

# Dr. Babita Khosla

**M.Sc. (Biotech), Ph.D**

*Assistant Professor*

*Department of Environmental Science*

*Maharshi Dayanand University*

*Rohtak-124001, Haryana (INDIA)*

*Email: babitakhosla.env.sc@mdurohtak.ac.in*

## EDUCATION

QUALIFICATION	DISTINCTION	INSTITUTION	YEAR OF AWARD
<b>Ph. D (Biotechnology)</b>	-	Thapar University, Patiala	2005
<b>M. Sc (Biotechnology)</b>	Gold Medal	Punjabi University, Patiala	1999
<b>B. Sc (Medical)</b>	Gold Medal Roll of Honor	Punjabi University, Patiala (Govt. Mohindra College)	1997

## ORGANIZATIONAL/ ACADEMIC EXPERIENCE: 18 YEARS

INSTITUTION	PERIOD	POSITION
Department of Environmental Science Maharshi Dayanand University, Rohtak	15-2-2011 onwards	Assistant Professor
Ambala College of Engineering & Applied Research, Ambala affiliated to Kurukshetra University, Kurukshetra.	11-8-2008 to 14-2-2011	Assistant Professor
Ambala College of Engineering & Applied Research, Ambala affiliated to Kurukshetra University, Kurukshetra.	16-7-2005 to 11-8-2008	Lecturer
N.C. College of Engineering, Israna affiliated to Kurukshetra University, Kurukshetra)	7-2-2005 to 15-7-2005	Lecturer

## ACADEMIC STAFF COLLEGE ORIENTATION/REFRESHER COURSE/FDP ATTENDED:

PROGRAM	DURATION	SPONSORING AGENCY AND PLACE
Faculty development Programs	08-6-20 to 14-6-20	Teaching Learning Centre, Ramanujan College, University of Delhi

Workshop on “Climate change and Environmental sustainability”	22-3-21 to 26-3-21	Teaching Learning Centre, Central University of Punjab, Bathinda
Faculty development Programs	18-10-21 to 23-10-21	Faculty Development Centre, Maharshi Dayanand University, Rohtak.
<b>Refresher Course</b> (Information Communication Technology Interdisciplinary)	18-6-18 to 7-7-18	UGC – Academic Staff College, Punjabi University, Patiala, Punjab
<b>Refresher Course</b> (Research Methodology in Sciences Interdisciplinary)	11-6-14 to 1-7-14	UGC – Academic Staff College, Kurukshetra University, Kurukshetra, Haryana
<b>Orientation Program</b>	14-6-13 to 11-7-13	UGC – Academic Staff College, B.P. S. Mahila Vishwavidalya Khanpur Kalan (Sonapat)

## PROJECTS

NAME OF RESEARCH PROJECT	AMOUNT (In Rupees)	FUNDING AGENCY	PERIOD
Spatial Distribution of Uranium in Groundwater and Drinking water in Churu and Jhunjhunu Districts of Rajasthan.	21.76 lacs	BRNS, Department of Atomic Energy, Government of India.	2017-2021
Spatial Distribution of Uranium in Groundwater and Drinking water in Rohtak, Bhiwani, Jhajjar, Rewari and Mahendergarh Districts of Haryana.	27.56 lacs	BRNS, Department of Atomic Energy, Government of India.	2015-2018
Dy. Coordinator; Innovative Program to Strengthen M.Sc (Environment Biotechnology) in Dept. of Environmental Science at MDU Rohtak	40.00 lacs	UGC, New Delhi	2012-2017

## DEVELOPMENT OF E-CONTENT UNDER NATIONAL MISSION ON EDUCATION THROUGH ICT OF MHRD-GOI

PAPER NAME	ROLE	LINK
Environmental Microbiology and Biotechnology	Paper Coordinator	<a href="https://epgp.inflibnet.ac.in/view_f.php?category=284">https://epgp.inflibnet.ac.in/view_f.php?category=284</a>
Environmental Pollution: Water and Soil	Content Writer	<a href="https://epgp.inflibnet.ac.in/view_f.php?category=280">https://epgp.inflibnet.ac.in/view_f.php?category=280</a>

