



Faculty Full Name: **Dr. Ashutosh Kumar Rai**

POSITION: **Assistant Professor**

Personal Data

Nationality : Indian
Department : Biochemistry
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Language Proficiency

Language	Read	Write	Speak
Arabic	x	x	x
English	✓	✓	✓
Others [Hindi]	✓	✓	✓

Academic Qualifications (Beginning with the most recent)

(Year)	Academic Degree	Place of Issue	Address
2012	Ph.D. (Applied Biochemistry)	Varanasi, India	School of Biotechnology, Institute of Science, Banaras Hindu University, India (https://www.bhu.ac.in/)
2004	M.Sc. (Applied Biochemistry)	Jaunpur, India	Department of Biochemistry, V.B.S. Purvanchal University, India (http://www.vbspu.ac.in/index)
1998	B.Sc. (Chemistry, Zoology)	Jaunpur, India	V.B.S. Purvanchal University, India



PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

Ph.D.	<ul style="list-style-type: none"> Title of the PhD Thesis: “Molecular and Proteomic Studies on Biosynthesis and Toxicity of Microcystin from <i>Microcystis</i> spp.”
M.Sc.	<ul style="list-style-type: none"> Dissertation title: ‘Biochemical and Genetic Basis of a mental disorder’
Fellowship	<ul style="list-style-type: none"> 2015: Awarded fellowship and research grant under SERB-DST Young Scientist Scheme (Start-Up Research Grant- Young Scientist) as a Principal Investigator/ Young Scientist from SERB, Department of Science and Technology, Government of India, New Delhi (INR 29.9 L) 2006: Senior Research Fellowship (SRF) from Indian Council of Agricultural Research (ICAR), Government of India, New Delhi. 2006: Qualified in GATE (Graduate Aptitude Test in Engineering) in subject area ‘Life Sciences’, conducted by Indian Institutes of Technologies (I.I.Ts.) on behalf of Ministry of Higher Education, Government of India. <i>Ekekriti</i> Meritorious Fellowship by U.P. state Government based on state level competitive exam, to pursue high school (+10) educations.
Academic Honors/ Scientific or Professional Recognition	<p><u>Journal Editor</u></p> <ul style="list-style-type: none"> ▪ PLOS-One - Academic Editor of prestigious journal PLOS One since 2018 ▪ Frontiers in Microbiology - Review Editor (Since Jan. 2022) ▪ Frontiers in Fungal Biology - Review Editor (Since Jan. 2022) ▪ Mexican Journal of Biotechnology’ - Associated with Editorial Board (2017-2019). <ul style="list-style-type: none"> 2017 to date: Worked as invited reviewer for following prestigious journals. <ul style="list-style-type: none"> ▪ Scientific Reports (Nature group) ▪ BMC Microbiology (Springer Nature) ▪ PLOS-One (PLOS Org. USA) ▪ Plant Cell Reports (Springer Nature) ▪ Bioresource Technology (Elsevier Ltd.) ▪ Current Microbiology (Springer Nature) ▪ J. Plant Growth Regulation (Springer Nature) ▪ Circular Eco. Sustainability (Springer Nature)



Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work		Date
Assistant Professor	IAU, Dammam	Department of Biochemistry, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam (https://www.iau.edu.sa/en)	Nov. 13, 2017 to date
Scientist / Principal Investigator	JNU, New Delhi, India	School of Biotechnology, Jawaharlal Nehru University, New Delhi. (http://www.jnu.ac.in/node)	Dec. 2015 to Nov. 2017
Postdoctoral Research Associate	NBAIM, India	ICAR- National Bureau of Agriculturally Important Microorganisms, India (https://nbaim.icar.gov.in/)	Feb. 2015 to Nov. 2015
Sr. Scientific Analyst	New Delhi	LABEX Corporation, New Delhi (https://labex.net/)	May 2014 to Jan. 2015
Postdoctoral Research Associate	ICGEB, New Delhi	International Center for Genetic Engineering and Biotechnology, New Delhi, India (https://www.icgeb.org/location/newdelhi/)	Nov. 2013 to April 2014
Senior Research Fellow	BHU, India	School of Biotechnology, Institute of Science, Banaras Hindu University, Varanasi, India (https://www.bhu.ac.in/science/biotechnology/)	Oct. 2006 to Nov. 2013

Administrative Positions Held: (Beginning with the most recent)

Administrative Position	Office	Date
Course Coordinator (Biochemistry, BIOCH-205)	Department of Biochemistry, IAU	2018 to date
Committee Membership	Departmental Faculty Board, Biochemistry, IAU	2017- date



Scientific Achievements

Published Refereed Scientific Research: (Beginning with the most recent)

Orchid Link: <https://orcid.org/0000-0001-6938-619X> (Rai, Ashutosh Kumar)

Area of the research interests: Microbial Biotechnology, Molecular Biology & Proteomics, Environmental Microbiology, Biomass & Biofuels, Rhizobacteria, Cyanotoxins (Microcystins) and Host-Pathogen Interactions.

S.N.	Publication' Details (Author's Name, Year, Title, Journal, Vol., Page No., DOI)
1	Srivastava M, Rai AK. 2024. <i>Agricultural Biomass Nanocatalysts for Green Energy Applications</i> . Springer Nature. 2024 April 29: pp 270. eBook ISBN: 978-981-97-1623-4. DOI. https://doi.org/10.1007/978-981-97-1623-4
2	Pal DB, Rai AK, Siddiqui S. 2024. <i>Sustainable Clean Energy Production Using Waste Biomass: Sustainable Energy Production and Utilization</i> . Springer Nature. 2024 April 15: pp 321. eBook ISBN: 978-981-97-0840-6. DOI. https://doi.org/10.1007/978-981-97-0840-6
3	Tomar P, Thakur N, Jhamta S, Chowdhury S, Kapoor M, Singh S, Shreaz S, Rustagi S, Rai PK, Rai AK, Yadav AN. 2024. Bacterial Biopesticides: Diversity, Role in Pest Management and Beneficial Impact for Agricultural and Environmental Sustainability. <i>Heliyon</i> . e31550. https://doi.org/10.1016/j.heliyon.2024.e31550 (IF: 4, CiteScore: 4.5)
4	Srivastava N, Singh R, Ahmad I, Suliman M, Tripathi SC, Rai AK, Gupta VK. 2024. Lignocellulosic <i>Moringa oleifera</i> bark enabled biofabrication of MgO nanocatalyst: Application in developing temperature tolerance fungal cellulase cocktail. <i>Industrial Crops and Products</i> . 207 (1): 117718. https://doi.org/10.1016/j.indcrop.2023.117718 . (IF: 5.9, CiteScore: 9.7)
5	Rachappanavar V, Kumar M, Negi N, Chowdhury S, Kapoor M, Singh S, Rustagi S, Rai AK, Shreaz S, Negi R, Yadav AN. 2024. Silicon derived benefits to combat biotic and abiotic stresses in fruit crops: Current research and future challenges. <i>Plant Physiology and Biochemistry</i> . 211: 108680. https://doi.org/10.1016/j.plaphy.2024.108680 . (IF: 6.5, CiteScore: 10.3)
6	Srivastava N, Singh R, Lal B, Mohammad A, Rai AK, Ahmad I, Srivastava M, Choi C-H, Gupta VK. 2024. Graphene and its derivatives fabrication from paddy straw for improved and sustainable application in biofuels production: New Insight. <i>Process Safety and Environmental Protection</i> . 2024 April 30: https://doi.org/10.1016/j.psep.2024.04.128 . (IF: 7.8, CiteScore: 10.8)
7	Devi R, Alsaffar MF, AL-Taey DK, Kumar S, Negi R, Sharma B, Singh S, Rai AK, et al. 2024. Effect of indigenous mineral availing microbial consortia and cattle manure combination for growth of maize (<i>Zea mays</i> L.). <i>Vegetos</i> . 2024 April 23: https://doi.org/10.1007/s42535-024-00897-1
8	Kour D, Khan SS, Kumari S, Singh S, Khan RT, Kumari C, Dasila H, Kour H, Kour M, Narniwas S, Kumar S, Rai AK, Cheng W-H, Yadav A.N. 2024. Microbial nanotechnology for agriculture, food, and environmental sustainability: Current status and future perspective. <i>Folia Microbiologica</i> . 2024 Feb 29:1-30. https://doi.org/10.1007/s12223-024-01147-2 (IF: 2.6)



