

**Prof. G.S. Shekhawat**

**Centre for Advance Study (UGC-CAS)**

**Department of Botany**

**Jai Narain Vyas University**

**Jodhpur-342001, India**

**Phone: +91-9414279665**

**Email: gyans.shekhawat@gmail.com**



### **Citation indices:**

- **Total Citations : 1407**
- **h-index : 20**
- **i10 index : 33**
- **RG score : 26.42**

**Orcid ID:** 0000-0001-5422-3574, <https://orcid.org/0000-0001-5422-3574>

**Scopus ID:** <https://www.scopus.com/authid/detail.uri?authorId=55892975300>

### **Institutional Responsibility:**

- **Convener Research Committee** of JNV University
- **Convener** of University **Career Counseling Cell**
- Member of University **IQAC**
- Member of **RUSA project committee**
- Member of **University Examination Committee**
- Member of **NAAC committee**
- Member of **Committee of Courses**
- Member of faculty of Sciences
- **Proctor** faculty of Science, JNVU
- Member of VISAKA
- Member Bioethical Committee

### **Departmental Responsibilities:**

- Incharge **UGC-CAS Molecular Biology Thrust area**
- In charge M.Sc. Admission committee
- Incharge Botanical excursion committee
- Member of Departmental Research committee
- Incharge Advance Physiology paper
- Member of Departmental council
- Member of institutional ethical committee
- Member of **ICFRI Biosafety committee**

### **Academic Award/Honor / Fellowships:**

- Y.S. Moorthy medal award from **Indian Botanical Society (IBS)**, 2016
- Postdoctoral fellow at the **University of South Florida, USA (BOYSCAST Fellowship)**
- **INSA** international exchange fellowship -2011 to work at **Moscow, Russia**
- **Young Researcher Award** from Academy of Innovative Research 2010
- Selected as Direct CSIR fellow, **SRF**, 2003-2004.
- Selected as **JRF**, University of Rajasthan, 2001-2003.
- Chaired the session in International conference held in **Rome, Italy**
- Invited talk : **21** (03 international + 18 National)

#### **Research Pertaining Activities:**

- Gene Bank Submission : **02** (ACCESSION JX275832, KJ399979.1)
- Published Book: : **01**
- Published Research Papers : **56**
- Book chapters : **09**
- Paper presented in Seminars/Conferences: **44**
- Seminars/Symposium/ Conferences attended: **59**
- Overseas international conferences: **4**
- **Member of Advisory Board / Editorial Board**
  1. International Journal of Life Sciences
  2. Biotech today
  3. Patents in Biotechnology
  4. Pharmacognocny Reserch
  5. Scince international (Associate editor )
  6. International Journal of Bioprocess & Biotechnological Advancements
- Organized Conference/Symposium: **01**

#### **Research Projects: 12**

- Major Research Project : **06**
- Minor Research Projects : **01**
- Mentor in student project : **03**
- **Consultency projects** : **02**

#### **Research Guidance:**

- PhD Supervised: **09**
- Student Pursuing PhD :**03**
- Post Graduate Dissertations Supervised: **20**

#### **Research and Teaching Experience: 18 years**

- Research: **18** years (03 years Doctoral + 15 years' post doctoral)
- Teaching: **13** Years (Graduate and Post Graduate level)

#### **Potential Reviewer in Journals (Selected only)**

- Journal of Experimental botany (JXB, Oxford)
- Plant Cell Reports (Springer-verlag)
- Journal of Agronomy and Crop Science( Wiley)
- Turkish Journal of Biology ( Turkish press)
- International Journal of Environments and waste management
- Protoplasma (Springer-verlag)
- Nanomedicine ( Elsevier)
- Journal of Functional and Environmental Botany
- Plant Molecular Biology (Springer-verlag)
- Biologia Plantarum
- APP

### **International Research Collaborations**

- University of South Florida, Tampa, Florida, **USA**
- A.N. Bach Institute of Biochemistry, R.A. Sci. Moscow , **Russia**
- Massey University, Palmerston north, **New Zealand**
- University of Southampton, Southampton, **UK**
- University of Buenos Aires, Junín, **Argentina**

### **Membership of Academic Societies:**

- Life member of Indian Botanical Society
- Life member of Indian Science Congress
- Member of IAPTCA
- Tropical Ecological Society

### **Academic Qualification:**

- Post Doctoral Fellow at University of South Florida, Tampa. **USA**
- Post Doctorate Fellowship (2003-04) CSIR fellow as **SRF**
- Ph.D. (2002); Department of Botany, University of Rajasthan, Jaipur.
- Topic of Research: “*In vitro* Comparative Study of Neem Tree”
- M.Sc. (1999) with 1<sup>st</sup> division (63.5%) Dept. of Botany, Uni. of Raj. Jaipur
- B.Sc. (1997) with first division (70.07 %) University Of Rajasthan, Jaipur.

### **Academic Post:**

- Elected as president of the **Botanical Society** in the year 2002 & 2003. Department of Botany, University of Rajasthan, Jaipur.

