

# Prof. D. K. Maheshwari

**Name** : Dr. D. K. Maheshwari  
**Sex** : Male  
**Date of Birth** : 12<sup>th</sup> September 1953

## Educational Qualifications

- Ph.D. (Botany) from Agra University 1977
- M.Sc. (Botany) from Agra University 1973

## Employment history

- Professor, Department of Botany & Microbiology, Haridwar, Uttarakhand, w.e.f. 15<sup>th</sup> October 1990.
- Reader, Department of Microbiology, Barkatullah University, Bhopal (MP) from 1<sup>st</sup> January 1986 to 14<sup>th</sup> October 1990.
- Lecturer, Department of Botany, DAV (PG) college, Meerut University Muzaffarnagar (UP), from 12<sup>th</sup> Feb., 1978 to 31<sup>st</sup> Dec., 1985.

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## Publications

- Research Papers - 89
- Communicated Papers - 07
- Review Articles - 13
- Books - 09
- Ph. D. - 35

## Ph. D awarded:

S. No.	Topic	Year	Name of the Awardee
1	Comparative studies on the hydrobiology and phytoplanktonic of a lake and perennial pond with reference to seasonal variations	1987	Y. P. Jain
2	Studies on the effect of growth hormones and nematicides on the root Knot of some vegetable crop plants	1987	Satya Pal Singh
3	Microbial degradation of cellulosic waste of sludge of paper mills and forest based industries. Studies on the cellulase production by certain <i>Trichoderma</i> sp.	1990	Seema Gohade
4		1990	Hasrat Jahan
5	Studies on the effect of growth hormones and nematicides on the root Knot of some vegetable crop plants	1990	Rakesh Paliwal
6	Impact of carbaryl and 2, 4-D on physiological and biochemical activity of <i>Rhizobia</i> species.	1991	Meenu Gupta

7	Impact of carbaryl and 2, 4-D on physiological and biochemical activity of <i>Bradyrhizobial</i> species.	1992	Ritu Shrivastava
8.	Investigations on mercury and lead tolerance potential in some cellulolytic fungi.	1992	Anwar Ahmad
9	Utilization of lignocellulosic biomass for ethanol production.	1994	Jaspal Kaur
10	Investigation on growth of some tree legumes in degraded land amended with <i>Rhizobium</i> and <i>Eichhornia</i> residue.	1995	Ajay Khandelwal
11	Studies on the <i>Rhizobium</i> symbiotic with <i>Acacia nilotica</i> and <i>Acacia catechu</i> with special reference to substandard soil.	1995	Rajesh Sawney
12	Studies on waste water, the irrigation potential and its effect on leguminous plants and associated rhizobia.	1995	Surendra Kumar
13	Bioconversion of aquatic biomass residue by cellulolytic fungus <i>Coriolus hirsutus</i> (Wolfen ex. fries) auelet.	1997	Ravindra Sharma
14	Biomass production of certain aquatic macrophytes and their role in nutrient removal from polluted water.	1997	Chaman Lal
15	Rhizobia tree legumes ( <i>Acacia</i> species) symbiosis in substandard soil and technology development for inoculum.	1997	Hemender Kumar
16	Biocontrol of certain pathogenic fungi of <i>Helianthus annus</i> L.	2000	Roshan Lal
17	Studies on microbial pesticides and their influence on pathogenic fungi associated with <i>Arachis hypogea</i> L.	2000	Vinay Kumar Sharma
18	Biocontrol of <i>Sclerotinia sclerotiorum</i> (Lib.) De Bary causing stem blight of <i>Brassica campestris</i> L	2001	Chandra Prakash Gupta
19	Influence of physiological stress conditions on certain rhizobia and their inoculant preparation	2001	Naveen Kumar Arora
20	Studies on root nodulating bacteria associated with <i>Mucuna pruriens</i> (Kaunch).	2001	Vineet Kumar
21	Biological control of <i>Macrophomina phaseolina</i> causing charcoal rot of ground nut ( <i>Arachis hypogea</i> L.) through pseudomonads.	2002	Shweta Bhatia
22	Exopolysaccharide production: A mean to tolerate salinity by <i>Sinorhizobium meliloti</i> nodulating <i>Mucuna pruriens</i> (L).	2002	S. P. Paudyal
23	Isolation, identification and characterization of siderophores producing rhizobia with special reference to biocontrol of root rot pathogen.	2002	Vishal Kumar Deshwal
24	Studies on the yield, breeding behaviour, nitrogen fixing ability and heavy metal resistance in induced mutants of <i>Vigna radiate</i> (L) wilczek.	2003	Udai Pal Singh
25	Evaluation of potential rhizobial strains against deleterious rhizospheric micoorganisms.	2004	Kishor Kumar Joshi
26	Impact of rhizobia and chemical nutrients status on productivity of nonleguminous crop ( <i>Brassica campestris</i> ) L. var. local	2004	Shikha Chandra
27	Biocontrol potential of microbial consortium of <i>Macrophomina phaseolina</i> causing root rot of <i>Sesamum indicum</i> (L.).	2005	Bhavesh Kumar
28	Studies on rhizobacterial consortium for the biocontrol activity against deleterious micoorganisms of <i>Brassica campestris</i> L var. local	2006	Keerti Gupta
29	l Studies on potential rhizobia and their evaluation in	2006	Neetu Singh

