

SARVAJEET SINGH GILL

Assistant Professor,
Centre for Biotechnology
MD University, Rohtak – 124 001, Haryana, INDIA
E-mail: ssgill14@yahoo.co.in; ssgill14@mdurohtak.ac.in



Areas of Research Interest

Abiotic Stress Tolerance, Reactive Oxygen Species Signaling and Antioxidant Machinery in Plants, Gene Expression, Helicases, Crop Improvement, Transgenics, Nitrogen & Sulfur Metabolism, Plant Fungal Symbiotic Interactions

Education

- 2008 Doctor of Philosophy Botany (Plant Stress Physiology) (**Awarded**)
Department of Botany, Aligarh Muslim University, Aligarh
- 2003 Master of Philosophy, Botany (Plant Physiology) (**79%**)
Department of Botany, Aligarh Muslim University, Aligarh
- 2001 Master of Sciences, Botany (Environmental Botany)(**75%**) (**Gold Medal**)
Department of Botany, Aligarh Muslim University, Aligarh
- 1998 Bachelor of Sciences, Botany & Chemistry (**74%**)
Department of Botany and Seed Technology, Y.D. College,
C.S.J.M., Kanpur University, Kanpur
- 2007 Diploma in Computer Application

Awards, Distinctions & Assignments undertaken

- 2010 - 2010 Reviewed Grant for Croatian Science Foundation, Croatia
- 2009 - 2010 Post Doctoral Fellow at ICGEB, New Delhi, India
- 2008 - 2009 Senior Research Fellowship at ICGEB, New Delhi, India.
- 2008 - 2008 Junior Scientist of the Year Award-2008, NESA, New Delhi, India.
- 2008 - 2008 Senior Research Fellowship (SRF-Extended) of CSIR, Govt. of India,
New Delhi, India.
- 2006 - 2008 Senior Research Fellowship of CSIR, Govt. of India, New Delhi, India.
- 2005 - 2006 University Fellowship as Senior Research Fellow.
- 2003 - 2005 University Fellowship as Junior Research Fellow.
- 2001 - 2002 University Gold Medal for standing first class first at the M.Sc.
examination.
- 2000 - 2001 Mohd. Farooq Memorial Merit Scholarship in M.Sc.
- 1995 - 1998 National Merit Scholarship in B.Sc.

Guest Editor Journal of Biomedicine and Biotechnology Special Issue (Plant Stress & Biotechnology). Routine reviewer of Plant Signaling and Behaviour, Journal of Plant Growth Regulation, African Journal of Biotechnology, Environmental and Experimental Botany, Plant Physiology and Biochemistry etc.

Teaching Activity

Teaching M.Sc. Agriculture Biotechnology and M.Sc. Biotechnology

Publication Summary

	Published	In press	Accepted for Publication	Under Review	In Preparation
BOOKS	6	3	01	01	01
RESEARCH ARTICLES	22	01	02	03	03
INVITED REVIEW	05	02	--	--	01
REVIEW ARTICLES	03	01	--	01	01
BOOK CHAPTERS	14	02	02	--	01
ABSTRACTS	08	--	--	--	--

Books Edited (Selected only)

1. Sulfur Assimilation and Abiotic Stress in Plants (2008)
NA Khan, **Sarvajeet Singh** and S Umar (Editors)
Springer-Verlag, New York.
2. Abiotic Stress and Plant Responses (2008)
NA Khan and **Sarvajeet Singh** (Editors)
IK International, New Delhi.
3. Omics and Plant Abiotic Stress Tolerance (2011)
Tuteja N, **Sarvajeet Singh Gill**, Tuteja R (Editors)
Bentham Science Publishers, UAE & USA.
4. Eutrophication: Causes, Consequences and Control (2010)
Ansari AA, **Sarvajeet Singh Gill**, Lanza GR, Rast W (Editors)
Springer-Verlag, New York.
5. Improving Crop Resistance to Abiotic Stress (2012) Volume 1
Narendra Tuteja, **Sarvajeet Singh Gill**, Antonio F Tubercio and Renu Tuteja (Editors)
Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany
6. Improving Crop Resistance to Abiotic Stress (2012) Volume 2
Narendra Tuteja, **Sarvajeet Singh Gill**, Antonio F Tubercio and Renu Tuteja (Editors)
Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany
7. Improving Crop Productivity in Sustainable Agriculture
Tuteja N, **Gill SS**, Tuteja R (2012)
Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany (**In Press**)
8. Crop Improvement under Adverse Conditions
Narendra Tuteja and **Sarvajeet Singh Gill**
Springer Science + Business Media, LLC 233 Spring Street, New York, USA (**In Press**)