## Detail of Publications

### Published Book: 01

Title: **Applications of Biotechnology**

Papers in Peer Reviewed Journals : **56**

Book Chapters : **09**

Paper in Conference proceeding: **01**

### Published Research (Peer Reviewed Journals): 56

#### Thomson Reuter Impact factor Journals:

1. Khushboo Khator, Lovely Mahawar and Gyan Singh Shekhawat (2019). NaCl induced oxidative stress in legume crops of Indian Thar Desert: an insight in the cytoprotective role of HO 1, NO and antioxidants. *Physiology and Molecular Biology of Plants* **Impact factor 1.15** (Accepted)
2. Khushboo Khator and Gyan Singh Shekhawat (2019). Nitric oxide improved salt stress tolerance by osmolyte accumulation and activation of antioxidant defense system in seedling of *B. juncea* (L.) Czern. **Vegetos**. doi.10.1007/s42535-019-00071-y
3. Lovely Mahawar and **Gyan Singh Shekhawat** (2019). *EsHO 1* mediated mitigation of NaCl induced oxidative stress and correlation between ROS, antioxidants and HO 1 in seedlings of *Eruca sativa*: Underutilized oil yielding crop of arid region. **Physiology and Molecular Biology of Plants**. 25 (4):895–904 **Impact factor 1.15**.
4. Gyan Singh Shekhawat, Suman Parihar, Lovely Mahawar, Khushboo Khator and Neha Bulchandani (2019). Bilin metabolism in plants: Structure, function and Hemeoxygenase regulation of Bilin biosynthesis. **eLS (Encyclopedia of Life Sciences)** John Wiley & Sons Ltd, Chichester. doi: 10.1002/9780470015902.a0028352
5. Mahawar, L, **Shekhawat, G.S.** (2018). Haem oxygenase: a functionally diverse enzyme of photosynthetic organisms and its role in Phytochrome chromophore biosynthesis, cellular signalling and defence mechanisms. **Plant cell and Environment** 41:483–500 DOI: 10.1111/pce.13116 (**Impact Factor 6.171**)

6. Lovely Mahawar, Khushboo Khator and Gyan Singh Shekhawat\* (2018). Role of Proline in mitigating NaCl induced oxidative stress in *Eruca sativa* Miller: an important oil yielding crop of Indian Thar Desert. **Vegetos** 31: 55-63
7. Neha Bulchandani and Gyan Singh Shekhawat\* (2018). Role of phytohormones and PGR's in micropropagation of *Anethum graveolens* L. through axillary shoots and evaluation of NaCl effect on growth parameters. **Vegetos** 31: 1-6
8. Mahawar, L, **Shekhawat , G.S.** (2017). Evaluation of Heme oxygenase 1 (HO1) in Cd & Ni induced cytotoxicity and cross talk with ROS quenching enzymes in 2-4 leaf stage seedlings of *Vigna radiata*" **Protoplasma** 255: 527-545, DOI 10.1007/s00709-017-1166-0 (**Impact factor: 3.171**)
9. Shaifali Mathur, Neha Bulchandani, Suman Parihar and **G. S. Shekhawat** (2017). Critical review on steviol glycosides: Pharmacological, toxicological and therapeutic aspects of high potency zero caloric sweetener. **International Journal of Pharmacology**, 13(7): 916-928, DOI: 10.3923/ijp.2017.916.928 (**Impact factor: 1.503**) ISSN: 1812-5700
10. K. Verma, S. Dixit, **G. S. Shekhawat**, A. Alam (2016). Antioxidant activity of heme oxygenase1 in *Brassica juncea* 1 (L.) Czern. (Indian mustard) under salt stress. **Turkish Journal of Biology** 39: 540-549 (**Impact Factor: 1.216**)
11. Sunita Rao and Shekhawat, G. S. (2016) Phytotoxicity and oxidative stress perspective of two selected nanoparticles in *Brassica juncea*. **3 Biotech.** 6:244-249 (**Impact Factor: 1.017**) DOI 10.1007/s13205-016-0550-3
12. Richa Dhir & G. S. Shekhawat & Afroz Alam (2014). Improved Protocol for Somatic Embryogenesis and Calcium Alginate Encapsulation in *Anethum graveolens* L.: A Medicinal Herb. **Applied Biochemistry and Biotechnology**, **39: 540-549 (Impact Factor: 1.687)**

13. Richa Dhir and **G.S. Shekhawat** (2014). In Vitro propagation using transverse thin cell layer culture and homogeneity assessment in *Ceropegia bulbosa* Roxb. **Journal of Plant Growth Regulation** 39: 540-549 (**Impact Factor: 2.333**)
14. Richa Dhir and **G.S. Shekhawat** (2014). Ecorehabilitation and biochemical studies of *Ceropegia bulbosa* Roxb.: A threatened medicinal succulent. **Acta Physiologiae Plantarum**. 36(6):1335-1343. (**Impact Factor: 1.693**)
15. Sunita rao and **G.S. Shekhawat** (2014). Toxicity of ZnO engineered nanoparticles and evaluation of their effect on growth, metabolism and tissue specific accumulation in *Brassica juncea*. **Journal of Environmental Chemical Engineering**. 2: 105–114 (**Impact Factor: 1.054**)
16. Shubham Dixit, Khushbu Verma, **G.S. Shekhawat** (2013) . In vitro evaluation of mitochondrial-chloroplast sub-cellular localization of Hemeoxygenase1 (HO1) in *Glycine max*. **Protoplasma** 251(3):671-5. DOI 10.1007/s00709-013-0569-9 (**Impact factor: 3.171**)
17. Ina Saxena and **G. S. Shekhawat** (2013). Nitric oxide (NO) in alleviation of heavy metal induced phytotoxicity and its role in protein nitration. **Nitric Oxide: Biology and Chemistry**, 32: 13–20 (**Impact Factor 3.548**)
18. Richa Dhir and **G.S. Shekhawat** (2013). Production, storability and morphogenic response of alginate encapsulated axillary meristems and genetic fidelity evaluation of in vitro regenerated *Ceropegia bulbosa*: A pharmaceutically important threatened plant species. **Industrial Crops and Products**, 47: 139– 144 (**Impact Factor: 3.181**)
19. Kusum Verma, S. K. Mehta, **G. S. Shekhawat** (2013). Nitric oxide (NO) counteracts cadmium induced cytotoxic processes mediated by reactive oxygen species (ROS) in *Brassica juncea*: cross-talk between ROS, NO and antioxidant responses. **Biometals** 26(2):255-69 (**Impact Factor: 2.823**)
20. Shaifali Mathur and **G.S. Shekhawat** (2013). Establishment and characterization of *Stevia rebaudiana* (Bertoni) cell suspension culture: an *in vitro* approach for