	biocontrol of <i>Macrophomina phaseolina</i> causing root rot of Pine ( <i>Pinus roxburghii</i> ).		
30	Rhizobacteria in biocontrol of <i>Heterodera cajani</i> infecting <i>Sesamum indicum</i> L.	2006	Tarun Kumar
31	Role of Rhizobacteria on Root-Knot of <i>Capsicum annum</i> L.	2007	Verinder Wahla
32	Effect of Biofertilizer and Integrated Nutrient management Protocol (N, P & K) on quality improvement of <i>Sesamum indicum</i> L.	2008	Sandeep Kumar
33	Effect of certain soil inhabiting microorganism in relation to Fusarium wilt and Root knot	2008	Shilpi Sharma
34	Role of Rhizobacteria in Biocontrol and Growth promotion of <i>Cajanus cajan</i>	2008	Piyush Pandey
35	Isolation of stress tolerating rhizobia and their biocontrol potential against wilt of <i>Cajanus Cajan</i> L.	2009	Rajyavardhan Arya

No. of Students Registered for Ph.D. : 7

#### **Technology Developed:**

- Four strains of Rhizobia in Microbial Type Culture Collection (MTCC) at Institute of Microbial Technology, Chandigarh.
- Two strains of *Sinorhizobium* in Japan Collection of Microorganisms, Wako, Japan.

#### **Administrative Experience and Position Held:**

- Served as Head, Department of Microbiology, Barkatulla University, Bhopal, from May 1986 to July 1988 for a period of 15 Months.
- Appointed as Head, Department of Botany and Microbiology, Gurukul Kangri University, Haridwar from 1991 to 1994, 1996 to 1998 and again from 2001 to 2004.
- Served as Dean Student Welfare since 1991 – 2000 June.
- Appointed as Dean, Faculty of Life Sciences, Gurukul Kangri University, Haridwar from 1994 to 1996, 1998 to 2001 and again from 2004 to 2007.
- Invited as reviewer in Brainstorming Meeting on Plant-Microbe Interaction jointly organized by Agarkar Research Institute, Pune and Department of Science and Technology, New Delhi during March 8-10, 2009.
- Invited as reviewer in Interactive Meeting on Plant-Microbe Interaction for North-East India jointly organized by Mysore University, Mysore, Karnataka and Department of Biotechnology, New Delhi during Oct 6-7, 2009.

#### **Seminar Organised:**

- Organising Secretary of the National Seminar on *Bioinoculants for Holistic Sustainable Rural Development*, organised jointly with Deen Dayal Upadhyay Institute for Rural development, U.P. Govt., Oct., 23-25, 1998.
- Co-ordinator of Workshop on Molecular and Applied Microbiology at Gurukul Kangri University, Sponsored by Uttarakhand state council for Science & Technology, Dehradun, Department of Science & Technology, 10th-19th Feb, 2008.