9. Plant Acclimation to Environmental Stress

Narendra Tuteja and **Sarvajeet Singh Gill**

Springer Science + Business Media, LLC 233 Spring Street, New York, USA (**In Press**)

10. Climate Change and Abiotic Stress Tolerance

Tuteja N, **Gill SS** (2012)

Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany (**In Press**)

11. Eutrophication: Causes, Consequences and Control Vol. 2

Ansari A, **Gill SS** (2012)

Springer Dordrecht, The Netherlands (**In Press**)

Selected Publications

Naser A. Anjum, **Sarvajeet S. Gill**, Shahid Umar, Iqbal Ahmad, Armando C. Duarte, and Eduarda Pereira (2012) Improving Growth and Productivity of Oleiferous Brassicas Under Changing Environment: Significance of Nitrogen and Sulphur Nutrition, and Underlying Mechanisms. **The Scientific World Journal** Accepted on 12 Dec. 2011, doi:10.1100/2012/657808. see details Link: <http://www.tswj.com/aip/657808/>

Gill Sarvajeet Singh, Khan NA, Tuteja N (2011) Cadmium at high dose perturbs growth, photosynthesis and nitrogen metabolism while at low dose it up regulates sulfur assimilation and antioxidant machinery in garden cress (*Lepidium sativum* L.). **Plant Science** 182: 112-120.

Dang HQ, Tran NQ, **Gill Sarvajeet Singh**, Tuteja R, Tuteja N (2011) A single subunit MCM6 from pea promotes salinity stress tolerance without affecting yield. **Plant Molecular Biology** 76(1-2): 19-34.

Gill SS, Khan NA, Tuteja N (2011) Differential cadmium stress tolerance in five Indian mustard (*Brassica juncea* L.) cultivars: an evaluation of the role of antioxidant machinery. **Plant Signaling & Behaviour** 6(2): 1-8.

Singh LP, **Gill SS**, Tuteja N (2011) Unravelling the role of fungal symbionts in plant abiotic stress tolerance. **Plant Signaling & Behaviour** 6(2): 1-17. (IF: 2.00)

Gill SS, Khan NA, Anjum NK, Tuteja N (2011) Amelioration of Cadmium Stress in Crop Plants by Nutrients Management: Morphological, Physiological and Biochemical Aspects. In: Anjum NA, Lopez-Lauri F (Eds) Plant Nutrition and Abiotic Stress Tolerance III. **Plant Stress** 5 (Special Issue 1):1-23.

Gill Sarvajeet Singh, Tuteja N (2010) Reactive oxygen species and antioxidant machinery in crop plants. **Plant Physiol Biochem** 48:909-930.

Mir MR, Khan NA, Ashraf Bhat M, Lone NA, Rather GH, Razvi SM, Bhat KA, **Gill SS**, Payne WA (2010) Effect of ethrel sprays on growth and photosynthetic Characteristics of mustard (*Brassica juncea* L. Czern and Coss) Cultivars. **International Journal of Current Research** 6:022-026.

Gill SS, Tuteja N (2010) Polyamines and abiotic stress tolerance in plants. **Plant Signaling & Behaviour**. 5 (1): 26-33. (IF: 2.00)

Tuteja N, **Gill SS**, Trivedi PK, Asif MH, Nath P (2010) Plant Growth Regulators and their Role in Stress Tolerance. In: Anjum NA (Ed) Plant Nutrition and Abiotic Stress Tolerance I. **Plant Stress** 4 (Special Issue 1):1-18.

Khan NA, **Sarvajeet Singh**, Anjum NA, Nazar R (2008) Cadmium effects on carbonic anhydrase, photosynthesis, dry mass and antioxidative enzymes in wheat (*Triticum aestivum*) under low and sufficient zinc. **Journal of Plant Interactions** 3(1): 31-37.

