

## Faculty Member Details

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|--|-----------------------|--|
| <b>Name: Dr. Abhishek Vashishtha</b>   |                       | <br>Photo  |
| <b>Date of Birth:</b>  | 24/07/1980            |  |
| <b>Date of joining:</b>  | 7-06-2011             |  |
| <b>Present Position:</b>   | <input type="text"/>  |  |
| <b>Department:</b>   | <input type="text"/>  |  |
| <b>Pay Scale + Grade Pay:</b>  | <input type="text"/>  |  |
| <b>Mailing Address:</b>  |                       |  |
| <b>Office:</b> Department of Microbiology<br>Academic Block<br>Maharaja Ganga Singh University<br>N.H. 15, Jaisalmer Road,<br>Bikaner-334004   |                       | <b>Residence:</b> C-55/III/16, CAD Quarter,<br>Sector-V,<br>Jai Narayan Vyas Colony,<br>Bikaner  |
| <b>Telephone No.:</b> 0151-2212041<br><b>Fax No.:</b> 01512212042<br><b>E-mail:</b><br><a href="mailto:microbiology@mgsbikaner.ac.in">microbiology@mgsbikaner.ac.in</a>  |                       | <b>Mobile No.:</b> 9829068004<br><b>E-mail:</b> <a href="mailto:drabhishek@mgsbikaner.ac.in">drabhishek@mgsbikaner.ac.in</a><br><a href="mailto:abhiv24@gmail.com">abhiv24@gmail.com</a> |
| <b>Qualifications:</b>   |                       |  |
| M.Sc (Microbiology), Ph.D (Microbiology).  |                       |  |
| <b>Specialization:</b> Bioremediation studies, Plant growth promotion.   |                       |  |
| <b>Research and Teaching Experience</b>  |                       |  |
| (1) Assistant Prof, Department of Microbiology, MGS University, Bikaner  | 7-06-2011 till date   |  |
| (2) Eight years of Post graduate teaching in Microbiology and Biotechnology at Mahatma Gandhi Institute of Applied Sciences, Jaipur (NAAC 'A' grade, declared as Center for Excellence in Biotechnology by state DST). | 27-8-2003 to 6-6-2011 |  |

### Research Projects and Grants:

#### Minor/student Projects

| <b>S. No.</b> | <b>Title</b>   | <b>Status</b> | <b>Funding Agency</b>  |
|---------------|--|---------------|--|
| 1.            | Improvement in Growth and Salinity Tolerance in some Crop Plants by the Application of Bacterial Species Isolated from Different Sites.  | Completed     | Department of Science and Technology, Govt. of Rajasthan, Jaipur |
| 2.            | Isolation, Characterization and Optimization of Growth Conditions of Hydrocarbon degrading Bacteria Isolated from the contaminated sites of Barmer (Rajasthan) and Plant Growth Promotion by them. | Completed     | Department of Science and Technology, Govt. of Rajasthan, Jaipur |
| 3.            | Evaluation of plant growth promotion by hydrocarbon degrading bacteria isolated from the contaminated sites of Jaipur (Rajasthan).   | Completed     | Department of Science and Technology, Govt. of Rajasthan, Jaipur |
| 4.            | Comparative study of Protein profile variation in Halophilic Bacteria and halophilic plants in response to variations in salinity and temperature.   | Completed     | Department of Science and Technology, Govt. of Rajasthan, Jaipur |
| 5.            | Comparative analysis of plant growth promoting activity of the Rhizobacteria isolated from different climatic regions and their soil analysis.   | Completed     | Department of Science and Technology, Govt. of Rajasthan, Jaipur |
| 6.            | Low-Cost Soil Engineering to Enhance Hydrocarbon Biodegradation by Soil Indigenous Bacterial Population Isolated from the Contaminated Sites of Bikaner.   | Completed     | Department of Science and Technology, Govt. of Rajasthan, Jaipur |
| 7.            | Application of Halophilic Bacteria Isolated from Saline Water Bodies of Western Rajasthan in Promotion of Plant Growth   | Ongoing       | Department of Science and Technology, Govt. of Rajasthan, Jaipur |

