




Faculty Details proforma for DU Web-site

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

Title	Dr.	First Name	Chandra Shekhar	Last Name	Seth	Photograph
Designation	ASSOCIATE PROFESSOR					
Address	Room No. 25 Department of Botany University of Delhi, North Campus Delhi-110007					
Phone No Office	011-27667573					
Residence	B-6, Teachers Transit Hostel, Mukherjee Nagar, Delhi-110009					
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Web-Page	http://du.ac.in/index.php?page=department-of-botany					
Educational Qualifications:						
Degree	Institution				Year	
Ph.D.	University of Lucknow (Ph.D. Botany)				2008	
PG	Banaras Hindu University (M.Sc. Botany)				2003	
UG	Banaras Hindu University (B.Sc.Hons.-Botany)				2001	
Career Profile:						
August 2021- Till date	Associate Professor Department of Botany, University of Delhi Delhi-110007					
August 2013- August 2021	Assistant Professor Department of Botany, University of Delhi Delhi-110007					

September 2012- August 2013: Assistant Professor
Department of Botany
Indira Gandhi National Tribal University
Amarkantak-484886 (Madhya Pradesh)

May 2008- September 2012 Scientist
CSIR-Institute of Himalayan Bioresource Technology
Palampur-176061 (Himachal Pradesh)

Administrative Assignments:

- Vice Chancellor's SC/ST/OBC/PwD nominee for appointment of Assistant Professor ad-hoc in Shaheed Rajguru College of Applied Sciences for Women, Delhi on September 4, 2019
- Acted as member of organizing committees for several National/International Conferences
- Member of the admission committee for Ph.D. in Botany Department from March-2016-Feb-2018
- Three term member of the Departmental Research Committee from 2014-2021
- Member of the Delhi University anti-ragging committee from Jan-2015 onwards
- Member of Reorganization of Teaching Labs
- Acted as 'observers' to observe the conduct of annual/semester examinations at various examination centers of the Delhi University
- other day- to- day administrative and management activities in the Department

Areas of Interest / Specialization:

- Phytohormones and Nitric Oxide assisted abiotic stress management in plants
- Photosynthesis and Nitrogen metabolism under abiotic stress
- Nanotechnology under abiotic stress in plants
- Oxidative stress and tolerance mechanism via antioxidants and phytochelatins
- Phytoremediation of heavy metals

Subjects Taught:

- Courses taught at M.Sc. Level:
 1. CC1: Physiology and Biochemistry
 2. CC5: Algae, Environment and Human Welfare
 3. CC7: Topics in Plant Physiology and Biochemistry
- Courses taught at M.Phil./Ph.D. level:
 4. EL 11: Photosynthesis and Phytohormones Under Abiotic Stresses

Time table of the subjects taught during the current semester

S. No.	Subject	Days	Time	Classroom
1.	CC5: Algae, Environment and Human Welfare	Tuesday(Theory and Practical)	Theory: 11:00-13:00 Practical: 13:30-17:30	Theory: # 208 Practical: # 45
2.	CC7: Topics in Plant Physiology and Biochemistry	Thursday(Theory and Practical)	Theory: 11:00-13:00 Practical: 13:30-17:30	Theory: # 208 Practical: # 45
3.	BOT 409: Dissertation (4 th semester)	Wednesday Friday Saturday	Wednesday 2:15PM-5:00PM Friday 2:15PM-5:00PM Saturday 2:15PM-5:00PM	Tutorial and Discussions: # 102
4.	EL 11: M.Phil/Ph.D. course work: Photosynthesis and Phytohormones Under Abiotic Stresses	Friday (Theory and Practical)	Theory: 11:30-1:30 Practical: 2:30-5:30	Theory: Committee Room Practical: As per the location of the equipment

Research Guidance:

List against each head (If applicable)

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| 1. Supervision of awarded Doctoral Thesis: | 02 |
| 2. Supervision of Doctoral Thesis, under progress: | 05 |
| 3. Supervision of awarded M.Phil dissertations: | 04 |

4. Supervision of M.Phil dissertations, under progress: Nil

5. Supervision of M.Sc. dissertation: 02

Publications Profile:

1. Research papers published in Refereed/Peer Reviewed Journals:

1. Samta Gupta, **Chandra Shekhar Seth*** Salicylic acid alleviates chromium (VI) toxicity by restricting its uptake, improving photosynthesis and augmenting antioxidant defense in *Solanum lycopersicum* L. **Physiology and Molecular Biology of Plants 2021**; 27(11): 2651-2664.
2. Dharmendra Kumar, **Chandra Shekhar Seth*** Green-synthesis, Characterization and Applications of Nanoparticles (NPs): A Mini Review. **International Journal of Plant and Environment 2021**; 7(1): 1-5.
3. Dharmendra Kumar, **Chandra Shekhar Seth*** Photosynthesis, lipid peroxidation, and antioxidative responses of *Helianthus annuus* L. against chromium (VI) accumulation. **International Journal of Phytoremediation 2021**; 1-10. D.O.I. <https://doi.org/10.1080/15226514.2021.1958747>.
4. Ashish Agnihotri, **Chandra Shekhar Seth*** Does jasmonic acid regulate photosynthesis , clastogenecity, AsA-GSH cycle, and phytochelatins in *Brassica juncea* L. in response to Pb-subcellular distribution? **Chemosphere 2020**; 243: 1-18.
5. Praveen Gupta, **Chandra Shekhar Seth*** Interactive role of exogenous 24 Epibrassinolide and endogenous NO in Brassica juncea L. under salinity stress: Evidence for NR-dependent NO biosynthesis. **Nitric Oxide 2020**; 97: 33-47.
6. Praveen Gupta, **Chandra Shekhar Seth*** Nitrate supplementation attenuates As(V) toxicity in *Solanum lycopersicum* L. cv Pusa Rohini: Insights into As(V) sub-cellular distribution, photosynthesis, nitrogen assimilation, and DNA damage. **Plant Physiology and Biochemistry 2019**; 139: 44-55
7. Ashish Agnihotri, Praveen Gupta, Anuj Dwivedi, **Chandra Shekhar Seth*** Counteractive mechanism (s) of salicylic acid in response to lead toxicity In *Brassica juncea* (L.) Czern. cv. Varuna. **Planta 2018**; 248: 49-68
8. P. Gupta, S. Srivastava, **Chandra Shekhar Seth***. 24-Epibrassinolide and Sodium Nitroprusside alleviate the salinity stress in *Brassica juncea* L. cv. Varuna through cross talk among proline, nitrogen metabolism and abscisic acid. **Plant and Soil 2017**; 411(1): 483-498 DOI 10.1007/s11104-016-3043-6
9. D. Singh, A. Agnihotri, **Chandra Shekhar Seth***. Interactive effects of EDTA and Oxalic acid on

chromium uptake, translocation and photosynthetic attributes in Indian mustard (*Brassica juncea* L. var. Varuna). **Current Science** **2017**; 112(10): 2034-2042

10. Ashish Agnihotri, **C.S. Seth***. Comet Assay: A Strong Tool for Evaluating DNA Damage and Comprehensive Guidelines for Plant Cells. **International Journal of Plant and Environment** **2017**; 3(2): 67-72 ISSN: 2454-1117
11. A. Agnihotri, **C.S. Seth***. Exogenously applied nitrate improves the photosynthetic performance and Nitrogen metabolism in Tomato (*Solanum lycopersicum* L. cv Pusa Rohini) under Arsenic (V) toxicity. **Physiology and Molecular Biology of Plants** **2016**; 22(3): 341-349
12. A. Agnihotri, **C.S. Seth***. Phytoremediation: A Better and Cleaner Way. **The Botanica** **2015**; 64 & 65: 156-163 ISSN: 0045-2629
13. P. Gupta, **C.S. Seth***. Nitric oxide donor Sodium Nitroprusside promotes seed germination and ameliorates adverse effects of salinity by enhancing the growth indices and photosynthetic traits in *Brassica juncea* L. cv. Varuna. **Phytomorphology** **2015**; 65 (3&4); 156-163: **ISSN: 0031-9449**
14. **C.S. Seth***, V. Misra. Changes in C-N metabolism under elevated CO₂ and temperature in Indian mustard (*Brassica juncea* L.): An adaptation strategy under climate change scenario. **Journal of Plant Research** **2014**; 127: 793-802
15. **Chandra Shekhar Seth***. A review on effects of climate change on plants and ecosystems and certain approaches for plant response studies under climate change scenario with specific focus on FACE. **Journal of Food and Nutritional Disorder** **2014**; 4(1): 1-9 ISSN: 2324-9323
16. **Chandra Shekhar Seth***, V. Misra, L.K.S. Chauhan. Accumulation, Detoxification and Genotoxicity of Heavy Metals in Indian Mustard (*Brassica juncea* L.). **International Journal of Phytoremediation** **2012**; 14: 1-13.
17. **Chandra Shekhar Seth***. A review on mechanisms of plant tolerance and role of transgenic plant in environmental clean-up. **Botanical Review**. **2012**; 78: 32-62.
18. **Chandra Shekhar Seth***, T. Remans, E. Keunen, M. Jozefczak, H. Gielen, K. Opdenakker, N. Weyens, J. Vangronsveld and A. Cuypers. Phytoextraction of Toxic Metals: a Central Role for Glutathione. **Plant Cell and Environment** **2012**; 35(2): 334-346.
19. **Chandra Shekhar Seth***, V. Misra, R.R. Singh, Lello Zolla. EDTA-enhanced lead phytoremediation in sunflower (*Helianthus annuus* L.) hydroponic culture. **Plant and Soil** **2011**; 347: 231-242
20. V. Misra, A. Tiwari, B. Shukla, and **Chandra Shekhar Seth**. Effects of soil amendments on the bioavailability of heavy metals from zinc mine tailings. **Environmental Monitoring Assessment** **2009**; 155: 467-475.
21. **Chandra Shekhar Seth**, P.K. Chaturvedi, and V. Misra. The role of phytochelatin and antioxidants