## RESEARCH GUIDANCE

S.	Name of the	Title of the Thesis	Awarded / Thesis	University	Month and

No.	Scholar		submitted		Year
1	Sonam Yadav	Microbial degradation of keratinous waste and its effects on plants.	Degree awarded	MDU Rohtak	October 2021
2	Priyanka Bumbara	Composting of poultry feathers and its bio efficacy on growth and physiology of plants.	Pursuing	MDU Rohtak	-
3	Naresh Tanwer	Assessment of uranium in groundwater of Jhunjhunu district of Rajasthan and its impact on soil biological properties.	Pursuing	MDU Rohtak	-
4	Vaishali Arora	Synthesis of phosphate Nano fertilizer and its effect on growth and yield of wheat ( <i>Triticum aestivum</i> ).	Pursuing	MDU Rohtak	-
5	Manisha Lochab	Preparation of micronutrient based nanofertiliser and its effect on plant growth parameters.	Pursuing	MDU Rohtak	-

## PUBLICATIONS

1. Tanwer N, Deswal M, Khyalia P, Laura JS, **Khosla B**. Fluoride and nitrate in groundwater: a comprehensive analysis of health risk and potability of groundwater of Jhunjhunu district of Rajasthan, India. *Environmental Monitoring and assessment* 195 (2), 2023: 267 (IF:3.307)
2. Tanwer N, Deswal M, Khyalia P, Laura JS, **Khosla B**. Assessment of groundwater potability and health risk due to fluoride and nitrate in Churu district of Rajasthan, India. *Environmental geochemistry and Health*, 2023. (IF: 4.898)
3. Tanwer N, Khyalia P, Deswal M, Laura JS, **Khosla B**. Spatial distribution of uranium in groundwater and its healthrisk assessment in Haryana, India. *Rasayan Journal of Chemistry*, 15(01), 2022; 343-349.
4. Bumbra P, **Khosla B**, Behl RK. Valorization of poultry feathers into value added products, *Annals of Biology*, 38 (1), 2022; 118-122.
5. Yadav S, Bumbra P, Laura JS, **Khosla B**. Optimization of nutritional and physical parameters for enhancing the keratinase activity of *Bacillus cereus* isolated from soil of poultry dump site in Gurugram, Haryana. *Bioresource Technology Reports*, 2022; 18, 101108.
6. Khyalia P, Laura JS, **Khosla B**, Sahoo SK, Tiwari SN, Nandal M. Analysis of effective equivalent dose to the organs and cancer risk assessment due to natural outdoor gamma radiation in Eastern Thar desert, India, *International Journal of Environmental Analytical Chemistry*, 2022; 1-13. (IF:2.731)
7. Yadav S, **Khosla B**. Biostimulant effect of poultry feather hydrolysate on maize (*Zea mays L.*) seedlings. *Annals of Biology* 36 (3), 2020, 508-512.