production of Steviosides. **Acta Physiologiae Plantarum**. 35(3): 931-939 DOI 10.1007/s11738-012-1136-2 (**Impact Factor: 1.693**)

21. Sonali Jana and **G.S. Shekhawat** (2012) RAPD analysis, antioxidant study during cell differentiation and standardization of *in vitro* regeneration protocol of *Anethum graveolens*: A medicinal herb and spice. **Biologia plantarum** 56 (1): 9-14, (**Impact factor-1.974**)
22. Sonali Jana and **G.S. Shekhawat** (2011) Critical review on medicinally potent plant species: *Gloriosa superba*. **Fitoterapia** 82 (2011) 293–301 (**Impact factor-2.345**)
23. Prerna Pandey, Subhra Mukhopadhyaya, Afsar R Naqvi, Sunil K Mukherjee, **Gyan S Shekhawat** and Nirupam R Choudhury (2010). Molecular characterization of two distinct monopartite begomoviruses infecting tomato in India, **BMC Virology Journal** 7:337-42 (**Impact factor 2.44**)
24. G.S. Shekhawat and Kusum Verma (2010). Heme oxygenase (HO): an overlooked enzyme of plant metabolism and Defense. **Journal of Experimental Botany (JXB, Oxford)** Vol. 61:( 9), 2255-2270 (**Impact factor 6.364**)
25. G.S. Shekhawat and Amla Batra (2010). Shoot organogenesis and high frequency plant regeneration through callus culture of *Azadirachta indica* A. juss. **Plant Cell Biotechnology and Molecular Biology (PCBMB)** Vol. 9 (3&4):104-108
26. Sonali Jana and G.S. Shekhawat (2010). Plant growth regulators, adenine sulfate and carbohydrates regulate organogenesis and *in vitro* flowering of *Anethum graveolens*. **Acta Physiologiae Plantarum** 33:305–311(**Impact Factor: 1.693**)
27. G.S. Shekhawat, Verma K, S. Jana, Singh, K, Teotia, P and Prasad, A (2010). *In vitro* biochemical evaluation of cadmium tolerance mechanism in callus and seedlings of *Brassica juncea*. **Protoplasma**, Vol.239 (1): 31-38 (**Impact factor 3.171**)

28. Sonali Jana and G. S. Shekhawat (2010). Phytochemical analysis and antibacterial screening of *in vivo* and *in vitro* extracts of Indian medicinal herb: *Anethum graveolens*. **Research journal of medicinal Plant** Vol.4 (4), 206-212
29. G.S. Shekhawat, S. Mathur and A. Batra (2009). Role of phytohormones and various nitrogen inorganic and organic nutrients in induction of somatic embryogenesis in cell culture derived from leaflets of *Azadirachta indica* A. Juss. **Biologia Plantarum**,53 (4): 707-710 (**Impact Factor 1.974**)
30. G. S. Shekhawat and Vedpriya Arya (2009). Biological synthesis of Ag Nanoparticles through *in vitro* cultures of *Brassica juncea* C. zern. **Advance Material Research (Switzerland)** Vol. 67: 295-299
31. Ashu Chaudhary, G.S. Shekhawat and R.V. Singh (2010). Investigations on New Revolutionary Fertility Inhibitors 9, 10-Diaminophenenthrene Derivatives of Bivalent Manganese: Antifertility, Antibacterial, Antifungal and Percent Disease Incidence **Review in inorganic chemistry (Israel)** Vol. 30, (3):113-133 (**Impact factor 2.071**)
32. Kusum Verma, G. S. Shekhawat, Astha Sharma, S. K. Mehta and V. Sharma (2008). Cadmium Induced Oxidative Stress and Changes in Soluble and Ionically Bound Cell Wall Peroxidase Activities in Seedling and 3-4 Leaf Stage Plants of *Brassica juncea* (L.) czern. **Plant Cell Reports** Vol. 27, (7) .1261-1269 (**Impact factor- 3.071**)
33. Mathur, S., Shekhawat, G.S, Batra, A. (2008). Somatic embryogenesis and plantlet regeneration from cotyledon explants of *Salvadora persica* L. **Phytomorphology**, Vol. 58 (1-2) 57-63.
34. Mathur, S. Shekhawat, G.S. and Batra, A., (2002). Micropropagation of *Salvadora persica* via cotyledonary nodes. **Journal of Biotechnology**. Vol.1, 197-200 (**Impact factor 0.550**)
35. Mathur, S., Batra, A. and Shekhawat, G.S., (2002). An efficient *in vitro* method for mass propagation of *Salvadora persica* via apical meristem, **Journal of Plant Biochemistry and Biotechnology**, Vol. 11, 125-127 (**Impact factor 0.774**)