- Co-ordinator of Hands on Training on Microbial Fermentation & Inoculant Preparations at Gurukul Kangri University, Sponsored by State Biotechnology Programme, Government of Uttarakhand, (U.S. Nagar), 10th-19th Feb, 2008.
- Co-ordinator of Summer School on “Recent Trends in Biotechnology” at Gurukul Kangri University, Sponsored by State Biotechnology Programme, Government of Uttarakhand, (U.S. Nagar), 15th-30th Sept., 2008.
- Co-ordinator of Workshop on “Microbial Fermentation & Microbial Inoculant Preparations for Organic farming” at Gurukul Kangri University, Sponsored by Department of Science and Technology, New Delhi and State Biotechnology Programme, Government of Uttarakhand, (U.S. Nagar), 5th-10th Feb, 2009.
- Organised a two days workshop on “Science and Tehchnology Intervention in Traditional and Rural Crafts” sponsored by UCOST Dehradun and DST, New Delhi, 27-28 August, 2009.

### **International Participation and Creative Achievements:**

- I. Selected and participated under International training course program on “Selected topics on Modern Biology” at Biological Research Center of Hungarian Academy of Sciences, Szeged in 1983 – 1984 for a period of 11 Months.
- II. Invited to deliver seminar in the Department of Genetics, University of Gent (Belgium) in May 1984.
- III. Attended and presented a paper in 14<sup>th</sup> Chemotherapy Conference at Hajuszlo, Hungary in 1984.
- IV. Participated in follow up program at Biological Research Center Hungarian Academy of Sciences, Szeged, for a period of three months in 1989.
- V. Nominated to visit Institute of Biochemistry, Biological Research Center under Bilateral Exchange Program between INSA-Hungarian Academy of Sciences for three weeks in 1989.
- VI. Nominated to visit Institute of Microbiology, Czechoslovakia Academy of Sciences, Prague for two weeks under INSA - Bilateral Exchange Program in 1989.
- VII. Selected to participate in INDO – Hungarian Cultural Exchange Program sponsored by University Grants Commission, New Delhi in 1990.
- VIII. Appointed as Senior Visiting Fellow at Department of Microbiology and Biotechnology, Kossuth Lajos University, Debrecen (Hungary), for two months in 1990.
- IX. Invited to visit Institute of Microbiology, Czechoslovakian Academy of Sciences, Prague, in 1990.
- X. Participated in Federation of European Biochemical Society meeting (FEBS) held at Budapest, Hungary in 1990.
- XI. Attended 6<sup>th</sup> International Symposium on Microbial Ecology, held at University of Barcelona, Spain in 1992.
- XII. Invited to deliver lecture in the division of Pharmacology, Department of Microbiology, University of Barcelona, Spain in 1992.
- XIII. Appointed Visiting Professor, Department of Applied Biology, Science University of Tokyo, Noda, Japan, for two months in 1993.
- XIV. Appointed Guest Professor, Department of Microbiology, University of Ulm, Germany for one month in 1995.

- XV. Nominated to visit Germany under INSA – DFG exchange program to visit Germany in 1995.
- XVI. Appointed Visiting Professor, Department of Applied Biology, Science University of Tokyo, Noda Japan, for two months in 1998.
- XVII. Visited South Korea for three months under International Collaboration and Exchange programme sponsored by Indian National Science Academy, New Delhi in 2000.
- XVIII. Visited South Korea as visiting Professor, Daegu University, College of Biotechnology, Daegu, Kyongsan, 2001.
- XIX. Visited South Korea for three months under International Collaboration and Exchange programme sponsored by Indian National Science Academy, New Delhi in 2003.
- XX. Delivered invited lecture in Annual conference of Society of Agricultural Chemistry & Biotechnology, held at Daegu University, Gyoungsan (April 25-26, 2003)
- XXI. Delivered invited lecture in National Institute of Agricultural Biotechnology, Suwon, Korea (June 10, 2003).
- XXII. Nominated to visit South Korea for two months under International collaboration and Exchange Programme sponsored by Indian National Science Academy, New Delhi in 2005-2006.
- XXIII. Visited Department of Chemical Engineering and Biotechnology, Daegu University, Kyungsang, Daegu (Korea) for two months under International Collaborations and Exchange Programme, sponsored by Indian National Science Academy, New Delhi in 2006.
- XXIV. Participated in 89<sup>th</sup> International Symposium of the KSABC on April 21, 2006 at Chonnam National University, Gwangju, Korea.
- XXV. Delivered lecture on “**Bacteria and Plant Health Management**” at XXXII All India Botanical Conference and International Symposium on “Diversity of Plants and Microbes: Present Scenario” organized by Kuvempu University, Shankaraghatta-577451, Shimoga, Karnataka and IBS, Jaipur-302004, Rajasthan from December, 28-30, 2009.

