Curriculum Vitae of Prof. INDERJIT SINGH

Departmental Address
Department of Environmental Studies,
University of Delhi, North Campus
Delhi 110007,
India

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EDUCATION

Ph.D. (Botany with specialization in Plant Ecology) 1986 – 1993
Department of Botany, University of Delhi, Delhi 110007, India
M.Sc. Botany 1984 – 1986
Botany Department, Panjab University, Chandigarh 160014, India
B.Sc. (Honours) Botany 1981 – 1984
Botany Department, Hans Raj College, University of Delhi, Delhi 110007, India

RESEARCH AND PROFESSIONAL EXPERIENCE

1. **Professor,** Centre for Environmental Management of Degraded Ecosystems (March 2005 – present), University of Delhi, Delhi, **India**
2. **Professor,** Department of Environmental Studies (July 2010 - present), University of Delhi, Delhi, **India**
3. **Visiting Professor (**July 2014 - November 2014), University of Alberta, **Canada**
4. **Gerrit Parmile Wilder Chair Professor (**August 2011 – May 2012), Botany Department, University of Hawaii at Manoa, **U.S.A.**
5. **INSA-DFG Visiting Scientist (**April 2007 – July 2007), Max Planck Institute for Chemical Ecology, Jena, **Germany**
6. **Reader** (June 2002 – March 2005), Department of Botany, University of Delhi, Delhi, **India**
7. **Reader** (February 2000 – June 2002), Botany Department, Panjab University, Chandigarh, **India**
8. **Visiting Professor** (June 2001 – July 2001), University of Massachusetts, **USA**
9. **Assistant Professor** (August 1998 – December 1999), The Royal University of Veterinary and Agricultural Sciences (KVL), **Denmark**
10. **Science & Technology Agency Fellow** (November 1997 – July 1998), Plant Ecochemicals Research Center, Sapporo, **Japan**
11. **Visiting Professor** (May 1997 – July 1997), Virginia Tech and State University, **USA**
12. **Visiting Professor** (May 1996 – June 1996), Second University of Napoli, **Italy**
13. **Matsumae Fellow** (July 1995 – November 1995), Hokkaido Tokai University, Sapporo, **Japan**
14. **Post-Doctoral Fellow** (December 1994 – May 1997; also visited other places as indicated during this period), Lakehead University, **Canada**

AWARDS & RECOGNITIONS

- **Distinguished Visitor Award,** University of Alberta, Canada in 2017.
- **Robert H. Whittaker Distinguished Ecologist Award**, Ecological Society of America, USA 2015
- **INSA-DFG Exchange Fellowship** (2007), Max Planck Institute for Chemical Ecology, Germany.
- **Outstanding Young Weed Scientist,** Weed Science Society of America, USA; 2001
- **Grodinzky Award,** International Allelopathy Society, Canada; 1999
- **STA** (Science & Technology Agency) Fellowship Award, Government of Japan, 1997

- **Matusmae International Fellowship Award,** Matusmae Foundation, Japan; 1995
- **Associate**, Indian Academy of Sciences, Bangalore, India; 1995

EDITORIAL WORK – ASSOCIATE/SECTION EDITOR

- *Plant and Soil,* Springer (Consulting and Section Editor – 2001 to 2014)
- *Journal of Applied Ecology,* Wiley (October 2016 - present)
- *Biological Invasions,* Springer (- present)
- *AoB Plants,* Oxford Press (2013 - present)
- *Scientific Reports,* Nature Publishing Group (2014 - present)
- *NeoBiota,* Pensoft Publishers (2014 - present)
- *Journal of Plant Ecology* Oxford Publishers (served as Associate Editor for few years)
- *Guest Editor, Plant and Soil,* Special issue, "Plant invasions: habitat invisibility and dominance of invasive plants" in 2005.
- *Guest Editor, Biological Invasions,* Special issue, "Biological invasions" in 2008.
- *Guest Editor, AoB Plants,* Special issue on, "The role of below-ground processes in mediating plant invasion" in 2015.