in tolerance to Cd accumulation in *Brassica juncea* L. **Ecotoxicology Environmental Safety 2008**; 71: 76-85.

22. Chandra Shekhar Seth, V. Misra, L.K.S. Chauhan, R.R. Singh. Genotoxic effects of cadmium on the root meristem cells of *Allium cepa*: A Cytogenetic and Comet assay approach. **Ecotoxicology Environmental Safety 2008**; 71: 711-716.

23. Chandra Shekhar Seth, P.K. Chaturvedi, V. Misra. Toxic Effect of arsenate and cadmium alone and in combination on Giant Duckweed (*Spirodela polyrrhiza* L.) in response to its accumulation. **Environmental Toxicology 2007**; 22: 539-549.

24. P.K. Chaturvedi, **Chandra Shekhar Seth**, V. Misra. Selectivity sequences and sorption capacities of phosphatic clay and humus rich soil towards the heavy metals present in Zinc mine tailing. **Journal of Hazardous Material 2007**; 147: 698-705.

25. P.K. Chaturvedi, **Chandra Shekhar Seth**, V. Misra. Sorption kinetics and leachability of heavy metal from the contaminated soil amended with immobilizing agent (humus soil and hydroxyapatite). **Chemosphere 2006**; 64: 1109-1114.

26. S. Mishra, S. Srivastava, R.D. Tripathi, R. Kumar, **Chandra Shekhar Seth**, D.K. Gupta. Lead detoxification by Coontail (*Ceratophyllum demersum* L.) involves induction of phytochelatin and antioxidant system in response to its accumulation. **Chemosphere 2006**; 65: 1027-1039.

2. Books/Monographs (Authored/Edited):

1. Ashish Agnihotri, **Chandra Shekhar Seth***. '*Transgenic Brassicaceae: a promising approach for phytoremediation of heavy metals*' in Prasad MNV (ed.) *Transgenic plant technology for remediation of toxic metals and metalloids*. **2019, pp 239-255 (Elsevier, ISBN: 978-0-12-814389-6)**.

2. Chandra Shekhar Seth. *Mechanism of cadmium phytoextraction in Indian Mustard*. Publisher: LAP LAMBERT Academic Publishing GmbH & Co. KG, Dudweiler Landstr. 99, 66123 Saarbrücken, Germany. Year of Publication: **2011; ISBN: 978-3-8443-2384-9**

Publication in the last one year

1. Samta Gupta, **Chandra Shekhar Seth*** Salicylic acid alleviates chromium (VI) toxicity by restricting its uptake, improving photosynthesis and augmenting antioxidant defense in *Solanum lycopersicum* L. **Physiology and Molecular Biology of Plants 2021**; 27(11): 2651-2664.

2. Dharmendra Kumar, **Chandra Shekhar Seth*** Green-synthesis, Characterization and Applications of Nanoparticles (NPs): A Mini Review. **International Journal of Plant and Environment 2021**; 7(1): 1-5.