- 9 Harsh Sable, Kumar V, Mishra R, Singh V, Roy A, **Rai AK**, Ranjan N, Rustagi S, Pandit S. 2024. Bamboo stem derived biochar for biosorption of Cadmium (II) ions from contaminated wastewater. **Environmental Nanotechnology, Monitoring & Management**. 21: 100936. <https://doi.org/10.1016/j.enmm.2024.100936>. (CiteScore: 9.3)

- 10 Singh V, Pandit C, Roy A, Pandit S, **Rai AK**, Rani A, Ranjan N, Rustagi S, Malik S. 2024. Degradation of food dyes via biological methods: A state-of-the-art review. **Bioresource Technology Reports**. 25: 101780. <https://doi.org/10.1016/j.biteb.2024.101780> (CiteScore: 7.8).

- 11 Jadhav V, Roy A, Kaur K, **Rai AK**, Rustagi S. 2024. Nanomaterials for drug delivery systems. An updated review. 202 Recent advances in nanomaterial-based drug delivery systems. **Nano-Structures & Nano-Objects**. 37: 101103. <https://doi.org/10.1016/j.nanoso.2024.101103> (CiteScore: 11.9).

- 12 Kaur T, Devi R, Negi R, Kumar S, Singh S, Rustagi S, Shreaz S, Rai Ak, Kour D, Yadav AN. 2024. Microbial consortium with multifunctional attributes for the plant growth of eggplant (*Solanum melongena* L.). **Folia Microbiologica**. 2024 April 26. <https://doi.org/10.1007/s12223-024-01168-x>

- 13 Karmakar D, Magotra S, Negi R, Kumar S, Rustagi S, Singh S, **Rai AK**, Kour D, Yadav AN 2024. Bacillus species for sustainable management of heavy metals in soil: Current research and future challenges. **J App Biol Biotech**. 12(2):22-35. <http://doi.org/10.7324/JABB.2024.157765> (CiteScore: 1.6)

- 14 Kour D, Ahluwalia KK, Ramniwas S, Kumar S, Rustagi S, Singh S, **Rai AK**, Yadav AN, Ahluwalia AS. Environment and climate change: Influence on biodiversity, present scenario, and future prospect. **J App Biol Biotech**. 12(2):1-12. <http://doi.org/10.7324/JABB.2024.148189> (CiteScore: 1.6)

- 15 Jan T, Negi R, Sharma B, Kour D, Kumar S, **Rai AK**, et al. 2023. Diversity, distribution and role of probiotics for human health: Current research and future challenges. **Biocatalysis and Agricultural Biotechnology**. 53: 102889. <https://doi.org/10.1016/j.bcab.2023.102889>. (IF: 4, CiteScore: 8.4)

- 16 Kour D, Khan SS, Ramniwas S, Kumar S, **Rai AK**, Rustagi S, Chaubey KK, Singh S, Yadav AN, Ahluwalia AS. 2024. Beneficial fungal communities for sustainable development: Present scenario and future challenges. **J App Biol Biotech**. 12(1):1-9. <http://doi.org/10.7324/JABB.2024.148256> (CiteScore: 1.6) (CiteScore: 1.6)

- 17 Devi R, Kaur T, Negi R, Sharma B, Chowdhury S, Kapoor M, Singh S, Rustagi S, Shreaz S, Rai PK, **Rai AK**, Yadav A, Kour D, Yadav AN. 2024. Biodiversity, mechanisms, and potential biotechnological applications of minerals solubilizing extremophilic microbes: A review. **J App Biol Biotech**. 2024 April 25 :1-18. DOI: 10.7324/JABB.2024.159821 (CiteScore: 1.6)

- 18 Sharma A, Thakur N, Jhamta S, Tomar P, Singh S, **Rai AK**, et al. 2024. Entomopathogenic bacteria and fungi as eco-safe substitutes to chemical insecticides against leaf eating caterpillars of *Spodoptera litura*. **J App Biol Biotech**. 2024, April 16:1-5. DOI: 10.7324/JABB.2024.153025 (CiteScore: 1.6)



- 19 Kour, D, Khan, SS, Kour, H, Kour T, Devi R, **Rai AK**, Yadav AN. 2023. ACC Deaminase Producing Phytomicrobiomes for Amelioration of Abiotic Stresses in Plants for Agricultural Sustainability. **Journal of Plant Growth Regulations**. <https://doi.org/10.1007/s00344-023-11163-0> (IF: 4.8, CiteSc.: 8.7)
- 20 Haque S, Hussain A, Almalki AH, Aldawsari MF, Lal B, **Rai AK** et al. 2023. Prospects of earthworm coelomic fluid as a potential therapeutic agent to treat cancer. **Cancer and Metastasis Reviews**. <https://doi.org/10.1007/s10555-023-10148-5> (IF: 9.2, CiteScore: 15.5)
- 21 Srivastava M, Bansal SL, Khan MS, Tripathi SC, Singh R, **Rai AK**. 2023. Rice Straw Waste-Based Biogas Production via Microbial Digestion: A Review. **Molecular Biotechnology**. <https://doi.org/10.1007/s12033-023-00904-x> (IF: 2.6, CiteScore: 4.6)
- 22 Chandra S, Bhattacharya S, Pandit S, Banerjee S, Roy A, **Rai AK**. 2023. Cyanobacteria as an eco-friendly bioresource for EPS production with crack healing capacity in concrete. **Biocatalysis and Agricultural Biotechnology**. 102909. <https://doi.org/10.1016/j.bcab.2023.102909>. (IF:4, CiteScore: 8.4)
- 23 Singh, R., Singh, P., Ahmad, I., Alkhatami, A.G., **Rai, A.K.**, Mishra, P.K., Singh, R.P. and Srivastava, N., 2023. Bionanofabrication of Cupric oxide catalyst from Water hyacinth based carbohydrate and its impact on cellulose deconstructing enzymes production under solid state fermentation. **International Journal of Biological Macromolecules**. 2023: 126377. <https://doi.org/10.1016/j.ijbiomac.2023.126377> (IF: 8.2, CiteScore: 14.5)
- 24 Negi, R, Sharma, B, Kaur, S, Kaur T, Khan SS, Kumar S, Ramniwas S, Rustagi S, Singh S, **Rai, AK**, et al. 2023. Microbial antagonists: diversity, formulation and applications for management of pest-pathogens. **Egyptian Journal of Biological Pest Control**. 33: 105. <https://doi.org/10.1186/s41938-023-00748-2> (IF: 2.4, CiteScore: 4)
- 25 Singh T, Mohammad A, **Rai AK**, Lal B, Singh R, Ahmad I, Asiri IAO, Sharma M. 2023. Carbon nanostructure derived from tea spent waste and its dosage dependent application on elevated bacterial hydrolytic enzymes production and thermostability. **Industrial Crops and Products**. 202: 116972. <https://doi.org/10.1016/j.indcrop.2023.116972> (IF: 5.9, CiteScore: 9.7)
- 26 Asiri M, Srivastava N, Singh R, Ali AA, Tripathi SC, Alqahtani A, Saeed M, Srivastava M, **Rai AK**, Gupta VK. 2023. Rice straw derived graphene-silica based nanocomposite and its application in improved co-fermentative microbial enzyme production and functional stability. **Science of The Total Environment**. 876: 162765. <https://doi.org/10.1016/j.scitotenv.2023.162765>. (IF: 9.8, CiteScore: 16.8)
- 27 Akansha K, Kaur T, Yadav A, Kour D, **Rai AK**, Singh S, Mishra S, Kumar L, Miglani K, Singh K, Yadav AN. 2023. Microbe-mediated remediation of dyes: Current status and future challenges. **Journal of Applied Biology and Biotechnology**. 11(4):1-23. <https://doi.org/10.7324/JABB.2023.113491> (CiteScore: 1.6)
- 28 Srivastava N, Singh R, Ahmad I, Asiri M, Tripathi SC, **Rai AK**, Mishra PK, Gupta VK. 2023.