8. Rastogi M, Nandal M, **Khosla B**. Microbes as vital additives for solid waste composting, *Heliyon*, 6 (2),2020.
9. Barapatre S, Rastogi M, **Khosla B**, Nandal M, Synergistic Effect of Fungal Consortia and C/N Ratio Variation on Rice Straw Degradation, *Nature Environment & Pollution Technology*, 19(5), 2020; 1831-1839.
10. Deswal M, **Khosla B**, Nandal M, Laura JS. Spatiotemporal distribution of Fluoride in groundwater of five South-West districts of Haryana, India. *Aut Aut*, 2020,11(9):25-31
11. Yadav S, **Khosla B**. Biodegradation of poultry feather waste by keratinase producing *Bacillus cereus* strain isolated from poultry farms waste disposal site. *Case Studies in Chemical and Environmental Engineering*, 2021, 100114.
12. Anjali S. Nair, Machiavelli Singh and **Babita Khosla**. 2019 Phytoremediation of heavy metals contaminated soil using *Tegetes patula*. *Annals of Biology*.
13. **Babita Khosla**, Pravin Kumar Sharma, Mohammad Ahatsham, Vikash, Pratima Vijay Dahiya, Rishi Kumar Behl 2019 Performance of Wheat Genotypes for Grain Yield and its Attributes under Irrigation with Saline Water. *Ekin Journal of Crop Breeding and Genetics* 5(2):92-96.
14. Ravneet Chug , **Babita Khosla** and Machiavelli Singh. 2015 Modulation of the Extracellular Polymeric Substances (EPS) Production by Quorum Sensing (QS) in Bacteria. *International Journal of Current Microbiology & Applied Science* 4(6): 884-896.
15. **Babita Khosla** and M.S. Reddy. 2014 Mycorrhizal fungi in extreme environments and their impact on plant growth. *Kavaka* 42: 123-130.
16. Machiavelli, Pankaj Bhatia, Pragati Sharma and **Babita Khosla**. 2014. Characterization for plant growth promoting rhizobacteria towards rice seedling germination and growth. *Annals. of Biology* 30(4): 567-573.
17. **Babita Khosla** and Sneh Sagarika. 2012. Study on hypoglycemic effect of *Trigonella foenum graecum* seeds extract in alloxan-induced hyperglycemic mice. *Proceedings of Challenges in Combating Diseases: Cause to Cure* 1-3.
18. **Babita Khosla**. Harpreet Kaur and M. Sudhakara Reddy. 2009. Influence of ectomycorrhizal colonization on the growth and mineral nutrition *Populus deltoides* under aluminium toxicity. *Journal of Plant Interactions* 4 (2) 93-99. (IF: 0.865)
19. **Babita K** and M. S. Reddy. 2008. Response of ectomycorrhizal fungi on the growth and mineral nutrition of Eucalyptus seedlings in bauxite mined soil. *American-Eurasian J. Agric. & Environ. Sci.* 3 (1):123-126.
20. G. Richa, **Babita Khosla** and M. Sudhakara Reddy. 2007 Improvement of maize plant growth by phosphate solubilizing fungi in rock phosphate amended soils. *World Journal of Agricultural Sciences.* 3 (4): 481-484.
21. M. Sudhakara Reddy, Surinder Kumar, **K. Babita**, M.S. Reddy. 2002. Biosolubilization of poorly soluble rock phosphates by *Aspegillus tubingensis* and *A. niger*. *Bioresource Technology* 84: 187-189. (IF: 11.889)
22. M. Sudhakara Reddy, **K. Babita**, G. Gay and V.Ramamurthy. 2002. Influence of Aluminum on mineral nutrition of ectomycorrhizal fungi *Pisolithus* sp. and *Cantharellus cibarius*. *Water, Air and Soil pollution* 135: 55-64.(IF: 2.984)