RESEARCH STATEMENT, ACHIEVEMENTS & CURRENT WORK

The primary goal of my research program is to understand ecological drivers and evolutionary processes influencing anthropogenic redistribution of biota, which has shaped my current research interests in the area of plant ecology, biodiversity and conservation. Currently, we are trying to unravel the role of chemicals in mediating plant-soil feedbacks, urban invasions and to understand links between litter chemistry, soil processes and plant community structure.

Research achievements

Biological Invasions: biogeographic patterns and mechanisms

1. My research group has generated quantitative data to show that invasive species exert neutral to positive impacts on local biodiversity in their native ranges but exert negative impacts on native biodiversity in introduced ranges.
   Selected publications: Ecology (2011), PLoS ONE (2012), Global Ecology & Biogeography (2018)
2. My group has discovered some new mechanisms of invasions or strengthens the understanding of current mechanisms. This includes: (i) evolution of increased competitive ability in an invasive species, (ii) accumulation of native soil pathogens, (iii) biogeographic variations in the production of chemicals and (iv) effect of soil nitrogen on growth of an exotic invader.
   Selected publications: Journal of Ecology (2008, 2011), PNAS, USA (2009), Ecology (2011)

Chemical interactions among plants (Allelopathy)

1. My lab was the first to demonstrate that allelopathy forms the basis of understanding the competitive dominance of weeds at various levels of ecological organization and showed that mediation of allelochemical activity by ecological processes, climatic and abiotic and biotic soil factors makes allelopathy conditional.
   Selected publications: American Journal of Botany (1992, 1994, 1998), Canadian Journal of Botany (1996, 1997, 1999, 2004), Plant & Soil (1995, 2005), Canadian Journal of Forest Research (1998), Plant Ecology (1997), Acta Oecologia (1999), Physiologia Plantarum (1994, 2002), Planta (2009), Soil Biology & Biochemistry (2006, 2014), PLoS ONE (2009, 2010)

Contribution to the conceptual understanding of invasion

1. My research has linked interactions between allelopathy and ecosystem processes in evolutionary contexts along spatial and temporal scale, invasion risks of pasture species, invasion in contexts of plant defense and soil microbial communities, and human-assisted vegetation changes.

Selected publications: Trends in Ecology & Evolution (2010, 2011), PNAS USA (2014), Ecology Letters (2011), Trends in Plant Science (2006), Plant Physiology (2012), Oikos (2017)

Naturalization of nonnative species

1. In a global effort, we (a team of 40-50 scientists) contributed data to quantify the naturalization of nonnative species.
   Selected publications: Nature (2015), Preselia (2017), Biological Invasions (2018), Ecology (2019)

RESEARCH PUBLICATIONS

See publication list

BOOKS PUBLISHED (EDITED VOLUMES)

1. **Inderjit.** 2009. Management of Invasive Weeds. Springer-Verlag, **Germany.**
2. **Inderjit** and K.G. Mukerji. 2006. Allelochemicals: biological control of plant pathogens and diseases. Springer-Verlag, **Germany.**
3. **Inderjit.** 2005. *Invasive plants: Ecological and Agricultural Aspects.* Birkhäuser Verlag AG, **Switzerland.**
4. **Inderjit.** 2004. *Weed Biology & Management.* Kluwer Academic Publishers, **The Netherlands**
5. **Inderjit,** and A.U. Mallik. 2002. *Chemical Ecology of Plants: Allelopathy in Aquatic and Terrestrial Ecosystems*. Birkhäuser Verlag AG, **Switzerland.**
6. **Inderjit,** K.M.M. Dakshini and Chester L. Foy. 1999. *Principles and Practices in Plant Ecology: Allelochemical Interactions.* CRC Press, Boca Raton, FL, **USA**
7. **Inderjit,** K.M.M. Dakshini, and F. A. Einhellig. 1995. *Allelopathy: Organisms, Processes, and Applications*. American Chemical Society, Washington, DC**, USA.**