### Other significant Publications:

36. Dwivedi S, Alam, A and **Shekhawat, G.S.** (2016). Relative production and quantification of stevioside from *in-vitro* generated shoots, callus, suspension culture and synseeds of *stevia rebaudiana* (Bertoni) Bertoni. [Plant cell Biotechnology and Molecular Biology](#) 17(3-4):155-166
37. Dwivedi S, Alam, A and **Shekhawat, G.S.** (2016). Antioxidant response of *Stevia rebaudiana* (Bertoni) Bertoni (Angiosperms; Asteraceae) during developing phase of suspension cell culture. [Plant Science Today](#), 3(2): 115-123
38. Shailja Dwivedi, A. Alam, **G.S. Shekhawat**, V. Sharma, Jyoti Kumari (2016). Enzymatic and non-enzymatic behaviour of *Stevia rebaudiana* (Bertoni) against fluoride induced Stress. [International Journal of Scientific Research in Knowledge](#), 4(3):069-076.
39. Sunita, Sonali Jana and **G. S. Shekhawat** (2015) Micropropagation of Chlorophytum borivilianum: In vitro Clonal Fidelity Test and Antioxidant Enzymatic Study [American Journal of Biology and Life Sciences](#). 3(2): 36-42
40. Mahawar, L and **Shekhawat G.S.** (2015). Salt induce oxidative stress and its tolerance mechanism in Plant: Morphological, Biochemical and Molecular Perspective. [Biotech Today](#) Vol 6 (2): 80-87
41. Shubham Dixit, **G.S. Shekhawat** and Afroz Alam (2014). Heme oxygenase-1 (Bjho-1) Functions In modulating antioxidant defence responses against cadmium induced oxidative stress: An In vitro and In vivo comparative analysis. [Journal of international academic research for multidisciplinary](#). 2 (8): 27-44
42. Dhir, Richa and **Shekhawat, G.S.** 2012. Critical review on *Tecomella undulata*: A medicinally potent endangered plant species of Indian Thar Desert. [International Journal of Current Research](#). Vol. 4(06), 036-044.

43. Teotia , P. S., Srivastav, N., Garg, V., **Shekhawat, G.S.**, Sharma, N and Chadha, S. M. 2012. Stevioside: A natural sweetener having potential of controlling glucose levels in diabetic patients. [International Journal of Current Research](#), 4 (4): 83-90.
44. Ramesh pantola and **G.S. Shekhawat** (2012). Copper Induced Antioxidative Enzyme Indices in Leaves of *Brassica juncea* Seedlings. [Journal of Pharmaceutical & Biomedical Sciences](#) Vol.15,1-6
45. **Shekhawat G. S.**, Dixit S., Verma K., Nasybullina E.I., Kosmachevskaya O.V., Topunov A.F. **2011**. Heme oxygenase: Enzyme with functional diversity. [Journal of Stress Physiology & Biochemistry](#), 7 (1): 88-94
46. Atin Jaiswal, N. K. Singh, Moin Akhtar, J. P. Jaiswal and **G. S. Sekhawat** , (2010). Chromatography Analysis for Carotenoids in Maize (*Zea mays* L.). [International Transactions in Applied Sciences](#) 2,(1), 117-122
47. Sonali Jana and G.S. Shekhawat (2010). *Anethum graveolens*: An Indian traditional medicinal herb and spice. [Pharmacology Reviews](#) Vol. 4 (7): 190- 195
48. Dinesh Kumar and G.S. Shekhawat (2010). Assessment of the soil pollution parameters of the various soil----Rajasthan. [J. of Chemical & Environmental Research](#) Vol.2(3-4) 75-78
49. Atin jaiswal and G.S. Shekhawat (2010). Proline biosynthesis and accumulation in plants : a review 2010, Vol.2 (4) 651-660
50. G. S. Shekhawat and Vedpriya Arya (2008). Nano-medicine: Emergence of a New Era in Biomedical sciences. [Nanotrends](#): A journal of nanotechnology and its application. Vol.5 (2)1-12
51. G.S. Shekhawat, Archana Prasad, Kusum Verma and Astha Sharma (2008). Changes in growth, lipid peroxidation and antioxidant system in seedlings of *Brassica juncea* (L.) czern. [Biochem. Cell Arch.](#) Vol. 8: 145-149
52. Astha Sharma, Nidhi Kansal and G.S. Shekhawat (2006). *In Vitro* culture and

plantlet regeneration of economically potent plant species *Jatropha Curcus*.  
[Biochemical and cellular Archive](#). Vol.6 (No.2), 165-170

53. Mathur, S., Shekhawat, G S., Batra, A. (2005). In Vitro plant regeneration from nodal and shoot tip explants of *Salvadora persica* L. A Medicinal plant. In proceeding of seminar and expo on botanical products in new millennium development and challenges. Pp: 133-135
54. Mathur, S.; Shekhawat, G.S. and Batra, A. (2002). *Salvadora percisa*: A rare drug plant. [Botanica](#). Vol. 52. 194-198
55. Shekhawat, G.S., Batra, A. and Mathur S. (2002). A reliable *in vitro* protocol for rapid mass propagation of *Azadirachta indica* Juss, [Journal of Plant Biology](#), Vol. 29(1):109-112
56. Batra, A., Mathur, S. and Shekhawat, G.S., (2001). Clonal propagation of *Salvadora persica* L. An important medicinal plant of arid zone. [Journal of Plant Biology](#), Vol. 23(3), 277-281