- Lone PM, Nazar R, **Sarvajeet Singh**, Khan NA (2008) Effects of timing of defoliation on nitrogen assimilation and associated changes in ethylene biosynthesis in mustard (*B. juncea*). **Biologia** 63:1-4.
- Khan NA, Mir MR, Nazar R, **Sarvajeet Singh** (2008) The application of ethephon (an ethylene releaser) increases growth, photosynthesis and nitrogen accumulation in mustard (*B. juncea* L.) under high nitrogen levels. **Plant Biology** (Stuttg 10(5): 534-538.
- Khan NA, **Sarvajeet Singh**, Nazar R, Lone PM (2007) The source-sink relationship in mustard. **Asian and Australasian Journal of Plant Science and Biotechnology**. 1: 10-18.
- Khan PM, Samiullah, **Sarvajeet Singh**, Nazar R (2007) Activities of antioxidative enzymes, sulfur assimilation, photosynthetic activity and growth of wheat (*Triticum aestivum*) cultivars differing in yield potential under cadmium stress. **Journal of Agronomy and Crop Science** 193:435-444.
- Faisal M, **Sarvajeet Singh**, Anis M (2006) *In vitro* regeneration and plant establishment of *Tylophora indica* (Burm. f.) Merrill viz: petiole callus culture. **In Vitro Cellular & Developmental Biology of Plants** 41:511-515.
- Sarvajeet Singh**, Khan NA, Mobin M (2006) Evaluation of the responses of five mustard cultivars to soil treatments with cadmium. **Annals of Applied Biology (Sppl.) Test of Agrochemicals and Cultivars** 27: 9-10.
- Javid S, Inam A, Khan NA, **Sarvajeet Singh** (2006) Photosynthesis, Growth and Yield Response of Blackgram (*Vigna mungo*) to Sewage and Thermal Power Plant Wastewater. **Physiology and Molecular Biology of Plants** 12: 325-327.
- Gupta L, Khan NA, **Sarvajeet Singh** (2004) Growth, photosynthetic traits and activities of antioxidative enzymes of municipal waste water-treated cabbage (*Brassica oleracea* L.). **Journal of Plant Biology** 3:195-198. (IF: 0.964)
- Sarvajeet Singh**, Singh LP (2004) Response of two cultivars of wheat to sulphur dioxide. **Asian Journal of Microbiology, Biotechnology and Environmental Sciences** 6:73-76.
- Khan NA, Gupta L, Javid S, **Sarvajeet Singh**, Khan M, Inam A, Samiullah (2003) Effects of sewage waste water on morphophysiology and yield of Spinacea and Trigonella. **Indian Journal of Plant Physiology** 8:74-78.
- Sarvajeet Singh**, Khan NA, Khan M, Samiullah (2003) Nickel enhances carbonic anhydrase activity and carbohydrate content in wheat seedlings. **Ecology Environment and Conservation** 9:435-436.
- Sarvajeet Singh** and N.A. Khan, 2003. Response of mustard cultivars when grown in soil amended with fly ash under conditions of induced drought. **Annals of Applied Biology (Sppl.) Test of Agrochemicals and Cultivars** 24: 14 -15.

Book Chapters

- Gill SS**, Naser A. Anjum, Iqbal Ahmad, P. Thangavel, G. Sridevi, M. Pacheco, Armando C. Duarte, Shahid Umar, Nafees A. Khan, and Eduarda Pereira (2012) Metal Hyperaccumulation and Tolerance in *Alyssum*, *Arabidopsis* and *Thlaspi*: An Overview. In: *The Plant Family Brassicaceae: Contribution Towards Phytoremediation*, Anjum et al., (Eds.), Springer Dordrecht Heidelberg New York London, pp. 99-138
- Naser A. Anjum, **Gill SS**, Iqbal Ahmad, M. Pacheco, Armando C. Duarte, Shahid Umar, Nafees A. Khan, and Eduarda Pereira (2012) The Plant Family Brassicaceae: An Introduction. In: *The Plant Family Brassicaceae: Contribution Towards*