BOOK CHAPTERS (PEER REVIEWED)

1. **Inderjit.** 2011. Allelopathy. In *The Encyclopedia of Invasive Introduced Species*. Edited by D. Simberloff and M. Rejmanek, University of California Press, Berkeley, CA. pp 16-17.
2. **Inderjit** and Kaushik, S. 2009. Management of *Phalaris minor*, an exotic weed of cropland. In *Management of Invasive Weeds.* Edited by Inderjit, Springer-Verlag, Berlin, pp. 279-286.
2. Weston, L.A. and **Inderjit.** 2007. Allelopathy, a potential tool in the development of strategies for biorational weed management. In *Non-chemical Weed Management: Principles, Concepts, and Technology.* Edited by M. K. Upadhyaya and R. E. Blackshaw. CABI, Oxfordshire, U.K. pp. 65-76.
3. **Inderjit,** M.W. Cadotte & R.I. Colautti. 2005. The ecology of biological invasions: past, present and future. In *Ecological and agricultural aspects of invasive plants*. Edited by Inderjit. Birkhauser-Verlag AG, Basal, Switzerland. pp. 19-43.
4. Kaushik S., R.E. Blackshaw and **Inderjit.** 2005. Ecology and management of the alien weed *Phalaris minor.* In *Ecological and agricultural aspects of invasive plants*. Edited by Inderjit. Birkhauser-Verlag AG, Basal, Switzerland. pp. 181-193.
5. Bhowmik, P.C. and **Inderjit.** 2004. Rationale, approach and adoption of integrated weed management. In *Weed Biology & Management* Edited by Inderjit. Kluwer Academic Publishers, The Netherlands, pp. 363-373.
6. **Inderjit** and Weston, L. 2003. Root exudates: an overview. In *Root Ecology*. Edited by de Kroon, Hans and Visser E.J.W. Springer-verlag, Heidelberg, Germany**,** pp. 235-255.
7. **Inderjit** and H. Nayyar. 2002. Shift in allelochemical functioning with selected abiotic stress. In *Chemical Ecology of Plants: Allelopathy in Aquatic and Terrestrial Ecosystems*. Edited by Inderjit and A.U. Mallik. Birkhauser-Verlag AG, Basal, Switzerland. pp. 199-218.