### Major Projects (Communicated)

| S.No | Title   | Sponsoring agency | Status    | Estimated cost | Principle Investigators                                |
|------|---|-------------------|-----------|----------------|--|
| 1    | Low-Cost Soil Engineering to Enhance Bioremediation and Sustainable Plant Growth Enhancement in Hydrocarbon Contaminated Sites near Oil Excavation Sites and Upcoming Refinery in Barmer. | UGC               | Submitted | 33 Lac         | Dr Abhishek Vashishtha and Dr. Gautam Kumar Meghwanshi |

#### Publications:

##### I. Books/ chapters published:

##### A. Authored:

- (1) Vashishtha A. (2009). Bacteria of Medical Importance. In Microbiology and Biotechnology (Zoology ZO-07). Vardhman Mahaveer Open University, Kota. PP-82-130. ISBN: 13/978-81-8496-009-9.
- (2) Vashishtha A. (2009). Viruses. In Microbiology and Biotechnology (Zoology ZO-07). Vardhman Mahaveer Open University, Kota. PP-131-152. ISBN: 13/978-81-8496-009-9.
- (3) Vashishtha A. (2009). Industrial products II. In Microbial Biotechnology (Biotech BT-07). Vardhman Mahaveer Open University, Kota. PP-258-267.
- (4) Vashishtha A. (2009). Industrial products III. In Microbial Biotechnology (Biotech BT-07). Vardhman Mahaveer Open University, Kota. PP-268-279.
- (5) Vashishtha A. (2015). Biotechnology in Medicine. In Cell, Molecular Biology and Biotechnology (MZO-02). Vardhman Mahaveer Open University, Kota. PP-272-315. ISBN: 978-81-8496-549-0.
- (6) Vashishtha A. (2015). Tolerance, Hypersensitivity and Immunity against Infections. In Biochemistry, Physiology and Immunology (MZO-03). Vardhman Mahaveer Open University, Kota. PP-353-414. ISBN: 978-81-8496-550-6.
- (7) Vashishtha A. (2015). Cell Biology. In Practical Zoology - I (MZO-05). Vardhman Mahaveer Open University, Kota. PP-108-119. ISBN: 978-81-8496-552-0.
- (8) Vashishtha A. (2015). Immunology. In Practical Zoology - I (MZO-05). Vardhman Mahaveer Open

University, Kota. PP-120-129. ISBN: 978-81-8496-552-0.

(9) Vashishtha A. (2015). Biochemistry. In Practical Zoology - I (MZO-05). Vardhman Mahaveer Open University, Kota. PP-130-142. ISBN: 978-81-8496-552-0.

## II. Research Papers/Reviews Published:

### Published:

1. Vashishtha A. and Dhawal P. K. (2015). Microbial Osmoadaptation – A Road Towards Sustainability in Extreme Conditions. In: ‘Microbes: In Action’ eds, Singh J. and Gehlot P. Agrobios Publication, pp, 95-108. ISBN:978-81-7754-576-0.
2. Vashishtha A. and Meghwanshi G. K. (2015). Biodegradation of Polycyclic aromatic hydrocarbons with special reference to Naphthalene. In: ‘Microbes: In Action’ eds, Singh J. and Gehlot P. Agrobios Publication, pp, 145-166. ISBN:978-81-7754-576-0.
3. Meghwanshi G. K. and Vashishtha A. (2015). Application of Enzymes in Food Processing. In: ‘Microbes: In Action’ eds, Singh J. and Gehlot P. Agrobios Publication, pp, 281-316. ISBN:978-81-7754-576-0.
4. Pareek A., Vashishtha A., Moin S. and Meghani E. (2014). Bioreduction of Fluoride in affected water samples of Jaipur by *Oscillatoria* species. *International Journal on Algae*, **16(1)**: 86–94. ISSN 1521–9429.
5. Vashishtha A. and Meghwanshi G. K. (2014). Approaches towards Biological restoration of Hydrocarbon polluted sites: Bioremediation and phytoremediation. In Khan J.B. (2014). Environmental Management: challenges and conservation. Lap Lambert Publishing House, Germany. pp 89-104. ISBN: 978-3-659-57593-8
6. Kumari N., Vashishtha A., Saini P. and Menghani E. (2013). Isolation, Identification and Characterization of Oil Degrading Bacteria Isolated from the Contaminated Sites of Barmer, Rajasthan. *Inter. J. Biotechnol. Bioengin. Res.* **4 (5)**: 429-436. ISSN 2231-1238.
7. Meghwanshi G.K. and Vashishtha A. (2012). Microbial Enzymes: Productions and Applications. In ‘Recent Trends in Microbiology Eds Kapoor B.B.S. and Arora A.83-100. Madhu Publications, Bikaner. ISSN/ ISBN. 81-86644-23-7.
8. Lowry M., Vashishtha A. and Jaroli. D.P. (2012). Adding Available Carbonates-An

