms and novel tuber proteins. *Plant Physiology and Biochemistry* 114, 128-137.
6. Rakhee, Sethy N.K, Bhardwaj A, Singh V.K, Sharma R.K, **Deswal R**, Bhargava K, Misra K. **(2017)**. Characterization of *Ganoderma lucidum*: Phytochemical and Proteomic Approach. *Journal of Proteins & Proteomics* 8 (1), 25-33.
7. Chaurasia SP, and Deswal R. **(2017)**. Identification and insilico analysis of major redox modulated proteins from *Brassica juncea* seedlings using 2D redox SDS-PAGE (2-Dimensional diagonal redox sodium dodecyl sulphate polyacrylamide gel electrophoresis). *The Protein Journal* 36 (1), 64-76, 2017.

Other Publications:

1. Kashyap, P., and **Deswal, R. (2018)**. Phytohormones regulating the master regulators of CBF dependent cold signaling pathway. In “Genetic Enhancement of Crops for Tolerance to Abiotic Stress: Mechanisms and Approaches”, Sustainable Development and Biodiversity, Volume I, Springer Publishers.
2. Sehrawat A, and **Deswal R (2017)**. S- Nitrosylation in Abiotic Stress in Plants and Nitric Oxide Interaction with Plant Hormones. In “Mechanism of Plant Hormone Signaling under Stress”, Volume 2, pp 399-411, Wiley Blackwell publishers.

Conference Organization/ Presentations (2016-2018)

1. Singh, A., and **Deswal, R. (2018)**. Presented poster on “Green synthesis of Iron oxide nanoparticles using Himalaya shrub *Hippophae rhamnoides* showing nanotechnological potential” in International conference on “Translational Research in Lifesciences”, July 5-7, 2018 at Chandigarh region innovation and knowledge cluster.
2. Sharma, S., and **Deswal, R. (2017)**. Presented poster on “Change in the redox status triggers tuber germination and showed the involvement of Asada –Halliwell pathway in germination”
3. Sharma, B., Singh, A., and **Deswal, R. (2017)** Presented poster on “Exploring the Nanobiotechnological Potential of Novel North Indian varieties of Brassicaceae for their Antimicrobial Potential. at Conference “Emerging Discoveries in Health and Agricultural Sciences” at JNU, 16 Nov-19 Nov, 2017.”
4. Chaurasia, S.P., and **Deswal, R. (2017)** Presented poster on “Identification of Major Redox Modulated Proteins from *Brassica juncea* Seedlings, and demonstration of differential

sensitivity of RuBisCO large and small subunit towards oxidative stress” at National Conference on Protein Structure and Dynamics in Health and Agriculture, November 03-04, 2017 at Jamia Hamdard University Delhi, India.

5. **Deswal, R. (2017)** Invited Lecture on “Antifreeze Protein (AFP) as a novel downstream targets in ICE-CBF signalling pathway in *Hippophae rhamnoides*” at National Conference on *Seabuckthorn* for Improving Health and Sustainable Development of Himalayan Region, September 22-23, 2017, at DIHAR, Leh-Ladakh, India.
6. Sharma, B., and **Deswal, R. (2017)**. Presented poster on “Exploring the Nanobiotechnological Potential of a Himalayan Shrub, *Hippophae rhamnoides* for Azo Dyes Decontamination” at National Conference on *Seabuckthorn* for Improving Health and Sustainable Development of Himalayan Region, September 22-23, 2017, at DIHAR, Leh-Ladakh, India.
7. **Deswal, R. (2017)**. Inaugural Lecture “Nitrosylation mediated nitric oxide (NO) signaling in cold stress on *Brassica juncea* seedlings”, 8th September, 2017, Hans raj College, University of Delhi, Delhi.
8. **Deswal, R. (2016)**. Invited lecture “Proteomics of a Himalayan shrub a step towards translational research” in the “International Conference on Functional and Interaction Proteomics: Application in Food & Health” at New Delhi, India, 14th -17th December, 2016.
9. **Deswal, R. (2016)**. Invited lecture “Applications of Gel Based Proteomics in Plants- Investigating Nitric oxide signalling (Nitrosylation) in *Brassica juncea*” in the “8th Annual Meeting of Proteomics Society and 3rd Meeting of Asia Oceania Agricultural Proteomics Organization” at National Institute for Plant Genomic Research, New Delhi, India, 12th -13th December, 2016.
10. **Deswal, R. (2016)**. 11th Refresher course in Life Science & Biotechnology, Deciphering cold stress adaptome using proteomics approach; at Jawaharlal Nehru University, Delhi, India, 14th October, 2016.
11. **Deswal, R. (2016)**. Antifreeze proteins from a Himalayan shrub *Seabuckthorn* & their potential Biotechnological applications; in Dyal Singh College, Delhi, India, 2nd September, 2016.
12. Sharma, S., and **Deswal, R. (2016)**. Differential regulation of Asada- Halliwell pathway helps in maintaining redox status in *D.alata* tuber for germination in National Conference on Plant Science Research: Looking beyond 21st Century for Environmental and Agricultural Revolution to be held on February 5-7, 2016 at Department of Botany, University of Delhi, Delhi.