8. **Inderjit** and P.C. Bhowmik. 2002. Importance of allelochemical in weed invasiveness and their natural control. In *Chemical Ecology of Plants: Allelopathy in Aquatic and Terrestrial Ecosystems*. Edited by Inderjit and A.U. Mallik. Birkhauser-Verlag AG, Basal, Switzerland. pp. 188-197.
9. Kaur H., **Inderjit** and K.I. Keating. 2002. Do allelochemicals operate independent of substratum factors? In *Chemical Ecology of Plants: Allelopathy in Aquatic and Terrestrial Ecosystems*. Edited by Inderjit and A.U. Mallik. Birkhauser-Verlag AG, Basal, Switzerland. pp. 99-107.
10. Nagle, D. and **Inderjit.** 2002. The chemistry and chemical ecology of biologically active cyanobacterial metabolites. In *Chemical Ecology of Plants: Allelopathy in Aquatic and Terrestrial Ecosystems*. Edited by Inderjit and A.U. Mallik. Birkhauser-Verlag AG, Basal, Switzerland. pp. 33-56.
11. Mallik, A.U. and **Inderjit.** 2002. Problems and prospects in the study of allelochemicals: a brief introduction. In *Chemical Ecology of Plants: Allelopathy in Aquatic and Terrestrial Ecosystems*. Edited by Inderjit and A.U. Mallik. Birkhauser-Verlag AG, Basal, Switzerland. pp. 1-5.
12. **Inderjit** and E.M. Gross. 2002. Plant phenolics: potential role in aquatic and terrestrial ecosystems. Polyphenol 2000. Edited by S. Martens, D. Treutter and G. Forkmann. Germany, 206-234.
13. **Inderjit.** 2001. Multifaceted approach to study allelochemical interactions. First European OECD Allelopathy Symposium: Physiological Aspects of Allelopathy. 2001, Edited by M.J. Reigosa and N.P. Bonjoch, Vigo, Spain, 101-106.
14. **Inderjit** and Dakshini, K.M.M. 1999. Influence of allelopathy in annual and perennial cropland weeds: an example. In *Recent Advances in Allelopathy*. Vol. 1. Science for the future. Edited by Macías, F. A., Galindo, J.C.G., Molinillo, J.M.G., and Cutler, H.G. Servicio de Publicaciunes-Universidad de Cadiz, Spain. pp. 263-268.
15. Dakshini, K.M.M., Foy, C. L. and **Inderjit.** 1999. Allelopathy: one component in a multifaceted approach in ecology. In *Principles and Practices in Plant Ecology: Allelochemical Interactions*. Edited by Inderjit, K.M.M. Dakshini and Chester L. Foy. CRC Press, Boca Raton, FL. pp. 3-14.
16. **Inderjit**, Cheng, H. H. and Nishimura, H. 1999. Plant phenolics and terpenoids: transformation, degradation, and potential for allelopathic interactions. In *Principles and Practices in Plant Ecology: Allelochemical Interactions*. Edited by Inderjit, K.M.M. Dakshini and Chester L. Foy. CRC Press, Boca Raton, FL. pp. 255-266.
17. **Inderjit** and Dakshini, K.M.M. 1999. Bioassay for allelopathy: interactions of soil organic and inorganic constituents. In *Principles and Practices in Plant Ecology: Allelochemical Interactions*. Edited by Inderjit, K.M.M. Dakshini and Chester L. Foy. CRC Press, Boca Raton, FL. pp. 35-44.
18. **Inderjit** and Olofsdotter, M. 1998. Bioassays for rice allelopathy: some concerns. In *Allelopathy in Rice*. Edited by Maria Olofsdotter. IRRI Press, Manila. pp. 45-55.
19. **Inderjit** and Dakshini, K.M.M. 1995. Quercetin and quercitrin from *Pluchea lanceolata* and their effects on growth of asparagus bean. In *Allelopathy: Organisms, Processes and Applications*. Edited by Inderjit, K.M.M. Dakshini and Frank Einhellig. ACS Symposium Series 582. American Chemical Society. Washington, DC. pp. 86-95.

ORGANIZED TWO INTERNATIONAL SYMPOSIA

1. International symposium on ECOLOGY OF BIOLOGICAL INVASIONS, December 4-6 2003, School of Environmental Studies, University of Delhi, India.
2. International symposium on BIOLOGY, ECOLOGY AND MANAGEMENT OF WORST PLANT INVASIVE SPECIES, December 11-14 2006, Centre for Management of Degraded Ecosystems, University of Delhi, India.

KEYNOTE/PLENARY/INVITED LECTURES/TALK DELIVERED

1. Delivered invited lecture, “Urban invasions” at the GUBIC meeting, University of Toronto, **Canada**, June 17-21, 2019
2. Invited to participate in workshops at Stellenbosch University in South Africa, 6 to 9 November 2018, Stellenbosch, **South Africa**. The workshop focused on the establishment of a research network for invasion science for BRICS countries (Brazil, Russia, India, China and South Africa).