3. Dharmendra Kumar, **Chandra Shekhar Seth*** Photosynthesis, lipid peroxidation, and antioxidative

responses of *Helianthus annuus* L. against chromium (VI) accumulation. **International Journal of Phytoremediation 2021**; 1-10. D.O.I. <https://doi.org/10.1080/15226514.2021.1958747>.

4. Ashish Agnihotri, **Chandra Shekhar Seth*** Does jasmonic acid regulate photosynthesis , clastogenecity, AsA-GSH cycle, and phytochelatins in *Brassica juncea* L. in response to Pb-subcellular distribution? **Chemosphere 2020**; 243: 1-18
5. Praveen Gupta, **Chandra Shekhar Seth*** Interactive role of exogenous 24 Epibrassinolide and endogenous NO in Brassica juncea L. under salinity stress: Evidence for NR-dependent NO biosynthesis. **Nitric Oxide 2020**; 97: 33-47.

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

1. Ashish Agnihotri, **Chandra Shekhar Seth*** Exogenous jasmonic acid counters pb toxicity by regulating the photosynthesis and Pb accumulation in *brassica juncea* L. PP 28: Poster presentation in International Conference on Changing Environmen: Understanding the Emerging Challenges and Their Management Strategies organized by Zoology Department, Kalindi College, University of Delhi from **April 10th - 12th, 2019**.
2. Dharmendra Kumar, **Chandra Shekhar Seth*** Foliar application of Titanium-dioxide nanoparticle (TiO₂ NPs) revamps morpho-physiological parameters in Sunflower (*Helianthus annuus* L.) against Cr(VI) toxicity. Poster presentation in International Conference on Nanobiotechnology organized by Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia from **February 5-6, 2018**.

Research Projects (Major Grants/Research Collaboration):

- **2021-22:** Principal investigator for project entitled '**Nitric oxide mediated regulations of mitotic aberrations, DNA damage and ascorbate-glutathione cycle under salinity stress in *Allium cepa* L.**' funded by Institution of Eminence, University of Delhi-110007 (**3.0 Lakh**). Ref. No./IoE/2021/12/FRP w.e.f. 29/10/2021 to 30/06/2022
- **2015-16:** Principal investigator for project entitled 'Studies on As (V) induced toxicity on carbon and nitrogen metabolism and its amelioration by exogenous nitrate in Tomato (*Solanum lycopersicum* L. cv Pusa Rohini)' funded by University of Delhi-110007 (3.0 Lakh).
- **2014-15:** Principal investigator for project entitled 'Studies on chelate assisted Cr accumulation and detoxification by glutathione as a central molecule in Indian mustard' funded by University of Delhi-110007 (2.8 Lakh).
- **2013-14:** Principal investigator for project entitled 'Study on role of phytochelatins and glutathione in tolerance to heavy metal accumulation in *Brassica juncea* L.' funded by University

of Delhi-110007 (3.0 Lakh).

Awards and Distinctions:

- Awarded for Fellow of the Academy of Environmental Biology (FAEB) w.e.f. 24/11/2017
- Awarded for Fellow of Society For Plant Research (FSPR) w.e.f. 03/02/2016
- Awarded for DST sponsored BOYSCAST Fellowship in 2011
- CSIR-NET-JRF from 2004 to 2006
- CSIR-NET-SRF from 2006 to 2008

Association With Professional Bodies

Memberships of academic bodies

- Life member of ISCA (The Indian Science Congress Association), Kolkata-700017 w.e.f. 23/12/2015
- Life member of ISEB (International Society of Environmental Botanist), CSIR-NBRI, Lucknow-226001 (U.P.) w.e.f. 21/12/2015
- Life Member of AEB (The Academy of Environmental Biology), Lucknow-226020 (U.P.) w.e.f. 02/01/2016
- Life Member of ISPM (International Society of Plant Morphologists), Department of Botany, University of Delhi, Delhi-110007 w.e.f. 22/02/2014
- Life Member of DUBS (Delhi University Botanical Society), Department of Botany, University of Delhi, Delhi-110007 21/02/2014

Other Activities

- Project reviewer for SERB-DST
- Reviewer for Environmental and Experimental Botany, Journal of Plant Physiology, Plant Physiology and Biochemistry, Chemosphere, Ecotoxicology and Environmental Safety

Signature of Faculty Member

- You are also requested to also give your complete resume as a DOC or PDF file to be attached as a link on your faculty page.