

## CURRICULUM VITAE OF DR. MAHENDRA RAI

### Personal

Name : Dr. Mahendra Kumar Rai  
Fathers name : Late Dilraj Singh Rai  
Date of Birth : August 28, 1955  
Nationality : Indian  
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### Educational

B.Sc. : Dr H S Gaur University, Sagar, M.P., India, 1976, **First Div.**  
M.Sc. R D University, Jabalpur, M.P., India, 1978, **First Div**  
Ph.D. (Mycology) : R D University, Jabalpur, M.P., India, 1982

**Research experience:** 29-years

**Teaching:** 26 years (Post Graduate 21 years. Under Graduate 18 years)

**Present position:** Professor and Head

### **Training :**

- Central Drug Research Institute, Lucknow- 1 month (October 1-30, 1985)
- SERC visiting fellow, Jawaharlal Nehru University, New Delhi (October 1-December 31, 1996),
- INSA visiting fellow, Jawaharlal Nehru University, New Delhi (January-March, 1998)
- Visiting scientist, Turin, Italy ( April-June, 1999)
- Associateship from Third World Academy of Sciences –UNESCO for 3-years; First visit held from May-July 2003.
  
- UGC Refresher course - 2 (From Botany Deptt, Jodhpur, 1991 and School of Life Sciences, JNU, New Delhi, 1994, each one month)

**Research Guidance:** Awarded - 07 , Submitted 02, Registered - 07

**Awards and Fellowships:**

- Obtained merit scholarship upto HSSC
- National Scholar for 5-years
- Obtained Junior, Senior and PDF, CSIR, New-Delhi
- Father T.A. Mathias award, 1989 by All India Association For Christian Higher Education, New Delhi.
- Satpuda Award in the field of Environment conservation by Y.M.C.A., 1992.
- Fellow of Academy of Environmental Biology.
- Awarded SERC visiting fellowship by DST, New Delhi, 1996
- Honorary research associateship for 2-years, Sydney, Australia
- INSA visiting fellowship, 1998
- Visiting scientist award (from April-June, 1999), Turin, Italy
- Medini Award for book on *Herbal Medicines*, by Govt of India, June 5, 2001
- Associateship for 3-years by TWAS, Trieste, Italy to work on AM fungi in Brazil, 2003
- Visiting Scientist, Department of Bioenergetics, University of Geneva, Switzerland, May-June, 2004
- Hungarian Scholarship by Hungarian Scholarship Board, to visit Department of Plant Protection, Debrecen University, Hungary (October 2005-January 2006).
- Awarded by IDVL for yeoman services in 2005
- Awarded Austrian Scholarship for 2006
- Hungarian Scholarship by Hungarian Scholarship Board, to visit Department of Plant Protection, Debrecen University, Hungary, 2008

**Memberships of Scientific Societies**

- Life-member Academy of Environmental Biology, Muzaffarnagar, U.P.
- Life member, Biotechnological Associations of India
- Member of Society of Mycology and Plant Pathology.
- Life-member Indian Science Congress Association, Calcutta.
- Life-member society of Mushroom Research, Himachal Pradesh.
- Life member Society of Basic and Applied Mycology
- In advisory board of "International Medicinal Mushroom Conference" to be held in Slovenia in 2007
- In advisory board of International Conference on Medicinal Plants to be held in 2006 at Cuba.
- Fellow of Academy of environmental Biology
- Fellow of Society of Biotechnology and Pharmacy