3. Delivered invited lecture, "Causes of biological invasions" at the Natural Resources, University of Alberta, **Canada**, January 11 2018.
4. Delivered invited lecture, "Plant chemistry as one of the drivers of plant invasion" at the International conference on biological invasions, Hangzehow, **China**, 19.11.2017 to 23.11.2017.
5. Delivered a plenary lecture, "Allelopathy: studies on the ecology of plant chemistry" at the 8th World Allelopathy Congress, Marseille, **France**, July 24-28 2017.
6. Invited by the European and Mediterranean Plant Protection Organization (EPPO) to prepare a pest risk analysis for two invasive plant species, *Prosopis juliflora* and *Hakea sericea*, May 15-19 2017, Paris, **France.**
7. Discussed research project at the University of Sharjah, April 12-19 2017, Sharjah, **U.A.E.**
8. Delivered lecture, established collaboration with the University of Kunming and Shenzen Genome Institute **China**, March 19 to March 24 2017, to work on the invasion and the management of *Ageratina adenophora* and *Mikania micrantha*.
9. "Impact of *Ageratina adenophora* on aboveground patterns and belowground processes" at the Plant Protection Institute, Chinese Academy of Sciences, Beijing, **China**, March 22 to March 26 2016.
10. "Ecological-evolutionary perspective of plant chemicals" at the Third Asian Allelopathy Conference, Fuzhou, **China**, October 30 2015 to November 2 2015.
11. "Ecological impacts of novel chemicals on aboveground patterns and belowground processes" at the University of Pittsburg, **USA**, June 11 2015.
12. Participated in the Discussion session at the Second HIMAP, ICIMOD workshop focused on thematic area Drivers of Change, Thimpu, **Bhutan**, February 4 – 6, 2015.
13. "Ecological impacts of novel chemicals on aboveground patterns and belowground processes" at the 8th International conference on Biological Invasions, Antalaya, **Turkey**, November 3-8 2014.
14. "Exotic plant invasion: impact of aboveground and belowground processes" at the University of Alberta, Edmonton, **Canada**, October 17 2014 (give a departmental seminar).
15. "Exotic plant invasion in contexts of rural development" at the Aleksandras Stulginskis University, Kauno, **Lithuania**, November 28-29 2013.
16. "Exotic plant invasion" at the South Agricultural University, Shenyang, **China**, September 13-16 2013.
17. "Exotic plant invasion: impact of aboveground and belowground processes" at the Lincoln University, Chritchurch, **New Zealand,** May 26-28 2013.*
18. "Novel weapons hypothesis: an ecological relevant way to study allelopathy" at the World Allelopathy Conference, Guanghzou, **China**, December 15 – 19 2011.
19. "Allelopathy: environmental mediation of the ecological roles of plant biochemicals" at the University of Hawaii Manoa, **USA**, November 4 2011.
20. "Environmental mediation of the ecological roles of allelochemicals" at the University of Toronto, Scarbrough, **Canada**, January 13-14 2011.*
21. "New mechanisms exotic invasive might employ for their success" at the IAP in Mediterranean Type Regions of the World, Trabzon, **Turkey**, Aug 2 – 6 2010.
22. "Pathways of plant invasions and factors contributing to success of invasion" at the Asia-Pacific Forest Commission meeting, Thimphu, **Bhutan** from June 8 – 11 2010.
23. "Allelopathy in natural ecosystems" at the First Asian Allelopathy Conference, Guanghzou, **China**, December 18 – 22 2009.
24. "Major and minor hypotheses for invasions" at the National Evolutionary Synthesis Center (NESCent) through the Department of Biology at Duke University, Durham, **USA** January 9-16 2009.
25. "Allelopathy and plant invasions" at the *Netherlands* Institute for Ecology (NIOO-KNAW), **The Netherland**, 2009
26. "Chemicals accumulate local microbes that inhibit native residents" at the 5th World Allelopathy Congress, Saratoga Springs, **USA**, September 21-25 2008.
27. University of Fribourg, **Switzerland**; December 18, 2007.
28. Delivered four lectures: "Allelopathy in agroecosystem", "Allelopathy history and current situation", "Allelopathy and invasive success of nonnatives" and "Allelopathy: laboratory and field studies" at the Horticultural Central Research Institute, Yalova, **Turkey**; 13.06.2006 – 15.06.2006