- Biologically derived copper oxide-based nanocatalyst using *Moringa oleifera* leaves and its applications in hydrolytic enzymes and biohydrogen production. **Bioresource Technology**. 376: 128847. <https://doi.org/10.1016/j.biortech.2023.128847>. (IF: 11.4, CiteScore: 19)
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- 29 Gaba S, Prasad L, Varma A, **Rai AK**, Prasad R, Goel, A. 2023. Leveraging of mycogenic copper oxide nanostructures for disease management of *Alternaria* blight of *Brassica juncea* " **Green Processing and Synthesis**. 12: 20230015. <https://doi.org/10.1515/gps-2023-0015> (IF: 4.3, CiteScore: 7.1)
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- 30 Srivastava N, Singh R, Verma B, **Rai AK**, Bantun F, Faidah H, Singh RP, Jalal NA, Haque S. 2023. Microbial cellulase production and stability investigations via graphene like carbon nanostructure derived from paddy straw. **International Journal of Biological Macromolecules**. 237: 124033. <https://doi.org/10.1016/j.ijbiomac.2023.124033> (IF: 8.2, CiteScore: 14.5)
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- 31 Khan SS, Kour D, Ramniwas S, Singh S, Kumar S, Kour S, Sharma R, Kour H, Rasool S, Rustagi S, Singh S, Chaubey KK, **Rai AK**, Yadav AN. 2023. Biotechnological potential of secondary metabolites: Current status and future challenges. **J. App. Biol. Biotech**. 11(6):11-30. DOI: 10.7324/JABB.2023.148341 (CiteScore: 1.6)
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- 32 Srivastava N, Singh R, Singh P, Ahmad I, Singh RP, **Rai AK**, Asiri M, Gupta VK. 2023. Recent advances on lignocellulosic bioresources and their valorization in biofuels production: Challenges and viability assessment. **Environmental Technology & Innovation**. 29: 103037. <https://doi.org/10.1016/j.eti.2023.103037> (IF: 7.1, CiteScore: 9.8)
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- 33 Singh R, Saati AA, Faidah H, Bantun F, Jalal NA, Haque S, **Rai AK**, Srivastava M. 2023. Prospects of microbial cellulase production using banana peels wastes for antimicrobial applications. **International Journal of Food Microbiology**. 388: 110069. <https://doi.org/10.1016/j.ijfoodmicro.2022.110069> (IF: 5.4, CiteScore: 10.3)
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- 34 Paul A, Chakraborty N, Sarkar A, Acharya K, Ranjan A, Chauhan A, Srivastava S, Singh AK, **Rai AK**, Mubeen I and Prasad R. 2023. Ethnopharmacological Potential of Phytochemicals and Phytogenic Products against Human RNA Viral Diseases as Preventive Therapeutics. **BioMed Research International**. 2023: 1977602. <https://doi.org/10.1155/2023/1977602> (IF: 3.2, CiteScore: 5.3)
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- 35 Singh PP, Rai SK, Chaubey G, [Serosurveillance Consortium](#) BHU (Singh PP, .., .., [Rai Ashutosh](#), ..., Chaubey G). 2023. Estimation of real COVID-19 cases in India during the first wave. **IJID Regions**. 6: 80-83. ISSN 2772-7076. <https://doi.org/10.1016/j.ijregi.2023.01.008>.
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- 36 Gaba S, **Rai AK**, Varma A, Prasad R and Goel A. 2022. Biocontrol potential of mycogenic copper oxide nanoparticles against *Alternaria brassicae*. **Frontiers in Chemistry**. 10: 966396. <https://doi.org/10.3389/fchem.2022.966396> (IF: 5.5], CiteScore: 7.3)
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- 37 Wahid M, Dar SA, Jawed A, Mandal RK, Akhter N, Khan S, Khan F, Jogiah S, **Rai AK**, Rattan R. 2022. Microbes in Gynecologic Cancers: Causes or Consequences and Therapeutic Potential. **Seminars in Cancer Biology**. 86(2): 1179-1189. <https://doi.org/10.1016/j.semcan.2021.07.013> (IF: 14.5, CiteScore: 20)



- 38 Mahajan N, Koul B, Kaur J, Bishnoi M, Gupta P, Kumar A, Shah BA, Mubeen I, **Rai AK**, Prasad R, Singh J. 2022. Antiobesity Potential of Bioactive Constituents from Dichloromethane Extract of *Psoralea corylifolia* L. Seeds. **BioMed Research International**. 2022: 9504787. <https://doi.org/10.1155/2022/9504787> (IF: 3.2, CiteScore: 5.3)
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- 39 Kour H, Khan SS, Kour D, Rasool S, Sharma YP, Rai PK, Singh S, Chaubey KK, **Rai AK**, Yadav AN. 2023. Microbes mediated plastic degradation: A sustainable approach for environmental sustainability. **J. App. Biol. Biotech**. 11(3):9-19. <https://doi.org/10.7324/JABB.2023.110515> (CiteScore: 1.6)
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- 40 Rana KL, Kour D, Kaur T, Negi R, Devi R, Yadav N, Rai PK, Singh S, **Rai AK**, Yadav A, Sayyed RZ, Yadav AN. 2022. Endophytic nitrogen-fixing bacteria: Untapped treasurer for agricultural sustainability. **J. App. Biol. Biotech**. pp1-19. <https://doi.org/10.7324/JABB.2023.110207>(CiteScore: 1.6)
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- 41 Singh, PP, Suravajhala P, Basu Mallick C, Tamang R, **Rai AK**, Machha P, Singh R, Pathak A, Mishra VN, Shrivastava P, and Singh KK. 2022. COVID-19: Impact on linguistic and genetic isolates of India. **Genes & Immunity**. 23: 47-50. DOI: <https://doi.org/10.1038/s41435-021-00150-8> (IF: 5, CiteScore: 8.4)
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- 42 Kumar P, Dubey RC, **Rai AK**. 2022. Plant growth promoting and antagonistic Enterobacter sp. EPR4 from common bean rhizosphere of garhwal himalayan inhibits a soil-borne pathogen *Sclerotinia sclerotiorum*. **Plant Science Today**. 9 (4): 837-843. <https://doi.org/10.14719/pst.1662>
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- 43 **Rai AK***, Al Makishah NH, Wen Z, Gupta G, Pandit S, Prasad R. 2022. Recent Developments in Lignocellulosic Biofuels, a Renewable Source of Bioenergy. **Fermentation**. 8(4): 161. DOI: <https://doi.org/10.3390/fermentation8040161> (IF: 3.7, CiteScore: 3.7)
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- 44 Sonawane JM, **Rai AK**, Sharma M, Tripathi M, Prasad R. 2022. Microbial biofilms: Recent advances and progress in environmental bioremediation. **Science of The Total Environment**. 824: 153843. DOI: <https://doi.org/10.1016/j.scitotenv.2022.153843> (IF: 9.8, CiteScore: 16.8)
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- 45 Kour D, Khan SS, Kour H, Kaur T, Devi R, Rai PK, Judy C, McQuestion C, Bianchi A, Spells S, Mohan R, **Rai AK**, Yadav AN. 2022. Microbe-mediated bioremediation: Current research and future challenges. **J. App. Biol. Biotech**. 10(Suppl 2):6-24. DOI: <https://doi.org/10.7324/JABB.2022.10s202> (CiteScore: 1.6)
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- 46 Singh M, Kuldeep, Bhutani S, Mehra A, Kaur T, Kour D, Suyal DC, Singh S, **Rai AK**, Yadav AN. 2022. Bioremediation a sustainable tool for diverse contaminants management: Current scenario and future aspects. **J. App. Biol. Biotech**. 10:48-63. <https://doi.org/10.7324/JABB.2022.10s205> (CiteScore: 1.6)
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- 47 Devi R, Kaur T, Kour D, Hricovec M, Mohan R, Yadav N, Rai PK, **Rai AK**, Yadav A, Kumar M, Yadav AN. 2022. Microbes-mediated alleviation of heavy metal stress in crops: Current research and future challenges. **J. App. Biol. Biotech**. 10: 25-37. <https://doi.org/10.7324/JABB.2022.10s203> (CiteScore: 1.6)