Inexpensive Method of Recovery of Soil Parameters in Petroleum Hydrocarbon Contaminated Soils. Proceedings of The 3rd International Biotechnology and Biodiversity Conference & Exhibition Harnessing Microbes For A Sustainable Future (ISBN 978-983-44324-2-9) (BIOJOHOR 2012), June 9-11, 2012, Johor Biotechnology & Biodiversity Corporation, Universiti Teknologi Malaysia (UTM).

9. Vashishtha A., Lowry M. and Jaroli D.P. (2011). 'Hydrocarbon Bioremediation: Biotic and abiotic factors'. In 'Recent Advances in Environmental Biotechnology' Eds Jain P. et al, PP 112-145. Lap Lambert Academic Publishing Ag & Co. KG, Dudweiler Landstr, Germany. ISBN-978-3-8443-0687.
10. Vashishtha A. (2008). Indian Agriculture Market and its Vulnerability for an Agroterrorist Attack. In 'Bioterrorism and Biological Warfare' Eds Bhatia A.L and Kulshrestha S.K., PP 09-31. Pointer Publishers. India. ISBN 978-81-7132-587-0
11. Pathak H., Vashishtha A., Jain P. K., A. Nagmani, Jaroli D.P. and Lowry M. (2010). Physico-Chemical properties of Petroleum contaminated soil collected from coastal areas of Mumbai. *Asian J.Exp.Sci.*,24 (1):175-178. ISSN: 0971-5444.
12. Vashishtha. A., Lowry M. and Jaroli D.P. (2006). Protein Profile Variations in Halophilic Bacteria in Response to Variations in Salt and Temperature. *Asian J.Exp.Sci.*20(1):35-40. ISSN: 0971-5444.
13. Pareek.A., Vashishtha A. and Sharma P. (2004). Chlorophycean Microalgal Flora of Keoladeo National Park, Bharatpur (Rajasthan). *J.Phytol.Res.* 17(2): 187-189. ISSN: 0970-5764.

**ACCEPTED:**

1. Vashishtha A. Growth Enhancement of *Pennisetum typhoideum* by Rhizospheric and Endophytic bacterial inhabitants from *Zea mays*. Brazilian Journal of Microbiology. ISSN 1678-4405 (Accepted).

**COMMUNICATED:**

1. Vashishtha A. and Meghwanshi G. K. and Baid S. Quorum sensing and bacterial pheromones: A road to influence the local microbial environment. Communicated for publishing in an edited book going to be published from an International publisher.
2. Meghwanshi G. K. and Vashishtha A. Industrial Biocatalysis: A green solution to

environmental safety and sustainability. Communicated for publishing in an edited book going to be published from an International publisher.

**Visits Abroad:**

Nil

**Research Supervised - Ph.D./M.Phil. (Name of student and title):**

**Name of the candidate** (under supervision): Pawan Kumar Dhawal (Ph.D.)

**Title:** Application of Halophilic Bacteria Isolated from Saline Water Bodies of Western Rajasthan in Promotion of Plant Growth and Biodegradation of Hydrocarbons.