#### **Fellowships and Member of Professional Societies:**

- Awardee of Post-Doctoral Fellowship, sponsored by C.S.I.R., New Delhi.
- Fellow, Indian Botanical Society
- Fellow, Indian Phytopathological Society
- Life Member, Indian Botanical Society
- Life Member, Microbiological Society of India
- Life Member, Indian Science Congress
- Life Member, Society of Advances in Science
- Nominated Member, New York Academy of Sciences
- Vice – President, Indian Botanical Society in 1997 – 1998
- Editor, Journal of Indian Botanical Society w. e. f. 2000-2003
- Member, Editorial Board, Korean J. Agric Chem. and Biotechnology
- Member, Editorial Board, Indian Phytopathology
- Member, Editorial Board, Journal of Applied Biological Chemistry.

### **Awards/Special recognitions:**

- Awarded Young Scientist Medal of Indian Botanical Society for outstanding scientific contribution, in 1992.
- Nominated as Member “Biodiversity Board” from Uttarakhand Council for Science and Technology, Govt. of India, Dehradun, 2006.
- Appointed as District Co-coordinator of Haridwar, by UCOST Dehradun, 2007.
- Nominated as Convenor “Science forum” from Uttarakhand Council for Science and Technology, Govt. of India, Dehradun, 2007.

### **Complete list of books, monographs etc. published:**

- Elementary Microbiology (for undergraduate students), Nem Chand & Bros., Roorkee, 1981.
- A text book of Microbiology, S. Chand & Co., New Delhi, First edition 1999; Second edition 2006, Third edition 2009 (In Press)
- Microbes: Agriculture, Industry and Environment, Bishen Singh, M.P. Singh Publ., Dehradun, 2001.
- Innovative Approaches in Microbiology, Bishen Singh, M.P. Singh Publ., Dehradun, 2001.
- Practical Microbiology, S. Chand & Co., New Delhi, First edition, 2002, Second edition, 2006.
- Biotechnological Applications of Microorganisms, A Techno-Commercial Approach. I. K. International Pvt. Ltd., New Delhi, 2006.
- Potential microorganisms for sustainable Agriculture. I.K. International Publ. House P Ltd, New Delhi, 2008.
- Industrial Exploitation of Microorganisms. I.K. International Publ. House P Ltd, New Delhi, (In Press) 2009.
- Microbiology Monographs (V-16). Bacteria and Plant health. Springer-Verlag, Heidelberg, Germany (In Press) 2010.

### **Publications:**

1. Pathak, P. D. and Maheshwari, D. K. Deterioration of seeds of *Cajanus cajan* by *Aspergilli* in storage.. *B.V.J. Ag. & Sci.* XVI, 97 – 100, 1976.
2. Chaturvedi, S. N. and Maheshwari, D. K. Qualitative Changes in amino acid contents of hypertrophied flowers in *Crataeva religiosa* Frost due to insect *Aschistonyx crataevae*.. *Agra Univ. J. Res.* 2: 57 – 60, 1978.
3. Tayal, M. S., Maheshwari, D. K. and Goel, A. K. Effect of healthy and diseased plant tissue extract of coriander on germination of radical growth on moong bean (*Phaseolus aureus* Roxb.). *Ind. J. Bot.* 43: 194 – 196, 1979.
4. Chaturvedi, S. N. and Maheshwari, D. K. Qualitative Changes in amino acid contents of root knot of Brinjal (*Solanum melongena* L.) due to nematode, *Meloidogyne javanica*.. *Agra Univ. J. Res. Sci.* XXVIII, 147 – 150, 1979.
5. Maheshwari, D. K. and Chaturvedi, S. N. Histopathological and histochemical studies in some plant galls. *Int. Cecid. Newslett.* 4, 1979.
6. Maheshwari, D. K. and Chaturvedi, S. N. Histochemical localization of total proteins during the development of sex organs in *Albugo candida* Kunge. *Ind. J. Microbiol.* 18: 250, 1979.