#### **Published Book Chapters: 09**

1. G.S. Shekhawat 2017. Engineered Nanoparticles (ENP's): Synthesis, Applications and Challenges from Environmental Perspective. Himanshu Publication Udaipur.
2. Khusbu Verama and G.S. Shekhawat\* 2013. Phytochrome-Chromophore Biosynthesis and Chloroplast Development: Possible role and regulation of HO (Haemoxygenase). In Phytochrome-Chromophore Biosynthesis and Chloroplast Development Eds. [Nova Science Publishers, Hauppauge, NY \(U.S.A.\)](#)
3. Shekhawat, G.S. and Jana, S. 2012. *In Vitro* Organogenesis: Induction, Regulation and Applications. In Plant Tissue Culture: Totipotency to transgenic. (Ed. Sharma H.P.) Agrobios Publications, Jodhpur
4. Mathur, Shaifali and Shekhawat, G.S. 2012. Plant Tissue Culture Technology: A Promising Approach for Biodiversity Conservation and Sustainable Resource Utilization. In Biodiversity Management and Conservation (Eds. Khan, J.B & Singh, G.S,) Lap Lambert Academic Publishing AG & CO. KG, Dudweiler Landstr, [Germany](#)
5. Srivastava, A. and Shekhawat, G. S. 2011. BIOFILMS: Formation, Sustenance and Significance. In: Recent advances in environmental biotechnology (Eds. P. K. Jain et

al), Lap Lambert Academic Publishing AG & CO. KG, Dudweiler Landstr, **Germany** pp 24-46

6. G.S. Shekhawat, D. Kumar, K. Verma, K. Singh, S. Jana, P. Teotia and S. Yadav (2009). Copper as a Biometal: An insight on transport, toxicity and tolerance, in Photosynthetic Organisms. Biometals: Molecular Structures, Binding Properties and Applications, **Nova Science Publishers, Hauppauge, NY (U.S.A.)**
7. G.S. Shekhawat, Astha Sharma, Kusum singh and Kusum verma. (2007). Tissue Culture Technology: A Modern Tool for Biodiversity conservation in Recent Trends in Biotechnology and Microbiology. Ends Tripathi B.N. Shekhawat, G.S. and Sharma, V. Avishkar Publisher, Jaipur.
8. Batra A., Mathur, S., Rajore, S. and Shekhawat, G.S., (2002). Production of herbal drugs for curing diabetes In: Khan I., and Khanum A.,(Eds.)Role of Biotechnology in Medicinal and aromatic plants, **Ukaaz Publication**, Hyderabad, Vol. VI, 91-104
9. Batra, A., Mathur, S., Shekhawat, G.S. and Paliwal A., (2001) *Salvadora persica*: A rare plant drug plant of arid zone. In: Khan, I. and Khanum, A. (Eds.). Role of Biotechnology in Medicinal and Aromatic Plants, Vol. IV, **Ukaaz Publication, Hyderabad**, pp. 81-89.

#### **Invited Talks: 21, (Selected)**

1. Department of Bioscience, University of South Florida, Tampa , **USA**
2. Department of Interdisciplinary Sciences, University of South Florida, **USA**
3. Department of Biotechnology, **IIT Madras , India**
4. Defense Institute of Bio energy Research( **DRDO** ) Haldwani, India
5. **EUROPEAN UNION –INDIA**, Research and innovation partnership, Teco joint workshop , 2017

#### **Research Projects: 12**

<b>S. No</b>	<b>Title of the Project</b>	<b>Funding Agency</b>	<b>Duration</b>	<b>Status</b>
1	Molecular characterization and elucidation of HO (hemeoxygenase) role in Cu/Cd induced oxidative stress in Glycine max	DST, Delhi	2012	completed

2	In vitro synthesis of ENP'S and evaluation of their impact on water borne pathogen and plant metabolism	DST, Raj.	2012-2014	completed
3	Elucidation of Nitric Oxide (NO) production under copper induced oxidative stress in Brassica juncea and its prospective role in ROS detoxification metabolism	DST, Delhi (WOS)	2011-2014	completed
4	Extraction and isolation of pharmaceutically important metabolites of <i>Anethum graveolens</i>	DST, Raj.	2010-2013	completed
5	<i>In Vitro</i> micropropagation and comparative biochemical analysis of <i>Stevia rebaudiana</i> for increased production of steviosides.	UGC, Delhi	2009-2012	completed
6	Consultancy Project at Morarka Biotechnology	Morarka-GDC, India	2012, 2015	completed
7	Biotechnological Investigation for the Improvement of Economically Potent Plant Species <i>J. Curcas</i> : Source of Bio Fuel	BU	2007-2008	completed
8	<i>In silico</i> Evaluation of heavy metal tolerance in higher plants	DST, (Raj.)	2010-2011	completed
9	Elucidation of metabolic adaptation mechanisms during cadmium induced oxidative stress in <i>Brassica juncea</i> : a metal hyper accumulator plant species	CSIR	2009-2011	completed
10	<i>In vitro</i> Synthesis of Nanoparticles through Biological interventions	DST (Raj.)	2010-2011	completed
11	<i>In Vitro</i> Morphogenesis and Phytochemical Screening of <i>Stevia rebaudiana</i> : Source of a natural zero caloric sweetener	DST, (Raj.)	2008-2009	completed
12	Isolation and Extraction of secondary metabolites in Indian ginseng: <i>Withania Somnifera</i>	DST, (Raj.)	2004-2005	completed