## BOOK CHAPTERS

1. Babita Khosla, Vaishali Arora, Sangeeta Jonwal (2020) Bio-Based Plastics: A Sustainable Alternative to Conventional Plastic” in book Trends in Technology for Agriculture, Food, Environment and Health AGROBIOS (International) Publishers, Jodhpur India. ISBN: 978-81-947480-7-6
2. Babita Khosla, Vaishali Arora (2021) Conventional and Contemporary Techniques for Removal of Heavy Metals from Soil in book Biodegradation INTECHOPEN LIMITED. ISBN 978-1-83968-896-6
3. Babita Khosla Naresh Tanwer, Priyanka Bumbra, , Jitender Singh Laura (2022) Mercury pollution and its bioremediation by microbes in book Microbes and Microbial Biotechnology for Green Remediation, 2022; Elsevier ISBN 978-0-323-90452-0
4. Babita khosla, Vaishali Arora (2022) Effect of Plastic waste on human and animal life in book Plastic waste management: Turning challenges into Opportunities. Bharti Publications, ISBN: 9789391681067
5. Babita khosla, Naresh Tanwer, Sumit Vashistha, Poonam Anand (2022) Plastic waste Disposal in book Plastic waste management: Turning challenges into Opportunities. Bharti Publications, ISBN: 9789391681067
6. Babita Khosla Machiavelli Singh (2022) Intellectual Property Rights (IPR), Biosafety and Bioethics in Handbook of Biotechnology. Astral Publishers ISBN: 9789354614200
7. Babita Khosla, Ravneet Chugh (2022) Environment Biotechnology in Handbook of Biotechnology. Astral Publishers ISBN: 9789354614200
8. Babita Khosla, Priyanka Bumbra, Naresh Tanwar, Vaishali Arora, Jitender Singh Laura (2022) Microbial Inoculants: An Invasive Approach for the Bioremediation of Soil Contaminated with Heavy Metals in book Microbial and Biotechnological Interventions in Bioremediation and Phytoremediation Springer ISBN: 9783031088292
9. **Babita Khosla** and Vishal Behl (2019) “Biodiesel Production: Process and Current Scenario” in Emerging Technologies towards Agriculture, Food and Environment” by AGROBIOS (International) Publishers, Jodhpur India. ISBN: 9789381191224
10. **Babita Khosla** and M. Sudhakara Reddy (2018) “Aluminium tolerant isolates of ectomycorrhizal fungi for reclamation of bauxite mined out acidic soils” in Genetic and Natural Resources Towards Food, Energy and Environment by AGROBIOS (International) Publishers, Jodhpur India. ISBN : 978-93-81191-19-4
11. **Babita Khosla** and M. Sudhakara Reddy (2017) “Microbial degradation of keratinous waste and its potential applications in agro-industry” in Biotechnology and Bioscience Perspectives Agrobios (International) Publishers, Jodhpur India. ISBN : 978-93-81191-18-7
12. **Babita Khosla** (2015) “Biophysical and Bioanalytical Techniques” in Biotechnology – *Progress and Prospects*, Studium Press LLC, USA. ISBN No: 978-1-62699-059-3
13. **Babita Khosla** and Machiavelli (2012) “Mycorrhiza-a natural symbiont” in Environmental Biotechnology-Recent Perspectives Application and New Horizons of Environmental Biotechnology LAP, Germany. pp. 173-193

## BOOKS

1. **Babita Khosla** and Machiavelli (2018) “BIOLAB MANUAL- A Handbook of basic and applied techniques in biotechnology” by Paging Publishers. ISBN: 978-81-93630-95-2

2. **Babita Khosla** Sangeeta Kumari and Machiavelli Singh (2022) “Modern concepts of Cell Biology and Biochemistry” by AGAROACADEMICS ISBN:978-93-94380-09-7