7. Chaturvedi, S. N. and Maheshwari, D. K. Variations in amino acid contents by *Eriphytes* spp. in leaves of *Salvaradora persica* L.. *Agra Univ. J. Res. Sci.* XXVIII, 31 – 34, 1979.
8. Maheshwari, D. K. and Chaturvedi, S. N. Localization of insoluble polysaccharides and acid phosphatase in root knot galls of *Solanum melongena* due to *Meloidogyne incognita*. *J. Ind. Bot. Soc.* 47 – 49, 1979.
9. Chaturvedi, S. N. and Maheshwari, D. K. Histopathological studies of the root knot galls of *Solanum melongena* L.. *J. Ind. Bot. Soc.* 61 – 63, 1979.
10. Maheshwari, D. K. and Chaturvedi, S. N. Histochemical localization of DNA and histones in the hypertrophied parts of *Coriandrum sativum* L. due to stem gall disease. *Ind Phytopath.* 54: 488 – 491, 1981.
11. Chaturvedi, S. N. and Maheshwari, D. K. Estimation of variations in surface wax induced by *Pipaldiplois pipaldiplois* Mani in the leaves of *Ficus religiosa* L.. *J. Ind. Bot. Soc.* 60: 65 – 68, 1981.
12. Tayal, M. S., Kumar, S., Goel, A. K. and Maheshwari, D. K. Role of IAA, IAA oxidase, O-dihydroxyphenols, polyphenol oxidase and peroxidase in stem gall disease of *Coriandrum sativum*. *Curr. Sci.* 50: 785 – 786, 1981.
13. Maheshwari, D. K., Chaturvedi, S. N. and Sharma, Y. K. Biochemical alterations in *Coriandrum sativum* L. due to *Hydraphis coriandri*. *Phytopath. Medit.* 21: 91 – 93, 1981.
14. Maheshwari, D. K. and Chaturvedi, S. N. Histochemical studies of *Albugo* galls of *Brassica juncea* Coss. and Czern. *Ind. Phytopath.* 38: 263 – 266, 1983.
15. Maheshwari, D. K. and Chaturvedi, S. N. Histochemical localization of phasphatase in two fungal galls. *Ind. Phytopath.* 36: 89 – 92, 1983.
16. Kumar, S., Maheshwari, D. K. and Singh, K. Seed germination and early seedling growth response of Brinjal to treatment of certain nematicides and growth substances. *Ad. Bios.* 3: 59 – 67, 1984.
17. Maheshwari, D. K., Chaturvedi, S. N. and Yadav, B. S. Qualitative and quantitaive changes in proteins and carbohydrates in hypertrophied inflorescence axis of *Brassica juncea* due to *Albugo candida* Kunge. *Ind. Phytopath.* 37: 170 – 173, 1984.
18. Maheshwari, D. K. and Chaturvedi, S. N. Localization of histones and DNA in hypertrophied inflorescence axis of *Brassica juncea* due to *Albugo candida* Kunge. *Ind. Phytopath.* 36: 546 – 548, 1985.
19. Maheshwari, D. K., Chaturvedi, S. N. and Yadav, B. S. Structure of hypertrophied inflorescence axis of *Brassica juncea* due to *Albugo candida* Kunge. *Ind. Phytopath.* 38: 758 – 762, 1985.
20. Maheshwari, D. K., Singh, S. P. and Chaturvedi, S. N. Phytotoxicity of nematicides and their interaction with growth hormones on the root knot of spinach. *J. Env. Biol.* 92: 141 – 147, 1986.
21. Maheshwari, D. K. and Singh, S. P. Control of *Meloidogyne* on *Solanum melongena* by GA and its interaction with two organocarbamate nematicides. *Bionature* 8: 143 – 147, 1998.
22. Singh, S. P. and Maheshwari, D. K. Effect of GA<sub>3</sub> on the Phytotoxicity of aldicarb and carbofuran on seedling growth on *Capsicum frutescens* var. california wonder and rate of root infestation. *J. Phytopath.* 127: 158 – 168, 1989.
23. Maheshwari, D. K. and Singh, S. P. On the effect of two carbamates on the biological yield of *Lycopersicum esculentum* cv. Pusa ruby and soil properties in *Meloidogyne incognita* infested soil. *Acta. Botanica Indica* 17: 263 – 266, 1989.