- 48 Anand K, Pandey GK, Kaur T, Pericak O, Olson C, Mohan R, Akansha K, Yadav A, Devi R, Kour D, **Rai AK**, Kumar M, Yadav AN. 2022. Arbuscular mycorrhizal fungi as a potential biofertilizers for agricultural sustainability. **J. App. Biol. Biotech.** 10:90-107. <https://doi.org/10.7324/JABB.2022.10s111> (CiteScore: 1.6)
- 49 Kaur T, Kour D, Pericak O, Olson C, Mohan R, Yadav A, Mishra S, Kumar M, **Rai AK**, Yadav AN. 2022. Structural and functional diversity of plant growth promoting microbiomes for agricultural sustainability. **J. App. Biol. Biotech.** 10 (Suppl 1): 70-89. <https://doi.org/10.7324/JABB.2022.10s108> (CiteScore: 1.6)
- 50 Kumar, P., **Rai, AK**, Gupta, A. et al. 2021. Pesticide-Degrading and Phosphate-Solubilizing Bacilli Isolated from Agricultural Soil of Punjab (India) Enhance Plant Growth. **Microbiology.** 90: 848–856. DOI: <https://doi.org/10.1134/S0026261722010076> (IF: 1.5, CiteScore: 2.5)
- 51 Quraishi M, Wani K, Pandit S, Gupta PK, **Rai AK**, Lahiri D, Jadhav DA, Ray RR, Jung SP, Thakur VK, Prasad R. 2021. Valorisation of CO₂ into Value-Added Products via Microbial Electrosynthesis (MES) and Electro-Fermentation Technology. **Fermentation.** 7(4): 291. <https://doi.org/10.3390/fermentation7040291> (IF: 3.7, CiteScore: 3.7)
- 52 Patwardhan SB, Savla N, Pandit S, Gupta PK, Mathuriya AS, Lahiri D, Jadhav DA, **Rai AK**, Kanu Priya, Ray RR, Singh V, Kumar V, Prasad R. 2021. Microbial Fuel Cell United with Other Existing Technologies for Enhanced Power Generation and Efficient Wastewater Treatment. **Applied Sciences.** 11(22):10777. DOI: <https://doi.org/10.3390/app112210777> (IF: 2.7, CiteScore: 4.5)
- 53 Pandit S, Savla N, Sonawane JM, Sani AM, Gupta PK, Mathuriya AS, **Rai AK**, Jadhav DA, Jung SP, Prasad R. 2021. Agricultural Waste and Wastewater as Feedstock for Bioelectricity Generation Using Microbial Fuel Cells: Recent Advances. **Fermentation.** 7(3): 169. <https://doi.org/10.3390/fermentation7030169> (IF: 3.7, CiteScore: 3.7)
- 54 Venkatramanan V, Shah S, **Rai AK**, Prasad R. 2021. Nexus Between Crop Residue Burning, Bioeconomy and Sustainable Development Goals Over North-Western India. **Frontiers in Energy Research.** ISSN=2296-598X. Vol. 8: 614212 (p 1-14). <https://doi.org/10.3389/fenrg.2020.614212> (IF: 3.4, CiteScore: 2.9)
- 55 Renu, Gupta SK, **Rai AK**, Sarim KM, Sharma A, Budhlakoti N, Arora D, Verma DK, and Singh DP. 2019. Metaproteomic data of maize rhizosphere for deciphering functional diversity. **Data in brief** (Elsevier). 27: 104574. <https://doi.org/10.1016/j.dib.2019.104574> (IF: 1.2, CiteScore: 2.6)
- 56 Al Makishah NH, **RAI AK**, Neamatallah AA, and Mabrouk AM. 2019. *Micrococcus luteus* 2030: a novel lipolytic bacterial strain isolated from local contaminated soil in Saudi Arabia. **SYLWAN** (English, ISSN- 0039-7660), 163(6): 132-152. <http://sylwan.ibles.org/archive.php?v=163&i=6> (IF: 0.62)
- 57 **Rai AK***, Chaturvedi R and Kumar A. 2018. Proteomic evidences for microcystin-RR-induced toxicological alterations in mice liver. **Scientific Reports** (Nature group). 8: 1310. 1-14. <https://doi.org/10.1038/s41598-018-19299-w> (IF: 4.6, CiteScore: 7.5)



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Scientific Research Papers Presented to Refereed Specialized Scientific Conferences

- **Rai AK** and Al Makishah NH. 2023. Biofuel, an alternate & renewable energy source. *In* international conference on exploring new horizons in biotechnology (ENB-2023). Banaras Hindu University Varanasi, India (Invited speaker).
- **Rai AK**, Shahi SK and Kumar A. 2011. Bacterial endophytes in crop plants: occurrence and molecular analysis. *In*: National conference on 'Frontiers in Biological Sciences'. VBS Purvanchal University, Jaunpur (UP).
- Shahi SK, **Rai AK**, Tyagi MB, Sinha RP and Kumar A. 2011. Screening of plant growth promoting rhizobacteria from wheat and rice rhizosphere. *In*: National Symposium on 'Emerging Trends in Plant Sciences'. CAS in Botany, BHU, Varanasi, India.
- Kumar A, **Rai AK**, Kumar A and Tyagi MB. 2010. Group specific PCR based screening and identification of *Microcystis*. *In*: International Symposium of Phycological Research. CAS in Botany, Banaras Hindu University Varanasi, India.
- Shahi SK, **Rai AK**, Tyagi MB, Sinha RP and Kumar A. 2010. Analysis of plant growth promoting bacterial diversity by denaturing gradient gel electrophoresis of 16S rDNA. *In*: National conference of Plant physiology. Institute of Agriculture Science, Banaras Hindu University, Varanasi.
- **Rai AK**, Shahi SK, Tyagi MB, Sinha RP and Kumar A. 2010. Physiological and molecular characterization of plant growth promoting rhizobacteria isolated from wheat and rice fields *In*: International Conference on the 'Role of Biomolecules in Food Security and Health Improvement'. Department of Biochemistry, Banaras Hindu University, Varanasi, India.
- Shahi SK, **Rai AK**, Tyagi MB, Sinha RP and Kumar A. 2009. Isolation and characterization of plant growth rhizobacteria from rice crop of Eastern Uttar Pradesh *In*: 31st Annual conference & symposium on 'Microbial wealth- plant health'. DRS Department of Botany, University of North Bengal, Siliguri-73413, West Bengal, India

Other Scientific Achievements: [Online available at PubMed / NCBI website]

Identification and Characterization of Novel bacteria: ~60 NCBI GenBank Accession Numbers have been obtained. All Accessions are available online at PubMed / NCBI GenBank website. Details are as following.