## PRESENTATION IN CONFERENCES

- Participated in 76th BRNS-IANCAS National Workshop (3.4.2011 – 11.4.2011) on “Radiochemistry and Applications of Radioisotopes” sponsored by Department of Atomic Energy at Thapar University, Patiala.
- Participated and presented paper on “Study on hypoglycemic effect of *Trigonella foenum-graecum* seeds extract in alloxan-induced hyperglycemic mice.” in National Conference (23.3.2012) entitled “Challenges in Combating Diseases: Cause to Cure” organized by Deptt. of Zoology ,M.D.U, Rohtak.
- Organised a National Workshop (3.5.2012 – 12.5. 2012) on “Microbial Diversity: Exploration and Perspectives” funded by Dr. Radha Krishnan Foundation Fund, MDU & Association of Microbiologists, Rohtak Unit & Promega.
- Participated and presented paper on “Studies on the influence of ectomycorrhizal fungi on the growth and mineral nutrition of *Eucalyptus tereticornis* seedlings grown in bauxite mined out soils..” in National Conference (1-3-2013 to 2-3-2013) entitled “Advances In Chemical Sciences” organized by Deptt. of Chemistry ,M.D.U, Rohtak.
- Presented a paper titled ‘Mineral response of ectomycorrhizal fungi for their tolerance to aluminium.’ in the International symposium on Frontier Discoveries and Innovations in Microbiology and its Interdisciplinary Relevance. November 17-20, 2013 organized by Association of Microbiologists of India.
- Presented a paper titled ‘Feeling the Heat- The climate change.’ in the National Seminar cum workshop “New Dimensions in Eco Management” February 25<sup>th</sup> 2014 organized by MCM DAV College for Women under the aegis of Star College Scheme, DBT, Govt. of India.
- Presented a paper titled ‘Isolation of salt-tolerant bacteria from the saline soils of Haryana.’ in the National Seminar “Next Generation Sciences: Vision 2020 & Beyond” March 8<sup>th</sup> 2014 organized by Department of Zoology, M.D.U, Rohtak sponsored by UGC, New Delhi.
- Participated in National Conference on “Contemporary issues in Biotechnology: Progress & Future Applications” April 2<sup>nd</sup> 2014 organised by Amity University, Gurgaon.
- Presented a paper titled ‘Salinity tolerant plant growth promoting rhizobacteria in the soil.’ in the National seminar on Innovative Research in Life Sciences. February 21, 2015 organized by Department of Zoology, M.D.U, Rohtak
- Presented a paper titled ‘Study on antimicrobial and antioxidant properties of *Withania somnifera*.’ in the National conference on Therapeutic potential of Natural Products: Current Innovations& Future Trends. March 19, 2015 organized by Department of Genetics, M.D.U, Rohtak under UGC-SAP Programme.
- Presented a paper titled ‘Microbial removal of chromium from the effluent of electroplating industry’ in the International conference on New approaches in Biotechnology and Biosciences. February 18-20, 2016 organized by Raja Balwant Singh Engineering Technical campus, Agra.
- Presented a paper titled ‘Role of phosphate solubilising mycorrhizal fungi in reclamation of acidic soils’ in the International conference on Biodiversity: Current Scenario & Future strategies.October6-8, 2016 organized by Department of Zoology and Botany, St. Bede’s College, Shimla, Himachal Pradesh, India.
- Presented a paper titled ‘Assessment of Groundwater near a Municipal Solid Landfill Site of Rohtak, Haryana’ in 5th Rajasthan Science congress, October 13-15, 2017 held at Amity University Rajasthan.

- Presented a paper titled ‘Microbial degradation of poultry waste’ in the National conference on Emerging Trends in Biochemistry (ETIB2017), September 15-16, 2017 organized by Department of Biochemistry, Maharshi Dayanand University, Rohtak.
- Presented a paper titled ‘Distribution of saline soils in Haryana and their management’ in UGC sponsored National Seminar on “Biodiversity: Status and Significance’ March 21, 2017 organized by Department of Botany, Maharshi Dayanand University, Rohtak.
- Presented a paper titled ‘Organic farming: A Sustainable approach in the field of agriculture’ in the International conference on Sustainable Agriculture, Energy, Environment and Technology ICSAEET-2018 February 24-25, 2018 organized by Environmental sustainability management Cell, Maharshi Dayanand University, Rohtak in collaboration with Society for Sustainable Agriculture and Resource Management.
- Participated in UGC sponsored national conference cum Awareness Programme on “Protection of Intellectual Property Rights- Need of the Hour” held on May 10, 2018 organised by Department of Pharmaceutical Sciences, Maharshi Dayanand University, Rohtak.
- Participated in 4th Workshop on “Generation of National Database on Uranium in Drinking water held at BARC, Mumbai during 29-31, August, 2018.
- Presented a paper titled “Phytoremediation of heavy metals from the effluent of electroplating industry using *Tegetes patula*” in national symposium on environment (NSE – 20). December 13-15, 2018 at IIT Gandhinagar, Gujarat.
- Presented a paper titled “Keratin based bioplastic from feather quill” in National Seminar on “Frontiers in Life Sciences- An interdisciplinary Perspective’ organized by Deptt. of Zoology, MD University, Rohtak March 15, 2019
- Presented a paper titled “Bioplastics from keratinous poultry waste” in International seminar on Sustainable environment and agriculture under global climate change, organized by Department of Environmental science, Maharshi Dayanand University, Rohtak. February 21, 2019.
- Presented a paper titled “Distribution and chemo-radiological health risk assessment associated to long term consumption of groundwater of Jhunjhunu district of Rajasthan, India” in International Conference Integrated approaches in Science and Technology for Sustainable Future organised by J.C. Bose University of Science and Technology, YMCA, Faridabad . 28th Feb-1st March, 2022
- Presented a research documentary “Optimization of keratinase production by *Bacillus cereus* H16 isolated from waste disposal site of poultry farm” in International Conference Advances in sustainable research for energy and environmental management (ASREEM-2021) organised by Department of Chemical Engineering, Sardar Vallabhbai National Institute of Technology, Surat.06-08 August, 2021
- Presented a paper “Isolation and characterization of keratinase producing bacteria isolated from waste disposal site” in International Conference Recent developments and Challenges in earth and Environmental sciences, Natural resource Management & Climate change with special focus on eastern Himalayas” organised by Department of Geology, Sikkim University. 08-09 October, 2020