24. Maheshwari, D. K. and Singh, S. P. Inhibitory effects of two carbamate nematicides on growth, yield of *Capsicum annum* 46 A and their revision by gibberellic acid. *Biochemie Physiologie Pflangen* 184: 137 – 143, 1989.
25. Maheshwari, D. K., Gohade, S. and Jahan, H. Production of cellulases by a new isolate of *Trichoderma pseudokoningii* on sludge. *J. Ind. Bot. Soc.* 69: 63 – 66, 1990.
26. Maheshwari, D. K. and Anwar, M. Nematocidal activity of some phenolics on the root knot, growth and yield of *Capsicum frutescens* cv. California wonder. *J. Phytopath.* 129: 159 – 164, 1990.
27. Singh, S. P. and Maheshwari, D. K. Bare root dip treatment of plant growth hormones and nematicides independently on the root knot infected *Solanum melongena* L. var. Pusa kranti. *Ad. Bios.* 9: 49 – 52, 1990.
28. Maheshwari, D. K. and Gupta, M. Diverse effect of two organocarbamate nematicides on Nitrogen assimilation of *Rhizobium japonicum*. *Biochemie Physiologie Pflanzen* 187: 316 – 322, 1991.
29. Maheshwari, D. K. and Gupta, M. Influence of two organocarbamate nematicides on growth, oxygen uptake *Rhizobium japonicum* 2002 and nodulation in *Glycine max*. *Zentrabl. Microbiol.* 146: 407 – 412, 1991.
30. Maheshwari, D. K., Jahan, H., Paul, J. and Verma, A. Wheat straw, a potential substrate for cellulose and protein production using *Trichoderma reesei*. *World J. Microbiol. Biotech.* 9: 120 – 122, 1992.
31. Chopra, S., Mehta, A., Maheshwari, D. K., and Mehta, P. Inhibitory effect of Indole compounds on the production of cell wall degrading enzymes by *Aspergillus niger*. *Zentrabl. Microbiol.* 148: 588 – 592, 1992.
32. Maheshwari, D. K., Gupta, M., Sawhney, R. and Khandelwal, A. Dual behavior of carbaryl and 2,4- Dichlorophenoxyacetic acid in *Rhizobium leguminosarum* 2005 under explanta conditions. *Zentrabl. Microbiol.* 148: 588 – 592, 1992.
33. Kour, J., Maheshwari, D. K. and Mehta, P. Microbial degradation of aquatic biomass by *Trichoderma viride* 992 and *Aspergillus wentii* 669 with reference to the physical structure. *J. Basic Microbiol.* 33: 37 – 43, 1993.
34. Saraf, M., Khandelwal, A., Sawhney, R. and Maheshwari, D. K. Effect of carbaryl and 2,4 -D on growth, nitrogenase and uptake hydrogenase activity in agar culture and root nodules formed by *Bradyrhizobium japonicum*. *Microbiol Res.* 149: 401 – 406, 1994.
35. Maheshwari, D. K. and Saraf, M. Effect of carbaryl and 2,4 - D nitrogenase and uptake hydrogenase activity in agar culture and root nodules formed by *Rhizobium leguminosarum*. *J. Gen. Appl. Microbiol.* 40: 563 – 568, 1994.
36. Maheshwari, D. K. and Nishimura, Y. Lipid variations at different temperatures on two species of *Xenorhabdus*. *J. Basic Microbiol.* 34: 329 – 334, 1994.
37. Maheshwari, D. K., Gohade, S., Paul, J. and Verma, A. Paper mill sludge a potential source for cellulase production by *Trichoderma reesei* QM 9123 and *Aspergillus niger* GK 1953 using mixed cultivation. *Carbohydrate polymers* 23: 161 – 163, 1994.
38. Maheshwari, D. K. and Jahan, H. Growth and cellulase biosynthesis by various *Trichoderma* spp. *J. Pure. Appl. Biol.* 9: 41 – 43, 1994.
39. Srivastava, R., Sharma, R., Kumar, H and Maheshwari, D. K. *Bradyrhizobium japonicum* growth characteristics, nodule formation, leghaemoglobin synthesis and nitrogenase activity in *Glycine max* var. JS – 72 – 44. *J. Ind. Bot. Soc.* 74: 173 – 178, 1995.