#### **Fellowships: National/International/Awards:**

S. No	Title of the Project	Funding Agency	Duration	
			From	To
1.	Y.S. Moorthy Medal Award by <b>Indian Botanical Society</b> (IBS)-2016	Indian Botanical Society (IBS)	2016	-

2.	<b>BOYSCAST</b> fellowship 2011, to work at University of South Florida, Tampa, <b>Florida, USA</b>	DST, Delhi	2011	2012
3.	INSA international exchange, To worked at <b>Moscow, Russia</b>	INSA, Delhi	2011	2011
4.	Young Researcher Award by Academy of Innovative Research	AIR, India	2010	-
5.	Junior Research Fellowship, UOR, Jaipur	UOR	2001	2003
6.	Senior research fellowship, CSIR, New Delhi	CSIR, Delhi	2003	2004

### Research Guidance:

Overseas PDF Supervised : 01

Ph. D Awarded : 09

PhD Pursuing : 03

S. No.	Name of Student	Title of PDF/ PhD	Date of Submission	Date of PhD Viva
1.	Robert Popek	Physiological Characterization of Heme oxygenase-1 (HO-1) under heavy metal (Cd) induced oxidative stress in crop plant of Indian Thar Desert.	Post Doctoral Fellow	---
2	Purna Pandey	Construction of Tomato Leaf Curl Virus based gene silencing vector and its validation in <i>Nicotiana xanthii</i> and <i>Lycopersicon esculentum</i>	13-09-2010	17-01-2011
3.	Kusum Verma	Metabolic Adaptations to Cadmium in <i>Brassica juncea</i> (L.) Czern	30-09-2010	27-03-2011
4.	Astha Sharma	<i>In vitro</i> morphogenesis and photochemical screening of medicinally potent plant species: <i>Stevia rebaudiana</i>	22-11-2010	06-05-2011
5.	Sonali Jana	<i>In vitro</i> morphogenesis and phyto chemical screening of ayurvedic medicinal herb: <i>Anethum graveolens</i> L.	12-01-2011	03-07-2011
6.	Pooja Rawat	Generation and molecular mapping of STMS markers and their application in diversity analysis in <i>Vigna sps</i>	08-09-2010	20-09-2011
7	Atin Jaiswal	Studies on abiotic stress related Biochemical, Physiological and Molecular parameters in <i>Lepidium latifolium</i> and <i>Chenopodium album</i>	28.06.2012	20.02.2013
8	Shaifali Mathur	<i>In vitro</i> regeneration and suspension culture study of <i>Stevia rebaudiana</i> for production and quantification	23-05.2013	04.01.2014

		of steviol glycosides		
9.	Ina saxena	<i>In vitro</i> elucidation of heavy metal toxicity and response of Nitric Oxide (NO) in Brassica juncea	05.12.2013	13.07.2014
10	Lovely Mahawar	Biochemical and molecular characterization of Hemeoxygenase and its role in plant defense and metabolism	21.03.2018	-

### **Invited talk/ Presentation in Seminar, Symposia, Conference: 59**

**Invited Talk/lecture :21**

**Presentation in Conference :23**

**Participation :15**

1. Invited talk on HO-1 in metabolic adaption of crop plants at National conference National Conference on “Biodiversity Conservation and Environmental Management” organized by Poddar International College, Jaipur from 26-27<sup>th</sup> Feb. **2018**.
2. Presentation on *BjHO1* expression under metal induced oxidative stress and its mitochondrial-chloroplast sub-cellular localization in *B. juncea*. At National Symposium on Plant Biotechnology: Recent Trends in Plant Propagation, Genetic Improvement & Industrial Applications & 39th Annual Meeting of Plant Tissue Culture Association (India) held at arid forest research institute, Jodhpur from 16<sup>-18th</sup> Feb. **2018**
3. Invited talk on Nano-biotechnology: application and challenges in national workshop on environmental challenges: awareness and solutions (**ECAS-2018**), organized by SS Jain Subodh College 20<sup>th</sup> Jan. **2018**
4. Invited talk on Hemeoxygenase and its role in plant biology in International conference environmental challenges and their impact on plant and human health organized by St. Wilfred’s PG College, Jaipur from 15-17 Jan. **2018**
5. Invited lecture on computational science: A new era in biological science in National workshop on experimental and computational demonstration in science education

held at Department of Physics, JNV University, Jodhpur from 18-20<sup>th</sup> March 2017.

6. Invited talk on metabolic adaptation to Cd induced oxidative stress in hydroponic cultures of *Brassica juncea* and role of Hemeoxygenase 1 (HO 1): A Phytoremediation strategy. *European Union–India* Research and innovation partnership, Teco joint workshop, from 2-3<sup>rd</sup> Nov. **2017**
7. Invited lecture on cell suspension culture for in vitro production of medicinally important secondary metabolites in national workshop (under TWQIOP Phase-II) on Plant tissue culture: Basic tools, laboratory practices and techniques held at BTKIT, Almora, UK, 22<sup>nd</sup> Feb. **2017**
8. Invited Lecture on Nanotechnology: Biosafety aspects and applications in refresher course on Environmental studies held at Department of geography, JNV University, 5<sup>th</sup> Dec. **2016**
9. Invited Lecture on Proteomics: Biological tools and study in Refresher Course on LIFE SCIENCE held at Department of Environmental sciences , MDS University, Ajmer 28<sup>th</sup> July **2016**
10. Invited lecture on Research methodology: tools and techniques in national workshop on Research methodology and academic writings held at JNV University, 17-18<sup>th</sup> Nov. **2016**
11. Invited talk on nano-biotechnology at Department of Botany SS Jain Subhodh PG college Jaipur, 9<sup>th</sup> Sept. **2016**
12. Invited talk on Nanotechnology and Bio-safety aspect of Nanoparticle: *In Vitro* synthesis of ENP'S and evaluation of their Regulatory Effect on Plant Defense and Metabolism in *Environmental Challenges, Human Health and Society*" (**NCEHS-2016**) held at University Maharaja College, University of Rajasthan, Jaipur India from 8-10<sup>th</sup> Sept. **2016**.