- Phytoremediation, Anjum et al., (Eds.), Springer Dordrecht Heidelberg New York London, pp. 1-34.
- Gill SS**, Singh LP, Gill R, Tuteja N (2012) Generation and Scavenging of Reactive Oxygen Species in Plants under Stress. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 49-62.
- Tuteja N, Singh LP, **Gill SS**, Tuteja R (2012) Salinity Stress: A Major Constraint in Crop Production. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 71-87.
- Singh LP, **Gill SS**, Gill R, Tuteja N (2012) Mechanism of Sulfur dioxide Toxicity and Tolerance in Crop Plants. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 133-158.
- Anjum NA, **Gill SS**, Ahmad I, Tuteja N, Soni P, Pareek A, Umar S, Iqbal M, Pacheco M, Duarte AC, Pereira E (2012) Understanding stress-responsive mechanisms in plants: An overview of transcriptomics and proteomics approaches. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 337-354.
- Tuteja N, **Gill SS**, Tuteja R (2012) Helicases in Improving Abiotic Stress Tolerance in Crop Plants. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 433-445.
- Kumar M, Sharma R, Jogawat A, Singh P, Dua M, **Gill SS**, Trivedi DK, Tuteja N, Verma AK, Oelmuller R, Johri AK (2012) Piriformospora indica, A Root Endophytic Fungus, Enhances Abiotic Stress Tolerance of the Host Plant. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 541-552.
- Marco F, Alcázar R, Altabella T, Carrasco P, **Gill SS**, Tuteja N, Tiburcio AF (2012) Polyamines in Developing Stress Resistant Crops. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 621-629.
- Gill SS**, Kumar G, Pareek A, Sharma PC, Tuteja N (2012) Mustard: Approaches for Crop Improvement and Abiotic Stress Tolerance. In: Improving Crop Resistance to Abiotic Stress, Tuteja et al., (Eds.), Wiley Wiley-VCH Verlag GmbH & Co. Weinheim, Germany, pp 1349-1362.
- Hasanuzzaman M, **Gill SS**, Fujita M (2012) Physiological role of nitric oxide in plants grown under adverse environmental conditions. In: Crop improvement under adverse conditions. Tuteja N, Gill SS (Eds.), Springer Science + Business Media, LLC 233 Spring Street, New York, NY 10013, USA (In Press)
- Anjum NA, **Gill SS** et al. (2012) Metal hyperaccumulation and tolerance in Alyssum, Arabidopsis and Thlaspi. In: The Plant Family Brassicaceae: Contribution Towards Phytoremediation, Anjum et al., (Eds.), Springer Science + Business Media, LLC 233 Spring Street, New York, NY 10013, USA (In Press)
- Anjum NA, **Gill SS** et al. (2012) The plant family Brassicaceae: an introduction. In: The Plant Family Brassicaceae: Contribution Towards Phytoremediation, Anjum et al., (Eds.) , Springer Science + Business Media, LLC 233 Spring Street, New York, NY 10013, USA (In Press)
- Anjum NA, **Gill SS** et al. (2012) Phytoremediation potential of Indian mustard (Brassica juncea) for heavy metals in soil. In: Phytotechnologies: Remediation of Environmental Contaminants, Anjum et al., (Eds.), CRC Press (In Press)
- Tuteja N, **Gill SS**, Tuteja R (2010) Abiotic Stress Tolerance in Crop Plants; Shedding light on Salinity, Cold, drought and heavy metal stress. In: Omics and Plant Abiotic Stress Tolerance, Tuteja et al., (Eds.), Bentham Science Publishers, UAE, pp39-64.

- Ansari AA, **Gill SS**, Khan FA (2010) Eutrophication: Threat to Aquatic Ecosystems. In: Eutrophication: Causes, Consequences and Control, Ansari et al., (Eds.), Springer-Verlag, New York, pp143-170.
- Ansari AA, Khan FA, **Gill SS**, Varshney J (2010) Aquatic Plant Diversity in Eutrophic Ecosystems. In: Eutrophication: Causes, Consequences and Control, Ansari et al., (Eds.), Springer-Verlag, New York, pp247-264.
- Sarvajeet Singh**, NA Anjum, NA Khan, R Nazar (2008) Metal-binding peptides and antioxidant defense in plants: Significance in cadmium tolerance. In: Abiotic Stress and Plant Responses. (Editors NA Khan and Sarvajeet Singh). IK International, New Delhi. pp. 159-189.
- NA Anjum, S Umar, **Sarvajeet Singh**, R Nazar, NA Khan (2008) Sulfur assimilation and cadmium tolerance in plants. In: Sulfur Assimilation and Abiotic Stress in Plants. (Editors NA Khan, Sarvajeet Singh and S Umar). Springer-Verlag, New York. pp. 271-302.
- NA Khan, M Mobin, **Sarvajeet Singh** (2008) Effects of gibberellic acid and sulphur on yield efficiency of mustard. In: Advances in Plant Physiology (Editor A Hemantarajan) Scientific Publishers, India. 10:455-461.
- Sarvajeet Singh**, NA Khan (2005) Effect of SO₂ on growth photosynthesis and antioxidant enzyme activities of blackgram (*Vigna mungo* L. Hepper). In: Advances in Plant Physiology, Trivedi PC (Ed.), IK International, New Delhi. pp 50-59.
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