Identification of novel bacterial isolates and their NCBI GenBank Accession Numbers (Rai AK. et al.)		
S.N.	Novel bacterial strains (Isolation, Identification & Characterization)	NCBI GenBank Accession No.
1	<i>Serratia marcescens</i> strain MK6S3, 16S ribosomal RNA gene	EU040248
2	<i>Pantoea agglomerans</i> strain V1S7, 16S ribosomal RNA gene	EU040249
3	<i>Enterobacter cloacae</i> strain MK11S6 , 16S ribosomal RNA gene	EU040250
4	<i>Klebsiella oxytoca</i> strain MK3S11, 16S ribosomal RNA gene	EU040251
5	<i>Bacillus megaterium</i> strain J1S9 , 16S ribosomal RNA gene	EU040252



6	<i>Bacillus megaterium</i> strain M2S7, 16S ribosomal RNA gene	EU040253
7	<i>Acinetobacter sp.</i> MK2S9, 16S ribosomal RNA gene	EU040254
8	<i>Microbacterium sp.</i> J2S10, 16S ribosomal RNA gene	EU040255
9	<i>Bacillus megaterium</i> strain G1S3, 16S ribosomal RNA gene	EU040256
10	<i>Cronobacter turicensis</i> strain M2S10, 16S ribosomal RNA gene	EU040257
11	<i>Sphingomonas sp.</i> C3S5, 16S ribosomal RNA gene	FJ012066
12	<i>Ancylobacter sp.</i> AJ 3-2, 16S ribosomal RNA gene	GU056816
13	<i>Agrobacterium tumefaciens</i> strain VA9S9, 16S ribosomal RNA gene	HQ916822
14	<i>Acinetobacter sp.</i> strain VA2S2, 16S ribosomal RNA gene	HQ916823
15	<i>Bacillus pumilus</i> strain SB 3-2, 16S ribosomal RNA gene	HQ916824
16	<i>Pseudomonas putida</i> strain MK12S6, 16S ribosomal RNA gene	HQ916825
17	<i>Pseudomonas sp.</i> AJ 1-4, 16S ribosomal RNA gene	GU056817
18	<i>Enterobacter sp.</i> AJ 2-3, 16S ribosomal RNA gene	GU056818
19	<i>Pantoea sp.</i> AJ 3-3, 16S ribosomal RNA gene	GU056819
20	<i>Sphingomonas sp</i> AJ 4-5, 16S ribosomal RNA gene	GU056820
21	<i>Sphingomonas sp</i> AJ 5-2, 16S ribosomal RNA gene	GU056821
22	<i>Pseudomonas sp.</i> GS1S1, 16S ribosomal RNA gene	GU056822
23	<i>Pseudomonas sp.</i> GS8S2, 16S ribosomal RNA gene	GU056823
24	<i>Enterobacter sp.</i> AJ 9-2, 16S ribosomal RNA gene	GU056824
25	<i>Stenotrophomonas maltophilia</i> strain SR2-2, 16S ribosomal RNA gene	GU056825
25	<i>Microbacterium testaceum</i> Strain C3S3, 16S ribosomal RNA gene	GU056826
27	<i>Sphingomonas sp.</i> J2S5A, 16S ribosomal RNA gene	GU056827
28	<i>Microbacterium sp.</i> SB 4-5, 16S ribosomal RNA gene	GU056828
29	<i>Enterobacter asburiae</i> strain SB 7-5, 16S ribosomal RNA gene	GU056829
30	<i>Pseudomonas sp.</i> VA1S2, 16S ribosomal RNA gene	GU056830
31	<i>Advenella incenata</i> strain VA2S3A, 16S ribosomal RNA gene	GU056831
32	<i>Gamma proteobacterium</i> VA3S1, 16S ribosomal RNA gene	GU056832
33	<i>Pseudomonas sp.</i> VA4S7, 16S ribosomal RNA gene	GU056833
34	<i>Rhizobium sp</i> VB4S6, 16S ribosomal RNA gene	GU056834
35	<i>Rhizobium sp.</i> strain AJ 6-1, 16S ribosomal RNA gene	HM031382
36	<i>Pseudomonas putida</i> strain AJ 10-4, 16S ribosomal RNA gene	HM031383
37	<i>Microbacterium sp.</i> strain BX 3-3A, 16S ribosomal RNA gene	HM031384
38	<i>Agrobacterium sp.</i> strain C2S1, 16S ribosomal RNA gene	HM031385
39	<i>Curtobacterium sp.</i> strain SB1-5, 16S ribosomal RNA gene	HM031386
40	<i>Enterobacter sp.</i> strain SB 2-2, 16S ribosomal RNA gene	HM031387
	Novel Cyanobacterial strains (Isolation & Characterizations)	
41	<i>Microcystis aeruginosa</i> V-08 16S ribosomal RNA gene, partial sequence.	JF799854
42	<i>Microcystis aeruginosa</i> V-08 16S ribosomal RNA gene (V6-V8), partial sequence	JF799856
43	<i>M. aeruginosa</i> V-08 microcystin synthetase (<i>mcyA</i>) gene, partial cds	JF799858
44	<i>M. aeruginosa</i> V-08 microcystin synthetase-like (<i>mcyB</i>) gene, partial sequence	JF799860
45	<i>M. aeruginosa</i> V-08 microcystin synthetase-like (<i>mcyC</i>) gene, partial sequence	JF799862
46	<i>Microcystis aeruginosa</i> V-08 polyketide synthase (<i>mcyD</i>) gene, partial cds	JF799864
47	<i>M. aeruginosa</i> V-08 microcystin synthetase (<i>mcyE</i>) gene, partial cds	JF799866
48	<i>Microcystis aeruginosa</i> V-08 polyketide synthase (<i>mcyG</i>) gene, partial cds	JF799868



49	<i>M. aeruginosa</i> V-08 microcystin synthetase-like (<i>mcyA</i>) gene, partial sequence	JF799870
50	<i>Sphingomonas</i> sp. strain A-5, 16S ribosomal RNA gene sequence	HQ916826
51	<i>Microcystis aeruginosa</i> G-01 16S ribosomal RNA gene, partial sequence.	JF799855
52	<i>Microcystis aeruginosa</i> G-01 16S ribosomal RNA gene (V6-V8), partial sequence	JF799857
53	<i>M. aeruginosa</i> G-01 microcystin synthetase-like (<i>mcyA</i>) gene, partial sequence	JF799859
54	<i>M. aeruginosa</i> G-01 microcystin synthetase-like (<i>mcyB</i>) gene, partial cds	JF799861
55	<i>M. aeruginosa</i> G-01 microcystin synthetase-like (<i>mcyC</i>) gene, partial sequence	JF799863
56	<i>Microcystis aeruginosa</i> G-01 polyketide synthase (<i>mcyD</i>) gene, partial cds	JF799865
57	<i>M. aeruginosa</i> G-01 microcystin synthetase-like (<i>mcyE</i>) gene, partial cds	JF799867
58	<i>Microcystis aeruginosa</i> G-01 polyketide synthase (<i>mcyG</i>) gene, partial cds	JF799869
59	<i>M. aeruginosa</i> G-01 microcystin synthetase-like (<i>mcyA</i>) gene, partial cds	JF799871

Completed Research Projects

#	Name of Investigator(s) (Supported by)	Research Title	Duration & (Report Date)
1	Dr. Ashutosh Kumar Rai (P.I.) DST, Government of India [INR-29.9 L]	Studies on <i>Caenorhabditis elegans</i> during <i>Vibrio</i> spp. and <i>Klebsiella pneumoniae</i> pathogenesis: a comprehensive proteomic analysis	2015-2017 (2018)
2	Dr. Ashutosh Kumar Rai (Co-PI) DSR, KAU	Biofuel Production from Organic Feedstock by A Novel Microbial Isolate	2018-2019 (2019)

Current Research

#	Research Title	Name of Investigator(s)

Contribution to Scientific Conferences/ Symposia, or Participation in Workshop/ Training