29. "Chemical ecology of weeds: allelopathy" at the Weed Science Society of America Symposium, New York, **USA**; 11.02.2006 – 16.02.2006
30. IV International Allelopathy Congress, Wagga Wagga, **Australia**; 21.08.2005 – 26.08.2005
31. "Allelopathy: challenges and achievements" at the International Botanical Congress, Vienna, **Austria**; 16.07.2005 – 23.07.2005.
32. "Dissociation of allelopathy from other *in situ* ecosystem processes" at the Max Planck Institute for Chemical Ecology, Jena, **Germany**; 14.07.2005 – 15.07.2005
33. Second University of Napoli, Napoli, **Italy**; 12.07.2005 – 13.07.2005
34. "Allelopathy: experimental problems and challenges" at the International symposium on allelopathy research and application, Guangzhou, **China**; 27.04.2004 – 29.04.2004
35. "Allelopathy: an ecological perspective" at the International Conference on theory and application of ecological agriculture, Nanchang, **China**; 24.04.2004 – 26.04.2004
36. "Implementing allelopathy for pest management problems and prospects" at the International conference on allelopathy, Lavras, **Brazil,** 13.04.2004 – 16.04.2004
37. Third World Allelopathy Congress, Tsukuba, **Japan**; 26.08.2002 – 31.08.2002
38. Weed Science Society of America, Toronto, **Canada**; February 2000
39. First European Allelopathy Congress, Vigo, **Spain**; 20.06.2001 – 25.06.2001
40. XX Polyphenol Congress, Freising-Weihenstephan, **Germany**; 10.09.2000 – 18.09.2000
41. Organized a symposium and give a lecture at the Second World Allelopathy Congress, Lakehead University, **Canada**, 05.08.1999 – 15.08.1999
42. "Using and improving laboratory bioassays in rice allelopathy" at the Workshop on Rice Allelopathy, Manila, **Philippines**; 24.11.1996 – 28.11.1996
43. "Operation of allelopathy in annual and perennial cropland weeds: one example" at the First World Allelopathy Congress, Cadiz, **Spain**; 14.09.1996 – 23.09.1996
44. Botanical Society of America Meeting, University of Iowa, **USA**; 31.07.1993 – 12.08.1993

LECTURES DELIVERED AT THE INTERNATIONAL CONFERENCES

1. Weed Science Society of America Meeting, Hawaii**, USA**; 7.2.2005 – 11.2.2005
2. Weed Science Society of America Meeting, Reno, Nevada, **USA**; February 2002
3. Weed Science Society of America Meeting, North Carolina, **USA**; February 2001
4. European Weed Research Society Meeting, Basel, **Switzerland**; 27.6.1999 – 2.7.1999
5. Weed Science Society of America Meeting, San Diego, California, **USA**; February 1999
6. Polyphenol Group Congress, Lille, **France**; 31.08.1998 – 06.09.1998 (Poster)
7. Weed Science Society of America Meeting, Chicago, **USA**; February1998
8. Weed Science Society of America Meeting, Colorado, **USA**; February 1993
9. International Society of Chemical Ecology Meeting, Kyoto, **Japan**; 05.07.1992 –15.07.1992
10. Weed Science Society of America, Orlando, Florida, **USA**; February 1992
11. International Society of Chemical Ecology Meeting, Laval University, **Canada**; 10.08.1990 – 25.08.1990.

REVIEWER FOR PEER-REVIEWED JOURNALS (PAST AND PRESENT)

Trends in Ecology & Evolution, Journal of Ecology, Oikos, Ecology, Ecology Letters, Science, New Phytologist, PNAS USA, American Journal of Botany, Plant and Soil, Trends in Plant Science, Oecologia, Plant Ecology, Soil Biology & Biochemistry, Journal of Environmental Quality, Journal of Chemical Ecology, Field Crops Research, Weed Technology, Weed Science, Biochemical Systematics & Ecology, Journal of Crop Science & Agronomy, Annals of Botany, Weed Research, Journal of Experimental Botany, Presilia, NeoBiota, Journal of Tropical Ecology, Journal of Crop Science & Agronomy, AoB Plants, Agronomy Journal, Scientific Reports, Environmental & Experimental Botany.