- 13.** Presentation on Metabolic adaptation to cadmium induced oxidative stress in *Brassica juncea* and role of Hemeoxygenase (HO) in 38<sup>th</sup> All India Botanical Conference and National Symposium on Emerging trends in Plant Sciences” organized by Department of Botany, University of Rajasthan, Jaipur from 26-28<sup>th</sup> Oct. **2015**
- 14.** Invited talk on Nano-biotechnology: Current status and future prospectus, at Department of Botany, S.S. Jain Subhodh College, Jaipur on 28<sup>th</sup> Oct. **2015**
- 15.** Presentation on Hemeoxygenase-1 in modulating antioxidant defence responses under metal induce stress and its mitochondrial-chloroplast localization in *Glycine max*” in 84<sup>th</sup> Annual Session of the [National Academy of Sciences \(NASI\)](#), India & Symposium on Desert Science-Opportunity and Challenges: organized by J.N.V. University, Jodhpur, 4-6<sup>th</sup> Dec. **2014**
- 16.** Presentation on *In vitro* evaluation of Heme oxygenase1 (HO1) role in plant defense and study mitochondrial–chloroplast subcellular localization in *Glycine max.* in national conference on plant bioresource management and biotechnology ([PBMB](#)) organized by Department of Botany, University Of Rajasthan Jaipur from 29-31<sup>st</sup> Jan. **2014**
- 17.** Invited lecture on Hemeoxygenase: In vitro study and its possible role in plant defance and metabolism at Department of biotechnology, GB Pant engineering college, Pauri Gharwal, UK, on 9<sup>th</sup> Aug. **2014**
- 18.** Invited lecture on Nano-biotechnology: In vitro synthesis of Nanoparticles at Department of biotechnology, GB Pant engineering college, [Pauri Gharwal, UK](#), on 9<sup>th</sup> Aug. 2014 GB Pant engineering college, UK, 9<sup>th</sup> Aug. **2014**
- 19.** Invited talk on Molecular characterization and elucidation of HO-1 role in metal induced oxidative stress in *Brassica juncea* in national seminar on role of biotechnology in crop improvement and sustainable development for new Millennium held at SM PG College JJN, 21-22<sup>nd</sup> Jan. **2013**
- 20.** Invited lecture on role of HO-1 in plant development and its regulation through mi-

RNA, at Department of Biotechnology, [Indian institute of technology, Roorkee](#),  
23<sup>rd</sup> May **2012**.

- 21.** Invited lecture on Biosafety aspects of nanoparticles: In vitro synthesis of ENP's and evaluation of their regulatory effect on plant defiance in national seminar on Bioengineering and Biosafety at defiance institute of bio-energy research ([DIBER](#)) , [Govt. of India , Ministry of Defense, Haldwani](#) , UK 4<sup>th</sup> Aug. **2012**
- 22.** Invited speaker in National conference on environment conservation and management for suitable era held at Subhodh college, Jaipur from 20-22 Dec. **2012**
- 23.** Invited talk on Biotechnology and its status in India in national conference on Science for shaping future of India (ISCA Banasthali Chapter) held at Banasthali Vidyapith , 24-25<sup>th</sup> Aug. **2012**
- 24.** Presentation on Biological synthesis of metal nanoparticles and evaluation of their impact on Plants. In Research one Oktberfest, Organized by University of South Florida, Tampa Florida, **USA** from, 21<sup>st</sup> Oct. **2011**
- 25.** Presentation on *In vitro* synthesis of Cds, ZnO, Ag and Tio<sub>2</sub> nanoparticles and evaluation of their effect on cellular metabolism of Brassica juncea, in Nano-Florida organized by [Florida international university, Miami, USA](#) from. 30<sup>th</sup> Sept to 1st Oct.**2011**.
- 26.** Presentation on *in vitro* biochemical evaluation of cadmium tolerance mechanism in callus and seedlings of *Brassica juncea*. in National Symposium in national symposium on recent advances in plant tissue culture and biotechnological researches in India & 32th annual meet of [PTCA](#) (India) organized by M. N. Institute of Applied Sciences, Bikaner from. 4-6<sup>th</sup> Feb **2011**.
- 27.** Invited lecture on “*In vitro* production of medicinally important secondary metabolites through cell culture technology and to study regulatory role of Peroxidase, APX and HO in metal tolerance mechanism in *Brassica juncea* for

Phytoremediation at Department of Bioscience, [University of South Florida, USA](#),  
9<sup>th</sup> Dec. **2011**