1. Attended a training / workshop entitled "Practical Workshop on writing with AI for researchers - GCC region" by AVIDNOTE AI (May 02, 2024).
2. Participated in a seminar entitled "Quality Control and Quality Assurance" organized by Graphic Era Institute of Medical Sciences, India (April 04, 2024).
3. Participated in international webinar and online training entitled "Challenges and best practice in online learning: Five steps in successful learning design" organized by Deanship of Academic Development, IAU in collaboration with the University of Turku, Finland (Feb. 29, 2024).
4. Participated in Faculty Development Program regarding "The Concept of Curriculum and Its Types" organized by Department of Medical Education, College of Medicine, IAU (Oct. 25, 2023).
5. Attended a training session entitled "The importance of artificial intelligence: Examining its role in teaching and learning" organized by Deanship of Academic Development, IAU (Aug 30, 2023).
6. Attended a training session entitled "Generative Artificial Intelligence: A Game changer in Higher Education" organized by Deanship of Academic Development, IAU (Aug 22, 2023).
7. Attended in International webinar on "Breaking barrier in chemistry research with Reaxys" Organized by Elsevier, & Office of the Vice President for Scientific Research & Innovation, IAU (March 14, 2023).
8. Participated in International conference (webinar) on topic "Exploring new horizons in biotechnology (ENB-2023)" organized by School of Biotechnology, Banaras Hindu University Varanasi, India (Feb. 10-12, 2023).



9. Participated in a training/ webinar on *“Avoiding Common Teaching Mistakes- A Discussion”* organized by Deanship of Academic Development, IAU, Dammam, KSA (April 04, 2023).
10. Participated in a training/ webinar on *“Mendeley Reference Managing Tool”* organized by Deanship of Academic Development, IAU, Dammam, KSA (March 28, 2023).
11. Participated in a training/ webinar on *“Classroom Management”* organized by Deanship of Academic Development, IAU, Dammam, KSA (Jan. 03, 2023).
12. Participated in a webinar on *“University Ranking Strategies”* Organized by Deanship of Quality & Academic Accreditation, and HQA, IAU (Oct. 27, 2022).
13. Participated in a webinar *“Cross Border Collaboration: What to look for in a Partner, setting up Partnerships and Managing Risk”* organized by Deanship of Quality & Academic Accreditation, and HQA, IAU (Sept. 28, 2022).
14. Participated in a training/ webinar on *“Using Action Research in Teaching”* organized by Deanship of Academic Development, IAU, Dammam, KSA (Sept. 07, 2022).
15. Participated in a training workshop program on *“Facilitating Metacognition in the classroom”* organized by Deanship of Academic Development, IAU, Dammam, KSA (Aug. 31, 2022).
16. Participated in a training workshop on *“OSCE”* organized by College of Medicine, IAU (April 12, 2022).
17. Participated in an international webinar on *“Resilient Pedagogies: What Next?”* organized by Advance HE, Deanship of Academic Development IAU, and Vice Presidency of Academic Affairs, IAU (March 29, 2022).
18. Participated in a webinar on *“Achieving the Promise of Classroom Assessment to Improve Student Learning and Success”* organized by Vice Presidency of Academic Affairs, IAU, KSA (Feb. 01, 2022).
19. Attended *“The 19th International Learning and Technology Conference”* under session ‘Healthcare and artificial intelligence applications’ (online), organized by Effat University, KSA (January 24, 2022).
20. Participated in a webinar on *“Medical College of the Future: From Informative to Transformative”* organized by Deanship of Quality & Academic Accreditation, IAU, KSA (Oct. 13, 2021).
21. Participated in a workshop/ webinar on *“Learning Outcomes for Programs and Courses”* organized by Deanship of Academic Development, IAU, KSA (Oct. 12, 2021).
22. Participated in a webinar on *“Golden Tips to Avoid Pitfalls: Publishing in Reputable Medical Journals”* organized by College of Medicine Alumni Unit, IAU (Oct. 09, 2021).
23. Participated in a webinar on *“Accessing and Using Microsoft SharePoint”* organized by Deanship of Information & Communication Technology, IAU, KSA (Oct. 05, 2021).
24. Participated in a webinar on *“Professional Fellowship in University Teaching and Learning (PFUTL) Information Session (Information/Q & A)”* organized by Deanship of Academic Development, IAU, KSA (Sept. 20, 2021)
25. Participated in a webinar on *“Providing Effective Feedback”* organized by College of Medicine & Vice Presidency for Academic, IAU, KSA (Sept. 07, 2021)
26. Participated in webinar(s) on *“Faculty Orientations Program/ Week”* organized by College of Medicine, IAU, KSA (August 30-31, 2021 & Sept. 01, 2021).
27. Participated in a webinar on *“The Art of Designing and Measuring Key Performance Indicators (KPIs) for Academic Programs and Communicating Results to Stakeholders”* organized by Deanship of Quality & Academic Accreditation, IAU, KSA (May. 24, 2021).
28. Participated in an *‘International Webinar on Science, Sustainable Development and Ecosystems in Saudi Arabia (SSDE 21)’* organized by College of Science, IAU (April 6 – 7, 2021).
29. Participated in an International webinar on *‘Demystifying Pandemic using AI/ML-enabled Multi-model Data Analytics’* organized by JNU India, & Nanofluid Res. Pvt. Ltd. USA (Dec. 21, 2020).
30. Participated in an International webinar on *‘Accelerating Clinical & Translational Research using AI/ML enabled deep data Analytics’* organized by JNU India, & Nanofluid Res. Pvt. Ltd. USA (Nov. 23, 2020)
31. Participated in several training/ workshop sessions (no. >20) organized by Deanship of Academic Development, IAU, KSA.
32. Participated in 3 days’ workshop/ ESHPE Course on *“Assessment Module” (14 CME Credit hours)* Organized by Department of Medical Education, IAU, KSA (Feb. 18, 2020, to Feb. 20, 2020)
33. Participated in an international intensive training program on *“Boosting Innovation and Entrepreneurship in University Education”* organized by Vice Presidency of Innovation and Entrepreneurship IAU & Deanship of Academic Development, IAU, KSA. Experts were from University of Turku, Finland (Nov.13, 2019 to Nov.14, 2019).