40. Maheshwari, D. K. and Kumar, H. Effect of storage temperature on biofertilizer preparation for legumes. *J. Ind. Bot. Soc.* 76: 135 – 136, 1997.
41. Maheshwari, D. K., Maheshwari, S. and Arora, N. K. Microbial diversity of the extreme environments. *The Botanica*, 47: 154 – 159, 1997.
42. Maheshwari, D.K. Bacteria around hydrothermal vents. *Curr. Sci.* 74: 187, 1998.
43. Kumar, H., Arora, N. K., Kumar, V. and Maheshwari, D. K. Isolation, identification, characterization of salt tolerating *Rhizobia* nodulating *Acacia catechu* and *A. nilotica*. *Symbiosis*, 26: 279 – 288, 1999.
44. Gupta, C.P., Sharma, A., Dubey, R.C. and Maheshwari, D.K. *Pseudomonas aeruginosa* (GRC<sub>1</sub>) as a strong antagonist of *Macrophomina phaseolina* and *Fusarium oxysporum*. *Cytobios*, 99: 183 – 189, 1999.
45. Lal, R. and Maheshwari, D. K. Role of Microflora associated with dhataki flower (*Woodfordia fruticosa*) in the production of ayurvedic tonic Amritaristha. *J. Ind. Bot. Soc.* 78: 91 – 94, 1999.
46. Arora, N.K. and Maheshwari, D. K. Nodulation studies on a strain of root nodulating bacteria isolated from termite gut. *J. Ind. Bot. Soc.* 78: 391 – 392, 1999.
47. Saraf, M., Arora N.K., Kumar, V. and Maheshwari, D. K. Effect of 2,4-D on NR, NiR and leghemoglobin in the root nodules formed by *Bradyrhizobium japonicum* in *Glycine max*. *Microbes and Environment* 14: 219 – 225, 1999.
48. Arora, N.K., Kumar, V. and Maheshwari, D. K. Isolation of both fast and slow growing *Rhizobia* effectively nodulating a medicinal legume, *Mucuna pruriens*. *Symbiosis* 29: 121 – 137, 2000.
49. Sharma, Ravindra and Maheshwari, D. K. *In vitro* studies in improvement of dry matter digestibility of lignocellulosic biomass using white rot fungi. *Int. J. for. Usuf. Mngt.* Vol 75 – 77, 2000.
50. Chauhan, A., Garg, S.K., Bhatia S. and Maheshwari, D. K. A preliminary study on decolorization of triphenyl methane dyes by *Coriolus hirsutus*. *J. Ind. Bot. Soc.* 295 – 297, 2000.
51. Gupta, C.P., Dubey, R.C., Kang, S.C. and Maheshwari, D. K. Antibiosis mediated necrotrophic effect of *Pseudomonas* GRC<sub>2</sub> against two fungal pathogens. *Curr. Sci.* 91 – 94, 2001.
52. Arora, N.K., S.C. Kang and Maheshwari, D. K. Isolation of siderophore - producing strains of *Rhizobium meliloti* and their biocontrol potential against *Macrophomina phaseolina* that causes charcoal rot of ground nut. *Curr. Sci.* 673 – 677, 2001.
53. Gupta, C.P., Sharma, A., Dubey, R.C. and Maheshwari, D. K. Effect of metal ions on growth, protein and siderophore production by *Pseudomonas aeruginosa* (GRC<sub>1</sub>). *Ind. J. Exp. Biol.* 1318 – 1321, 2001.
54. Maheshwari, D.K., Dubey, R.C. and Sharma, V. K. Biocontrol effects of *Trichoderma virens* on *Macrophomina phaseolina* causing charcoal rot of ground nut. *Ind. J. Microbiol.* 409 – 413, 2001.
55. Kang, S.C., Chul, G.H., Lee, T.G., and Maheshwari, D. K. Solubilization of insoluble inorganic phosphates by a soil inhabiting, fungus, *Fomitopsis* spp. PS 102. *Curr. Sci.*, 25: 439 – 442, 2002.
56. Gupta, C.P., Dubey, R.C. and D.K. Maheshwari. Plant growth enhancement, suppression of *Macrophomina phaseolina* causing charcoal rot of pea nut by fluorescent *Pseudomonas*. *Biol. Fert. Soils*, 35: 295 – 301, 2002.