**Other activities:**

**Seminars/ Conferences / Workshops (organized/attended)**

| S.N. | Title of the paper presented   | Conference/Seminar  | Event Dates         | Organized by   |
|------|--|---|---------------------|--|
| 1.   | Physico-chemical study of Badopla and Lunkaransar salt lakes and plant growth promoting activity of the Bacteria isolated from Badopal salt lake | National Seminar on Environmental Management and Technology           | 8-9 March 2017      | Maharaja Ganga Singh University, Bikaner                                       |
| 2.   | Challenges in Higher education and Role of NAAC and CBCS   | National Seminar on Higher Education in 21 <sup>st</sup> Century      | 27-28 January 2017  | Shrimati Narbada Devi Bihani Government Postgraduate College, Nohar, Rajasthan |
| 3.   | Soil Engineering to Enhance Hydrocarbon Degradation and Plant Growth Promotion by Bacteria Isolated from Petroleum Contaminated Sites of Jaipur  | National Conference on Biotechnology for Sustainable Development      | 23-24 December 2016 | Maharishi Dayanand College, Sri Ganganagar, Rajasthan                          |
| 4.   | Evolution of Environmental Education and its Challenges: An Indian Perspective   | National Policy on Education 2016: Issues, Challenges and Suggestions | 17 October 2016     | Maharaja Ganga Singh University, Bikaner                                       |

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| 5.  | Physico-chemical study of Badopal and Lunkaransar salt lakes and plant growth promoting activity of the bacteria isolated from Badopal salt lake. | National Seminar on "Agriculture Resource Management for Sustainability and Eco-Restoration.          | 11-13 March, 2016     | ICAR-CIAH, Bikaner                                      |
| 6.  | Microbial Degradation of Hydrocarbons using Low-Cost Soil Engineering Techniques: Enhanced Remediation Technique for a Population Induced Problem | National Seminar on Overpopulation and its Effects on Environment                                     | 15-16 January 2016    | Gramin Mahila PG College, Sikar                         |
| 7.  | Protein profile variations in Halophilic bacteria in response to variation in salt and Temperature  | Recent Trends in Engineering and Applied Sciences.  | 20-21 March, 2015     | Manda Institute of Technology, Bikaner                  |
| 8.  | Physico-chemical study of two saline water bodies of Western Rajasthan (Badopal and Lunkaransar)  | National Seminar on current Trends in Environmental research  | 28Feb-02 March, 2015  | Dept. of Environmental Science, MGS University, Bikaner |
| 9.  | Enhanced Microbial Degradation of Hydrocarbons using Low-Cost Soil Engineering Techniques   | National Conference on 'Energy & Environmental Engineering'   | 26 -27 April 2014     | Manda Institute of Technology, Bikaner                  |
| 10. | Impact of Petroleum Hydrocarbons on Physico-Chemical Properties and Microbial Activities in Contaminated Soils.                                   | National Conference on "Recent and Future prospects in Microbiology and Biotechnology"                | 3-4 March 2014        | JJT University, Jhunjhunu                               |
| 11. | Emergent Concerns in front of Science and Technology  | National Conference on "Recent Advances and Emerging Issues in front of Science and technology"       | 21 Nov 2013           | JJT University, Jhunjhunu                               |
| 12. | Low-Cost Soil Engineering to Enhance Hydrocarbon Biodegradation in Contaminated Sites by Soil Indigenous Bacterial Population                     | National Conference on Environmental Issues, Toxicology and Exposure Sciences                         | 20-21 September 2013  | Dept. of Zoology, Agrawal P.G. College, Jaipur          |
| 13. | Effect of Hydrocarbon Contamination on Physico-Chemical Activities of Soils and Low-Cost Soil Engineering to Enhance the Process of Recovery      | UGC-CRO, Bhopal sponsored---"National seminar on Environment Management and Biodiversity Conservation | 06-07, October, 2012  | Govt. Lohia P.G. College, Churu                         |
| 14. | Effect of Altered Physico-Chemical Activities of Hydrocarbon Contaminated Soils on Indigenous Microbial Biodiversity                              | UGC Sponsored---"National Conference on Biodiversity depletion : Causes, consequences and solutions   | 28-29 September, 2012 | MLV Government college, Bhilwara                        |
| 15. | Physico-chemical analysis of petroleum hydrocarbon contaminated soil samples of Jaipur south  | International Conference on "Advances in Ecological Research  | 19-21 December, 2011  | MGS University, Bikaner                                 |