34. Participated in a training program on *“Questioning to Develop Higher-Order Thinking Skills”* organized by Deanship of Academic Development, IAU, KSA (Oct. 08, 2019).
35. Participated in a training program on *“Attract Students with Your PowerPoint”* organized by Deanship of Academic Development, IAU, KSA (Sept 24, 2019).
36. Participated in a training program on *“Assessment Foundations”* organized by Deanship of Academic Development, IAU, KSA (Sept. 17, 2019).
37. Participated in a training cum- workshop on *“Effective Searching of Electronic Information Resources”* organized by Deanship of Library Affairs, IAU, KSA (Sept. 10, 2019).
38. Participated in a training program on *“Using Multiple-Choice Items to Test Higher-Order Thinking Skills”* organized by Deanship of Academic Development, IAU, KSA (Sept. 03, 2019) .
39. Participated in a training program on *“Effective Formative Assessment Tools for the Classroom”* organized by Deanship of Academic Development, IAU, Dammam, KSA (Aug. 28, 2019).
40. Participated in a training program on *“First Day of Class: Get Ready”* organized by Deanship of Academic Development, IAU, KSA (Aug. 25, 2019).
41. Participated in a training program on *“Creating a Positive Classroom Community”* organized by Deanship of Academic Development, IAU, KSA (Aug. 20, 2019).
42. Participated in a training cum- workshop on *“Scopus for Literature Searching and Research Impact”* organized by Deanship of Library Affairs, IAU, KSA (April 16, 2019).
43. Participated in workshop on *“Integrating Leadership Skills in the Academic Curriculum”* organized by Deanship of Academic Development, IAU, KSA (April 02, 2019).
44. Participated in training cum workshop on *“How to Get Publish in High Quality Journals”* organized by Deanship of Library Affairs, IAU, KSA (March 26, 2019).
45. Participated in training cum- workshop on topic *“Animal Care & Use in Scientific Research”* organized by Deanship of Scientific Research, IAU and KAUST, at Deanship of E- Learning (D-5), IAU, KSA (March 21, 2019).
46. Participated in training -workshop on *“Summon Web Discovery Tool”* organized by Deanship of Library Affairs, IAU, KSA (March 19, 2019).
47. Participated in workshop on *“Analyzing & Reading Test’s Results”* organized by Deanship of Academic Development, IAU, KSA (March 13, 2019).
48. Participated in workshop on *“Alternative Assessment & Effective Methods”* organized by Deanship of Academic Development, IAU, KSA (March 12, 2019).
49. Participated in workshop on *“The Pursuit of Excellence in Mentoring”* organized by Deanship of Academic Development, IAU, KSA (March 05, 2019).
50. Participated in Intensive Faculty Training Program entitled *“Developing Core Competency in Teaching and Learning”* organized by Academy of Excellence, Deanship of Academic Development, IAU, KSA (Feb. 20 to 25, 2019).
51. Participated in training workshop on *“Endnote Desktop”* organized by Deanship of Library Affairs, IAU, KSA (Feb. 19, 2019).
52. Participated in workshop on *“Providing Constructive Feedback”* organized by Deanship of Academic Development, IAU, KSA (Feb. 13, 2019).
53. Participated in training/ workshop on *“Key Performance Indicators and Benchmarking”* organized by Deanship of Academic Development, at College of Clinical Pharmacy, IAU, KSA (Feb. 12, 2019).
54. Participated in training/ workshop on *“Assessment of Learning Objectives (Los) for Course and Program”* organized by Deanship of Academic Development, IAU, KSA (Feb. 06, 2019).
55. Participated in workshop on *“Facilitating Metacognition in the Classroom”* organized by Deanship of Academic Development, IAU, KSA (Feb. 05, 2019).
56. Participated in workshop on *“Creative and Active Teaching and Learning Strategies”* organized by Deanship of Academic Development, IAU, KSA (Jan. 29, 2019).
57. Participated in training workshop on *“Advance e-Book Searching”* organized by Deanship of Library Affairs, IAU, KSA (Jan. 22, 2019).
58. Participated in workshop on *“Student Motivation and Learning”* organized by Deanship of Academic Development, IAU, KSA (Jan. 16, 2019).



59. Participated in workshop on “*Analyzing & Reading Test’s Results*” organized by Deanship of Academic Development, IAU, KSA (Jan. 15, 2019).
60. Participated in workshop on “*Advance Multiple-Choice Questions to Test, higher-order thinking*” organized by Deanship of Academic Development, IAU, KSA (Jan. 08, 2019).
61. Participated in training workshop on “*How to present research paper in International Conference*” organized by Deanship of Library Affairs, IAU, KSA (Dec. 12, 2018).
62. Participated in workshop on “*Flipped Classroom*” organized by Deanship of Education Development, IAU, KSA (Nov. 28, 2018).
63. Participated in workshop on “*Preventing Faculty Burnout*” organized by Deanship of Education Development, IAU, KSA (Nov. 13, 2018).
64. Participated in training- workshop on “*How to Get Published in Quality Research Journal*” organized by Deanship of Library Affairs, IAU, KSA (Nov. 06, 2018).
65. Participated in training workshop on “*How to Search Specific Types of Health Studies*” organized by Deanship of Library Affairs, IAU, KSA (Oct. 30, 2018).
66. Participated in workshop on “*Effective Assessment Through Rubrics*” organized by Deanship of Education Development, IAU, KSA (Oct. 24, 2018).
67. Participated in training workshop on “*Web of Science*” organized by Deanship of Library Affairs, IAU, KSA (Oct. 16, 2018).
68. Participated in workshop on “*Assessing Projects and labs*” organized by Deanship of Education Development, IAU, Dammam, KSA (Oct. 10, 2018)
69. Participated in training workshop on “*Scopus for Literature Searching and Research Impact*” organized by Deanship of Library Affairs, IAU, KSA (Oct. 09, 2018).
70. Participated in workshop on “*Questioning Strategy and Leading Discussion in Classroom*” organized by Deanship of Education Development, IAU, KSA (Oct. 03, 2018)
71. Participated in training on “*Developing a Plan for Academic Program Assessment*” organized by The Vice Presidency for Academic Affairs, IAU, KSA (Oct. 02, 2018)
72. Participated in workshop on “*Using Action Research in Teaching and Assessment*” organized by Deanship of Education Development, IAU, KSA (Sept. 26, 2018)
73. Participated in workshop on “*Enhancing Learning Through the Use of Technology*” organized by Deanship of Education Development, IAU, KSA (Sept. 12, 2018)
74. Attended the workshop on topic “*Objective Structured Clinical Examination (OSCE)*” organized by Department of Medical Education, College of Medicine, IAU, KSA (May 01, 2018).
75. Participated in training workshop on “*Writing Systematic Literature Review*” organized by Deanship of Library Affairs, IAU, KSA (April 26, 2018).
76. Participated in training workshop on “*EndNote*” organized by Deanship of Library Affairs, IAU, KSA (April 24, 2018).
77. Participated in training workshop on “*Advance E-Book Searching*” organized by Deanship of Library Affairs, IAU, KSA (March 20, 2018).
78. Participated in training workshop on “*Understand Plagiarism*” organized by Deanship of Library Affairs, IAU, KSA (March 15, 2018).
79. Participated in training workshop on “*Scopus*” organized by Deanship of Library Affairs, IAU, KSA (March 07, 2018).
80. Participated in training workshop on “*Mix Method Research*” organized by Deanship of Library Affairs, IAU, KSA (March 06, 2018).
81. Participated in training workshop on “*Web of Science*” organized by Deanship of Library Affairs, IAU, KSA (Feb. 20, 2018).
82. Participated in training workshop on “*PubMed*” organized by Deanship of Library Affairs, IAU, Dammam, KSA (Feb. 13, 2018).
83. Participated in conference “*BioEpoch 2017*” organized by School of Biotechnology, Jawaharlal Nehru University, New Delhi (March 23-24, 2017).
84. Participated in two weeks national workshop on “*English for academic writing: from synopsis to thesis writing*” organized by Linguistic Empowerment Cell, Jawaharlal Nehru University, New Delhi, India (29th July 2016 to 12th August 2016).