#### **INVITED TALK IN INTERNATIONAL CONFERENCES HELD ABROAD**

- Presented a paper titled ‘Aluminium tolerant isolates of ectomycorrhizal in bauxite mined out soils’ in the 7th IFSDAA-ICSA International Seminar on “Sustainable Resource Management Towards Food, Energy, Environment and Livelihood” November 27-29, 2016 organized by International Council for sustainable agriculture at Theodor Heuss, Goettingen, Germany.

## RESOURCE PERSONS IN THE CONFERENCE/WORKSHOP

- Invited Speaker in the National conference (29.9.2012 – 30.9.2012) on “Emerging trends in Pharmaceutical Sciences” organized by Department of Pharmacy in collaboration with Department of Biotechnology at Manav Bharati University, Solan, HP.
- Resource person in a workshop “Techniques in Monitoring Environmental Pollution” October 25-26<sup>th</sup> 2013 organised by Department of Environmental science, M.D.U, Rohtak.
- Resource person in a seven day Youth Red Cross camp, June 8-14, 2016 organised at Mussoorie, Uttarkhand.
- Invited speaker in a National Workshop on “Promoting Rural technologies for skilling Youth in India” February 25, 2017 organised by Surender Kaur Memorial Agriculture College, Sriganaganagar, Rajasthan in collaboration with MGIRI, National institute under Ministry of MSME, GoI.
- Resource person in a seven day Youth Red Cross camp, June 1-7, 2017 organised at Mussoorie, Uttarkhand.
- Invited Speaker in Indo-canada workshop on “Food and healthcare for wellness” February 20, 2020 organised by Jagannath University, Bahadurgarh, Haryana

## MEMBER/NOMINEE

- Nominated Teacher Representative of Faculty of Engg. & Technology, Kurukshetra University, Kurukshetra from 02.09.2008 to 02.09.2010
- Nominated Teacher Representative of Board of Studies in Biotechnology, Kurukshetra University, Kurukshetra from 26.08.2008 to 26.08.2010

## COMMUNITY EVENT/ RADIO TALK

- **AIR Radio talk** “Career Counselling- Employment Opportunities in the field of Environmental Science.” in **ALL INDIA RADIO** (1143 KHz; 262.4Meters) at in Yuva Sansar Program on July 8<sup>th</sup> 2015 from Prasar Bharati Station - Rohtak.

## MEMBERSHIP

- **Life Member**, IFSDAA Germany
- **Life Member**, Association of Microbiologists of India
- **Life Member**, Mycological Society of India
- **Life Member**, SSARM India
- **Life Member**, Indian Science Congress



I certify that the information given by me is correct to the best of my knowledge and belief and no material information has been concealed.

Babita Khosla