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| 16. | Agro-terrorism: an under defined threat.  | Indian Science Congress  | 03-07 January, 2008            | Andhra University, Visakhapatnam                     |
| 17. | Isolation of.....Biocontrol activity  | National symposium on Biotechnology in 21 <sup>st</sup> century: The challenges ahead and new advances towards Food security | 23-24 December, 2005           | Mahatma Gandhi Institute of Applied Sciences, Jaipur |
| 18. | Physico-chemical analysis of oil contaminated soil samples of Jaipur, isolation and screening of the bacterial cultures isolated from them. | National conference on Environment and natural Disaster Management”, at  | 28-30 November, 2005           | Dept of Zoology, University of Rajasthan, Jaipur     |
| 19. | Children by choise  | Recent Advances in Biosciences after 50 years of DNA Double helix  | 25 <sup>th</sup> November 2003 | Mahatma Gandhi Institute of Applied Sciences, Jaipur |
| 20. |   | Interrogating New Words of English Language Teaching   | 24-25 February, 2012           | MGS University, Bikaner                              |
| 21. |   | National symposium on Biotechnology for Human welfare  | 26-27 March, 2004              | Department of Botany, U O R, Jaipur                  |
| 22. |   | Microbiotech 2000 - 41 <sup>st</sup> Annual Conference of Association of Microbiologists of India                            | 25-27 November, 2000           | Birla Institute of Scientific Resaerch, Jaipur       |

### Membership

Indian Science Congress Association, Kolkata.

### Invited Lectures

- A) Challenges in Higher education and Role of NAAC and CBCS at National Seminar on Higher Education in 21<sup>st</sup> Century. 27-28 January 2017 organized by Shrimati Narbada Devi Bihani Government Postgraduate College, Nohar, Rajasthan.
- B) Soil Engineering to Enhance Hydrocarbon Degradation and Plant Growth Promotion by Bacteria Isolated from Petroleum Contaminated Sites of Jaipur at National Conference on Biotechnology for Sustainable Development on 23-24 December 2016 at Maharishi Dayanand College, Sri Ganganagar, Rajasthan.
- C) Agro-terrorism: an under defined threat at 93<sup>rd</sup> Indian Science Congress on 05-01-2008 organized by Andhra University, Visakhapatnam.
- D) Emergent Concerns in front of Science and Technology at National Conference on “Recent Advances and Emerging Issues in front of Science and technology” on 21 November 2013, organized at JJT University, Jhunjhunu (Rajasthan).



E) Agro-terrorism: Potent threat for society. At refresher Course organized at Department of Zoology, University of Rajasthan, Jaipur.

#### **Awards**

A) National YOUNG SCIENTIST GOLD MEDAL AWARD for the year 2005-2006 by the Indian Academy of Environmental Sciences. Harwar, for paper presented at National Seminar on Environment and Disaster Management.

B) Invited by Indian Science Congress Association to address a mass of scientists and science scholars at one of the scientific sessions of the congress, held at Vishakhapatnam in the year 2008. The talk highlighted the problem of Agro terrorism and the threats and measures to solve the issue.

C) International “Dale Carnegie certification” by Wipro technologies (For high Impact teaching).

D) Adjudged YOUNG SCIENTIST (2<sup>nd</sup>) in “National conference on Environmental issues, Toxicology and exposure science” held at Jaipur on 20-21 September 2013 for research work on enhancement of bacterial population in hydrocarbon contaminated sites.

E) Certificate of Academic excellence by the MDS. University, Ajmer on 26<sup>th</sup> January 2006.

F) Letter of Appreciation by MGS, University, Bikaner, 2012.

#### **Others**

A) Refresher Programme from academic staff college, University of Rajasthan, Jaipur from 20-02-2006 to 18-03-2006.

B) Orientation Programme from academic staff college, University of Rajasthan, Jaipur from 20-02-2006 to 18-03-2006.