85. Participated in a workshop on “*Lipidomics /metabolomics*” organized by SCIEX USA & SCIEX India at SCIEX, Gurgaon, India (23rd May 2016 to 24th May 2016).
86. Participated in National Conference on “*Nano-Bio Interface 2016*” organized by Jawaharlal Nehru University, New Delhi (March 18-20, 2016).
87. Participated in conference “*BioEpoch 2016*” organized by School of Biotechnology, Jawaharlal Nehru University, New Delhi (March 14-15, 2016).
88. Participated in International Symposium on “*Emerging discovery in Microbiology*” organized by School of Life Sciences, Jawaharlal Nehru University, New Delhi (Dec. 7-10, 2015) .
89. Participated in National Workshop on “*Small molecule analysis by API mass spectroscopy and NMR spectroscopy*” organized by SAIF, Central Drug Research Institute (CSIR), Lucknow, India (November 2-3, 2015).
90. Participated in National Conference on “*Emerging Trends and Challenges in Basic and Translational Research in Biochemistry*” organized by Centre of Advanced Study, Dept. of Zoology, Banaras Hindu University, Varanasi, India (February 4-5, 2013).
91. Participated and presented a poster in National Symposium on “*Emerging Trends In Plant Sciences*”, CAS in Botany, BHU, Varanasi, (March 3- 4, 2011).
92. Participated and presented a poster in National Conference of Plant Physiology under thematic area “*Physiological and Molecular Approaches for Crop Improvement under Changing Environment*” organized by Dept. of Plant Physiology, Institute of Agricultural Sciences, BHU, Varansi (Nov.25-27, 2010).
93. Participated in International Conference on “*Functional Genomics: Prospects and Challenges*” organized by Cytogenetics Sections, Dept. of Zoology, BHU, Varanasi, India (Oct.2-4, 2010).
94. Participated and presented a poster in “*International Symposium of Phycological Research*,” CAS in Botany, BHU, Varanasi, (Feb.25-27, 2010).
95. Participated and presented a poster in International Conference on the “*Role of Biomolecules in Food Security and Health Improvement*”, Dept. of Biochemistry, BHU, Varanasi, (Feb.17-20, 2010).
96. Participated in International Conference on “*Emerging Trends in Biotechnology & 6th Annual Convention of The Biotech Research Society, India*”, BHU, Varanasi (Dec.4-6, 2009).
97. Participated in a workshop/ short training on “*Protein modeling and Simulation: Its Applications in Biological Sciences*” held at Centre for Bioinformatics, School of Biotechnology, BHU, Varanasi (September 15-16, 2009).
98. Participated in National Conference on “*Emphasizing Recent Advances in Oilseed Production and Industrialization with Special Reference to Rapeseed-Mustard*”, Dept. of Mycology and Plant Pathology, Institute of Agricultural Sciences, BHU, Varansi, (Nov.21-23, 2008).
99. Participated in a National Workshop- cum – Training on “*Bioinformatics Applications in Agricultural Research*” organized by Indian Agricultural Research Institute (IARI), New Delhi (Feb 25-27, 2008).
100. Participated in short training course of one-week duration on “*LATEX*” held at Centre for Bioinformatics, School of Biotechnology, BHU, Varanasi (February 6- 11, 2007).

Membership of Scientific and Professional Societies and Organizations

- Life-time member of ‘Biotech Research Society of India’ since 2012. Web: <https://brsi.in/>
- Life-time member of ‘Associations of Microbiologists of India’ since 2011. Web: <https://amiindia.info/>
- Life Member of ‘Avishka Council of Industrial and Allied Biosciences’ since 2023. <https://aciab.org/>



Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (No. of lectures/Tutorials. Or labs, Clinics)
1	Biochemistry (BIOCH-205, Public Health)	BIOCH-205	Lecture, Tutorials and Labs / Instructions
2	Clinical Biochemistry (BIOCH-305, Pharmacy 3 rd year)	BIOCH-305	Labs / Instructions
3	Biochemistry (Dentistry & Pharmacy 2 nd year: BIOCH-212)	BIOCH-212	Lecture and Labs / Instructions
4	Biochemistry (BIOCH-231, Nursing)	BIOCH-231	Labs / Instructions
5	Nutrition (Nutr-222)	Nutr-222	Lecture
6	Biomed. Eng.		Biochemistry Labs /Instructions

Brief Description of Undergraduate Courses Taught: (Course Title – Code: Description)

BIOCH-205 (Public Health): Protein chemistry, metabolism and associated disorders, Carbohydrates, Nucleotide chemistry and metabolism, Vitamins, Enzymes
BIOCH-212 (Pharma D) : Metabolic Pathway of Nucleic Acid, Xenobiotics
Nutr-222 (Nutrition). : Dietary Carbohydrates
Lab instructions of all clinical Biochemistry lab experiments related to carbohydrates, proteins, DNA, clinical estimation of glucose, urea, ALP, G6PD, and several others.

Postgraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1			

Brief Description of Postgraduate Courses Taught: (Course Title – Code: Description)

Course Coordination

#	Course Title and Code	Coordination	Co-Coord.	Undergr ad.	PG	From	To
1	Biochemistry, BIOCH-205: Lecture (PH- Male & Female)	Coordinator (PH- Male & Female)		UG		2018	Date
2	Biochemistry, BIOCH-205: Lab (PH- Male & Female)	Coordinator (PH- Male & Female)		UG		2018	Date
3	Biochemistry (BIOCH-305: Lab Male)		Co-Coord.	UG		2018	Date
4	Biochemistry (BIOCH-212: Lab- M)		Co-Coord.	UG		2018	Date
5	BIOCH-231, Lab (Male)		Co-Coord.	UG		2018	Date



Guest/Invited Lectures for Undergraduate Students

#	Activity/Course Title	Subject	College and University or Program	Date
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Student Academic Supervision and Mentoring

#	Level	Number of Students	From	To
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Supervision of Master and/or PhD Thesis

#	Degree Type	Title	Institution	Date
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Administrative Responsibilities, Committee and Community Service (Most recent first)

Administrative Responsibilities

#	From	To	Position	Organization
1	2018	date	Course Coordinator (BIOCH-205)	IAU, KSA

Committee Membership

#	From	To	Position	Organization
1	2017	date	Departmental Committee Member	IAU, KSA

Scientific Consultations

#	From	To	Institute	Full-time or Part-time
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Volunteer Work

#	From	To	Type of Volunteer	Organization
1	2018	date	Academic Editor	PLOS-One Journal
2	2022	date	Editorial Board Member	Front. Microbiol., & Front. Fung. Biol.
3	2017	2019	Editorial Board Member	Mexican J. Biotechnol.
4	2017	date	Invited reviewer	Nature Group, PLOS, Elsevier, Springer, etc

Personal Key Competencies and Skills: (Computer, Information technology, technical, etc.)

1	Diploma in Computer Operation with Grade A+ (2003)
2	Experienced on MS Word, Excel, PowerPoint, Photoshop, Sigma Plot, Graph Pad Prism, Quantity One (BIO-RAD), PDQuest software etc.
3	Bioinformatics: Biological sequence analysis, NCBI BLAST-search, MEGA, NTSYSpc. 3-D Molecular Modeling and Docking analysis with software: Swiss-pdb (Offline), Swiss-Model Workspace (Online), Hex 6.3, and other software.
4	Expertise/ Scientific Skill: <ul style="list-style-type: none"> ● Routine Microbiological techniques related to isolation and characterization of bacteria. ● Routine Cyanobacterial / Algal techniques related to isolation and characterization ● Handling of mice model (Worked during toxicological & toxicoproteomic studies of microcystin). ● Microscopy (Bright field and fluorescence microscopy), Histochemistry



- Isolation of genomic and plasmid DNA, extraction of RNA, agarose and polyacrylamide gel electrophoresis. DNA fragmentation assay.
- PCR-based techniques such as standard PCR, multiplex PCR and DNA Sequencing
- **Molecular biology** / fingerprinting techniques *viz.*, RAPD, ARDRA, RFLP, DGGE, AFLP
- Genetic engineering techniques (Transformation via electroporation) and subsequent selection
- **Proteomic techniques** such as Polyacrylamide gel electrophoresis, 2-D gel electrophoresis, MALDI-TOF MS, PDQuest software analysis
- Chromatography techniques such as paper chromatography, TLC and HPLC
- Familiar with Bioinformatics tools for gene identification, preparation of phylogenetic tree, primer designing, genetic map preparation etc.
- Molecular Modeling and Docking analysis with Bioinformatics software
- Capabilities of successful research and development, summarizing research findings, analyze/evaluate data & results and perceive patterns/structures. Expertise in identifying issues, forming hypothesis, designing and conducting analysis, synthesizing conclusions into recommendations and implementing change.

Researcher Identification

- Orchid ID**(Link) : <https://orcid.org/0000-0001-6938-619X>
- Google Scholar** (Link) : <https://scholar.google.com/citations?user=7Jm3SkcAAAAJ&hl=en>
- ResearchGate** (Link) : https://www.researchgate.net/profile/Ashutosh_Rai
- Scopus** (ID- 57211320620) : <https://www.scopus.com/authid/detail.uri?authorId=57211320620>
- Web of Science** (E-4904-2018) : <https://publons.com/researcher/1415234/ashutosh-kumar-rai/>
- Social Media /LinkedIn** : <https://www.linkedin.com/in/dr-ashutosh-kumar-rai-46a5a128/>

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