**Project completed :**

Major and minor projects sponsored by DST, UGC, DOE, DBT, AIACHE

### **Administrative Experience:**

- Co-ordinator, Environmental Conservation Programme, Danielson College, Chhindwara 1987-1998
- Programme officer, N.S.S., Danielson College, Chhindwara, M.P., 1997-2000
- Head of the Department of Biotechnology since 2001
- Chairman, Board of studies in Biotechnology, SGB Amravati University since 2001
- Chairman, Board of studies in Bio-diversity, SGB Amravati University since 2006
- Member, Research and Recognition Committee, SGB Amravati University since 2001
- Member, Purchase Committee, Amravati University (2003-2005)
- Member, Board of University Teaching and Research, SGB Amravati University
- Member/Governor nominee, Selection committee of different Universities
- Member, National Science Day Committee since 2001
- Co-ordinator, National Science Day Committee, 2006
- Principal investigator in Major projects
- Member Xth plan committee (UGC)
- Member, Academic council, SGB Amravati University, 2005
- Member, Senate, SGB Amravati University, Amravati since 2006
- Editor-in-Chief, *Amravati University Research Journal*, 2002-2005
- Editorial board of "*Journal of Basic and Applied Mycology*", Jabalpur (National Journal)
- Editorial board of BLACPMA, Santiago, Chile
- Member of international advisory committee of International Medicinal Mushroom Conference scheduled to be held at Slovakia, 2007
- Member of advisory committee of International conference organized by BLACPMA, scheduled to be held at Cuba, 2006
- Co-ordinator of "Biotech village programme: From lab to Field"
- Group Leader of Biodiversity and Biotechnology ("Advantage Amravati"), Govt of India) 2005
- Patron, National symposium on *Biotechnology Beyond 2000*. Sep 6-7
- Organising secretary 2 seminars of national level in 1994 and 1998 ; Director of Workshop 1 (2001), In 2003 (2), 2004 (2), 2005 (1), 2007 (1)
- Course director of National level *Two-Week Training Course in Biotechnology*, sponsored by DBT, Govt of India
- Co-ordinator, FIST (Funds For Infrastructure in Science and Technology), Department of Science and Technology, Govt of India

### **International Collaboration:**

- **Indo-Brazil (DST-CNPq)** Research collaboration with Professor Nelson Duran, University of Campinas, Brazil, sponsored by DST, New Delhi

### **International Seminar (abroad):**

- Participated in 5th International Conference in Goteborg, June 26- 30, 1995
- Participated in two day seminar on infectious diseases at Campinas, Brazil, 2003
- Participated in one day seminar on May 28, “40 years of Molecular Biology”, University of Geneva, 2004.
- Delivered plenary lecture on “Biotechnological research in India: Where we are and where we should go ? delivered in Plant protection symposium, Oct. 19-20, Debrecen, Hungary

### **Publication:**

Research papers – 170

Popular articles - 100

Books- 14

### **Reviewer**

Bioprocess and Biosystems Engineering, Springer  
Mycotaxon, USA

Bulletin of Aromatic and Medicinal Plants, Chile

Pakistan J of Sci and industrial Research

J of Environ Microbiology, Elsevier

Research Journal of SRTM University, Nanded

Journal of Biotechnology and Pharmacy, Vijayawada

### **Selected Publications (Last 5 years)**

Pandey,A.K., **Rai, M.K.** and D. Acharya (2003). Chemical Composition and Antimycotic Activity of the Essential Oils of Corn Mint (*Mentha arvensis*) and Lemon Grass (*Cymbopogon flexuosus*) Against Human Pathogenic Fungi. *Pharmaceutical Biology*, Vol.(6): 421-425.

Rai, Mahendra, Nandkishore Chikhale, Manjusha Choukhande and Dudhane, M. (2004). *Raktaja Krimis* (Dermatophytes), In: Scientific basis of Ayurveda, CRC press, USA, pp 479-489.

Rai, Mahendra, A. Varma and Pandey A K (2004). Antifungal potential of *Spilanthes calva* after inoculation of *Piriformospora indica*, *Mycosis* 47 (112);479-481.

Shende Sarika and **Mahendra Rai** (2005). Multiple shoot formation and plant regeneration of a commercially-useful tropical plant, *Buchanania lanzan* (Spreng), *Plant Biotechnology*, 22(1): 59- 61.

Rai, Mahendra and Ajit Varma (2005). Arbuscular mycorrhiza-like biotechnological potential of *Piriformospora indica*, which promotes the growth of *Adhatoda vasica* Nees, *Electronic Journal of Biotechnology*, 8(1): 1-4.

Romagnoli C, Bruni R, Andreotti E, **Rai MK**, Vicentini CB, Mares D. (2005) Chemical characterization and antifungal activity of essential oil of capitula from wild Indian *Tagetes patula* L., *Protoplasma* 225(1-2):57-65.

Wadegaonkar, P.A., Bhagwat, K.A. and Rai, M.K. (2006). Direct rhizogenesis and establishment of fast growing normal root organ culture of *Withania somnifera* Dunal, *Plant Cell, Tissue and Organ Culture* 84:223-225.

Dangre, D., Rai, M.K. and Strasser, R. (2006). A new, rapid and nondestructive biophysical method (chlorophyll a fluorescence) proves that growth promoting endophytes alleviate Cd stress in *Cicer arietinum* L. In: Recent Developments of IPM. Kovics, G.J. and David, I. (Eds.). Debrecen University Centre for Agricultural Science, Faculty of Agriculture. Debrecen, **Hungary**, pp. 251-256..