Workshops organized :

- Organized 3rd Plant Proteomics Workshop/training Programme at Department of Botany, University of Delhi, Delhi, December 19-23, (2017).
- Organized 2nd Plant Proteomics Workshop/training Programme at Department of Botany, University of Delhi, Delhi, December 21-26, (2015).
- Organized 1st Plant Proteomics Workshop/training Programme at Department of Botany,

University of Delhi, Delhi, December 26-30, (2013).

Research Projects (Major Grants/Research Collaboration)

- 1) **Title of project** : Structural, Functional, Developmental and Evolution of Plant cuticular waxes
Funding agency : DST-PURSE Grant (DST)
Amount : 60 Lakhs (Approximately)
Period : 2013-2017
- 2) **Title of project** : A Search For Molecular, Biochemical & Morphological (Phenotypic) Markers for Different Growth Stages of *D.alata* Tuber and their Relation with the Redox Status.
Funding agency : UGC
Amount : Rs. 9,35,000/-
Period : 2015 - 2018
- 3) **Title of project** : Characterizing un-explored Seabuckthorn germplasm in Sikkim for antifreeze proteins, secondary metabolites, its comparison with germplasm of Lahaul and Spiti valley, Himachal Pradesh and also utilizing the bioresources for uplifting the livelihood of local people.
Funding agency : DBT-IBSD
Amount : 50 Lakhs
Period : 2017 - 2019

Awards and Distinctions

- ❖ National Award for significant contribution in Seabuckthorn research by Seabuckthorn Association of India at “The 7th Conference of the International Seabuckthorn Association (ISA2015)” held at NASC Complex, New Delhi, India, 2015.
- ❖ Editor for Frontiers in Plant Physiology.
- ❖ Editor for Journal of Proteins and Proteomics.
- ❖ Co-editor with Dr. Sabine Luthje and Dr. Ganesh Kumar Agrawal for special volume of Proteomics (2015) “Plant based foods: Seed, Nutrition and Human Health”.
- ❖ Co-editor for special volume of Journal of Proteins and Proteomics (2016) “Functional and Interaction Proteomics: Applications in Food and Health”.
- ❖ Reviewer for various National and International Plant Physiology, Proteomics and Biochemistry Journals.
- ❖ Reviewer for various National and International Research Grants.

Association With Professional Bodies

- ❖ Academic Committee Member, Central Institute for Medicinal and Aromatic Plants, (CIMAP) Lucknow, India.
- ❖ Chairperson, Development Committee and Country representative, International Plant Proteomics Organisation (INPPO)
- ❖ Executive Committee Member, Seabuckthorn Association of India.
- ❖ Board of Studies Member in Biotech for Central University of Haryana.
- ❖ Life member, The Society for Low Temperature Biology.
- ❖ Life member, Proteomics Society of India.
- ❖ Member, Human Proteome Organization, (HUPO).