- 28.** Invited lecture on “Biological synthesis of metal nanoparticles and evaluation of their effect on plant cellular metabolism” Department of Physics, [University of South Florida, USA](#), 10<sup>th</sup> Oct. **2011**
- 29.** Invited lecture on Tissue culture technology and its role in biodiversity conservation at Oak Park Elementary, Tampa, Florida **USA**, 17<sup>th</sup> Nov. **2011**
- 30.** Presentation on synthesis and characterization of ZnO nanoparticles and evaluation of their toxicity in national symposium on materials for advanced technology (NSMAT-2011) organized by Department of physics, Banasthali University from 27-29<sup>th</sup> March **2011**.
- 31.** National workshop on Biological data bases and data mining approaches, from Dec.18-20, **2010** organized by Bioinformatics center Department of Bioscience and Biotechnology, Banasthali University
- 32.** Presentation on evaluation of metal ENP's and their geno-toxicity in *Brassica juncea* in National symposium on Advanced Functional Materials: opportunities and challenges in new global era ([NSAFM-2010](#)). Organized by Department of chemistry, Banasthali University from 4-5<sup>th</sup> Oct. **2010**.
- 33.** Presentation on Bio-Chemical synthesis of CdS, ZnO TiO<sub>2</sub> & Ag Nanoparticles and evaluation of their regulatory effect on plant defense and metabolism, in National symposium on biotechnology in India: Current status and future prospectus organized by Poddar International College Jaipur 30<sup>th</sup> march **2010**
- 34.** Presentation on Biological formation of silver nanoparticles through the *in vitro* cultures of *Brassica juncea* C. zern. In international conference on Nanomaterial and Devices: Processing and Applications (NADPA-2008) held at [Indian institute of technology, Roorkee](#) from 11-13<sup>th</sup> Dec. **2008**.

35. Presentation on Biological synthesis of silver nanoparticles and their characterization through hydroponic cultures of *Brassica juncea* in 4<sup>th</sup> International conference on surface coatings and nano-structured materials ([NanoSMAT-2009](#)) held at [Rome Italy](#) from 19-22<sup>nd</sup> Oc. **2009**.
36. Presentation on Role PGR'S, organic and inorganic nutrients in plant regeneration through unfertilized ovaries of *Azadirachta indica* A. Juss in International conference on Molecular Biology and Biotechnology ([ICMBB-2008](#)) held at Department of Bioscience and Biotechnology, Banasthali University from 18-21<sup>st</sup> Nov.**2008**.
37. Presentation on cadmium induced oxidative stress and changes in soluble peroxidase activity in leaves of *Brassica juncea* L. czern. In international conference on free radical & natural products in health ([FRNPH-2008](#)) and 7<sup>th</sup> annual meeting of the society of free radical research in India organized by Department of Zoology, University of Rajasthan from 14-16<sup>th</sup> Feb. **2008**.
38. Presentation on isolation and characterization of herbal pesticide through *in vitro* culture of *Azadirachta indica* A. Juss. In national seminar on environmental management in 21<sup>st</sup> century: Issues and challenges held at Department of Botany, [Banaras Hindu University](#), Varanasi from 16-18<sup>th</sup> Feb. **2006**
39. Invited talk lecture *in vitro* regeneration of *Azadirachta indica* and isolation of nimbin through callus cultures, in Botanical Products: Seminar & Expo held at Department of chemistry, University of Rajasthan. Jaipur from 5-7<sup>th</sup> Feb. **2005**.
40. Presentation on *In vitro* pathogen free plantlet regeneration via shoot-tip culture of medicinally important plant species *Azadirachta indica* A. Juss. In meeting of central zone chapter of Indian phytopathological society and national seminar on biotechnology approaches for the management of plant diseases, held at Agrawal P.G. College, Jaipur from 30-31<sup>st</sup> Jan. **2004**.
41. Presentation on high frequency regeneration system through callus culture in medicinally important plant species: *Azadirachta indica* A. Juss In national seminar

on application on biotechnology (NSAB-2004), held at S. B. Todi College, Lachhman garh from 23-24<sup>th</sup> jan. **2004**.

42. Invited lecture on Basic biotechnology and pest management hypothesis at Department of rural technology, JNAR Vidyapith, Udaipur, 1<sup>st</sup> Sept. 2004
43. Presentation on Somatic embryogenesis and Plant Regeneration from hypocotyls segments in *Cuminum cyaminum* in national seminar on frontiers in biotechnology, held Birla College, Kalyan, Mumbai from 28-29<sup>th</sup> April **2001**.
44. Presentation on *In vitro* production of virus free plant through apical meristem culture of *Azadirachta indica* in National symposium on prospectus and potential of plant biotechnology in India in 21<sup>st</sup> century and 23<sup>rd</sup> annual meeting of **PTCA** held at JNV Uni. From 18-21<sup>st</sup> Oct.**2000**.

#### **Participation in Symposia / Conference/ Workshop: 16**

##### **Co-curricular Activities:**

- **1992:** Attended combined Annual Training Camp (**CATC**) Junior Division Boys NCC (Army Wing), Chirawa (Raj.) 13.10.1992 – 22.10.1992.
- **1993:** Qualify NCC “A” Certificate.
- **1995:** Participated in **National Service Scheme (NSS)** in Seth G.B. Podar College, Nawalgarh.
- Attended the Combined Annual Training Camp (**CATC**) from 20.8.95 to 31.8.95, Jaipur.
- **1996:** Participated in the **Combined Republic Day Parade** held at the Surya Mandal, Nawal garh
- Passed NCC “B” Certificate.(1996)
- Participated in Annual Training Camp (**ATC**), Sikar.
- **1996-97:** Awarded **Best Disciplined Cadet** in G.B. Podar College, Nawalgarh.
- **1997:** Qualified the Examination of NCC “C” Certificate “*Under Officer Rank*”, the Authority of Ministry of Defense Govt. of India.

**(Gyan Singh Shekhawat)**