Gade, A., Rai, M., Karwa, A., Bonde, P and Ingle, A. (2007). Extracellular biosynthesis of silver nanoparticles by *Pleurotus* species. In International Medical Mushroom Conference – 4 (IMMC-4). Ljubljana (Slovenia) from 23 to 30th Sept. 2007. *International J. of Medicinal Mushroom Research*. 9(3-4): 298-299.

Wagh, P. **Mahendra Rai**, S K Deshmukh and Marta Cristina Teixeira Durate (2007). Bio-activity of oils of *Trigonella foenum-graecum* and *Pongamia pinnata*, *A J. of Biotechnology* 6(13):1592-1596.

Strasser R. J. Tsimilli-Michael M., Dangre D. and Rai M. (2007). Biophysical phenomics reveals functional building blocks of plant system biology: A case study for the evaluation of the impact of mycorrhization with *Piriformospora indica*. In: Advanced techniques in soil microbiology, Varma and Oelmüller (eds.) Soil biology series, Springer, **Germany**, pp 320-341

Rai, M.K., Shende, S. and R.J. Strasser (2008). JIP -Test for fast fluorescence transients as a rapid and sensitive technique in assessing the effectiveness of arbuscular mycorrhizal fungi in *Zea mays*: Analysis of chlorophyll a Fluorescence, *Plant Biosystems*, 142(2):191-198 **Italy**

Gade A. K, Bonde P. P., Ingle A.P., Marcato P.D., Duran N, Rai M.K. (2008). Exploitation of *Aspergillus niger* for fabrication of silver nanoparticles. *J. Biobased Mat. and Bioenergy*. 2 (3): 243-247

Ingle, A. P., Gade, A. K., Pierrat, S., Sönnichsen, C and Rai, M. K. (2008). Mycosynthesis of silver nanoparticles using the fungus *Fusarium acuminatum* and its activity against some human pathogenic bacteria. *Current Nanoscience*. 4: 141-144.

Rai, M., Yadav, A and Gade, A. (2008). Current trends in phytosynthesis of metal nanopartilces. *Critical Reviews in Biotechnology*. 28(4): 277-284.

Rai, M., Yadav, A and Gade. A. (2009). Silver nanoparticles: A novel antimicrobial agent. *Biotechnology Advances*. 27: 76-83.

Mude, N., Ingle, A., Gade, A and Rai, M (2009). Synthesis of Silver Nanoparticles by the callus extract of *Carica papaya*: A first report. *Journal of Plant Biochemistry and Biotechnology*. (Online Published).

Birla, S. S., Tiwari, V. V., Gade, A. K., Ingle, A. P., Yadav, A. P., Rai, M. K. (2009) Fabrication of silver nanoparticles by *Phoma glomerata* and its combined effect against *Escherichia coli*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*. *Letts. Appld. Microbiol.* (in press).

Gade, A., Ingle, A., Bawaskar, M and Rai, M. (2009). *Fusarium solani*: A novel biological agent for the extracellular synthesis of silver nanoparticles. *Journal of Nanoparticle Research*. (in press) Published on line

Rai, M. K., Gade, A. K and Ingle, A. P. (2009). Current Advances in Fabrication of biogenic Nanoparticles: An Ecofriendly Approach. In Current Advances in Molecular Research (Ed. A Verma and N. Verma). I. K. International, New Delhi (In press).

Rai, M. K and Gade, A. K. (2009) Strategic Synthesis of Nanoparticles by Mycetes, In *Biotechnology of Industrial Microorganisms – An Industrial approach* (Ed. D. K. Maheshwari), I. K. International, New Delhi (In press).

## **Books**

Rai, M.K. and Donatella Mares (2003). Plant Derived Antimycotics: Current trends and future prospects, Haworth Press, USA

Rai, M.K. and S K Deshmukh (2004). Bio-Diversity of Fungi - Their Role In Human Life, Science Publisher, UK

Rai, M.K. (2006). Handbook of Microbial Biofertilizers, (Ed. M K Rai), Haworth Press, USA, pp 579

Rai, M.K. and Cecilia Carpinella (2006). Naturally occurring bioactive compounds, Elsevier Publication, Netherland, pp 502

Rai, M.K. (2007). Mycotechnology: The present status and future prospects, I K International, New Delhi, India