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### Details of research grant received from different funding agencies:

<i>Name of the Principal investigator/</i>	<i>Title of the project</i>	<i>Amount sanctioned (Rs)</i>	<i>Funding agency</i>	<i>Year</i>
D. K. Maheshwari	Effect of organocarbamate and phytohormones on the nodule formations in some pulse crops with special reference to gall formation.	3,00,500/-	UGC	1987-90
D. K. Maheshwari	Physiological and genetical analysis of heavy metals resistance in free-living nematode, <i>Caenorhabditis elegans</i> .	4,10,000/-	CSIR	1987-90
D. K. Maheshwari	Identification, screening of aquatic biomass residue for energy generation and to increase biomass production.	5,55,000/-	MNES	1992-95
D.K. Maheshwari	Bioconversion of cellulosic residues into microbial protein by some lignocellulosic fungi and possibility of involvement of N <sub>2</sub> fixing bacteria.	5,15,500/-	UGC	1995-98
D.K. Maheshwari	Biopesticidal control of certain tropical diseases associated with oilseed crops.	15,00,000/-	CSIR	1995-98
D.K. Maheshwari	Occurrence, identification and screening of aquatic macrophytes for energy generation and through biomass production of some fuel wood species in substandard soil.	2,30,362/-	CS&T (UP)	1996-99
D.K. Maheshwari	Mass production and application of biopesticides to control bacterial infection associated with oil seeds.	29,89,000/-	CSIR	1998-02
D.K. Maheshwari	Field trials for integrated nutrient management protocol (NPK & S and <i>Pseudomonas</i> rhizobacteria) for optimisation of yield and quality of rapeseed mustard.	23,00,000/-	CSIR	2001-03
D.K. Maheshwari	Integrated nutrient management (N, P, K & B and <i>Pseudomonas</i> ), Nitrogen fixing bacteria for optimisation of yield and quality of sesame ( <i>sesamum indicum</i> ) under field trials.	17,00,000/-	CSIR	2003-06
D.K. Maheshwari	Role of microbial consortium and N, P, K & S on control of fusarial wilt in <i>Cajanus cajan</i> and <i>Cicer arietinum</i> and improvement of protein quality and yield.	16,00,000/-	CSIR	2004-06
D.K. Maheshwari	Role of Plant growth promoting Rhizobacteria in enhancement of productivity of certain medicinal plants of Uttaranchal.	9,00,000/-	UCOST (UK)	2006-10
D.K. Maheshwari	Isolation, Identification, characterization of some Rhizobia and their evaluation in the management of soil borne Plant Pathogens.	10,12,800/-	UGC,	2008-11
D.K. Maheshwari	Diversity of Rhizobial Population associated with certain crop legumes cultivated at high altitudes in Himalaya, Uttarakhand.	15,72,000/-	CSIR	2008-11