Faculty Full Name: Dr. Ashutosh Kumar Rai

POSITION: **Assistant Professor**

Personal Data

Nationality : Indian

Department : Biochemistry

Official IAU Email : akrai@iau.edu.sa

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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.	● Title of the PhD Thesis**: "Molecular and Proteomic Studies on Biosynthesis and Toxicity of Microcystin from *Microcystis* spp."**
M.Sc.	● Dissertation title: 'Biochemical and Genetic Basis of a mental disorder'
Fellowship	● **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. ● *Ekekriti* 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	**Journal Editor** ▪ **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). ● **2017** to date**:** Worked as **invited reviewer** for following prestigious journals**.** ▪ 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)*

Area of interest: Microbial Biotechnology, Molecular Biology, Proteomics, Environmental Microbiology, Cyanotoxins (Microcystins), host-pathogen interactions, Synthetic Biology & Biofuels.

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

S. N.	Publication' Details (Author's Name, Year, Title, Journal, Vol., Page No., DOI, Web Link)	J. Q.
1	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.	Q1
2	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.	Q1
3	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	Q1
4	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	Q1
5	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	Q1
6	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	Q2
7	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.	-
8	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	Q1
9	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.	Q1

	https://doi.org/10.1016/j.semcancer.2021.07.013	
10	Akansha K, Kaur T, Yadav A, Kour D, **Rai AK**, Singh S, Mishra S, Kumar L, Miglani K, Singh K, Yadav AN. 2022. Microbe-mediated remediation of dyes: Current status and future challenges. **J. App. Biol. Biotech**. pp. 1-23. https://doi.org/10.7324/JABB.2023.113491	Q3
11	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	Q2
12	Kour H, Khan SS, Kour D, Rasool S, Sharma YP, Rai PK, Singh S, Chaubey KK, **Rai AK**, Yadav AN. 2022. Microbes mediated plastic degradation: A sustainable approach for environmental sustainability. **J. App. Biol. Biotech**. pp. 1-11. https://doi.org/10.7324/JABB.2023.110515	Q3
13	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	Q3
14	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. https://doi.org/10.1038/s41435-021-00150-8 https://www.nature.com/articles/s41435-021-00150-8	Q1
15	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	Q3
16	**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	Q1
17	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. https://doi.org/10.1016/j.scitotenv.2022.153843 https://www.sciencedirect.com/science/article/pii/S0048969722009354	Q1
18	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	Q3
19	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(Suppl 2):48-63. DOI: https://doi.org/10.7324/JABB.2022.10s205	Q3
20	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 (Suppl 2): 25-37. https://doi.org/10.7324/JABB.2022.10s203	Q3

21	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(Suppl 1):90-107. DOI: https://doi.org/10.7324/JABB.2022.10s111	Q3
22	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. DOI: https://doi.org/10.7324/JABB.2022.10s108	Q3
23	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	Q3
24	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 CO_2 into Value-Added Products via Microbial Electrosynthesis (MES) and Electro-Fermentation Technology. **Fermentation.** 7(4): 291. DOI: https://doi.org/10.3390/fermentation7040291	Q1
25	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	Q2
26	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. DOI: https://doi.org/10.3390/fermentation7030169	Q1
27	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	Q2
28	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	Q4
29	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	Q3 (2019)
30	**Rai AK***, Chaturvedi R and Kumar A. 2018. Proteomic evidences for microcystin-RR-induced toxicological alterations in mice liver. **Scientific Reports**. 8: 1310. 1-14. DOI: https://doi.org/10.1038/s41598-018-19299-w	Q1

Publications done before 5 years -

31	**Rai AK**, Singh DP, Prabha R, Kumar M and Sharma M. 2016. Microbial Inoculants: Identification, Characterization and Application in the field. *In* Microbial Inoculants in Sustainable Agricultural Productivity - Vol. 1: Research Perspectives (Eds. Sigh DP, Singh HB and Prabha R). **Springer**. ISBN 978-81-322-2645-1. Pp. 103-115. DOI: https://doi.org/10.1007/978-81-322-2647-5_6.	

web https://link.springer.com/chapter/10.1007/978-81-322-2647-5_6

32 Kumar M, Singh DP, Prabha R, **Rai AK**, Sharma L. 2016. Role of Microbial Inoculants in Nutrient Use Efficiency *In*; Microbial Inoculants in Sustainable Agricultural Productivity, Vol. 2: Functional Applications. (Eds. Singh DP, Singh HB and Prabha R). **Springer**. ISBN: 978-81-322-2642-0. pp. 133-142. DOI: https://doi.org/10.1007/978-81-322-2644-4_9

33 **Rai AK*** and Kumar A. 2013. DNA fragmentation induced by microcystin-RR in mice liver. *Int. J. Basic Appl. Sci*. 2(2): 56-59.

34 **Rai AK**, Pearson LA and Kumar A. 2013. Hepatotoxic microcystins of cyanobacteria: biosynthesis and degradation in response to abiotic stress *In*: Stress Biology of Cyanobacteria: Molecular Mechanisms to Cellular response. (Eds. Srivastava AK, Rai AN and Neilan BA), **CRC Press**, **Taylor and Francis group LLC, USA**. ISBN 978-146650-478-3. pp. 341-350. Web-https://www.crcpress.com/Stress-Biology-of-Cyanobacteria-Molecular-Mechanisms-to-Cellular-Responses/Srivastava-Rai-Neilan/p/book/9781138198746

35 Shahi SK, **Rai AK**, Tyagi MB, Sinha RP and Kumar A. 2013. Isolation and characterization of plant growth promoting rhizobacteria from rice crops of eastern Uttar Pradesh. *In*: Microbial Resources for Crop Improvement. (Eds. Chakraborty B and Chakraborty U), Satish Serial Publishing House, New Delhi, India. ISBN 978-938122-639-1. pp. 85-100.

36 **Rai AK*** and Kumar A. 2012. Occurrence, biosynthesis and consequences of microcystin: a potent hepatotoxin of cyanobacteria. *Int. J. Environ. Sci*. 1(4): 246-252.

37 **Rai AK**. Molecular and Proteomic Studies on Biosynthesis and Toxicity of Microcystin from *Microcystis* spp. Ph.D. Thesis. Banaras Hindu University, India. 2012, 2: 168 leaves. I955:44:Q2R. Accession Number 1080064.

38 Kumar A, Kumar A, **Rai AK** and Tyagi MB. 2011. PCR-based detection of *mcy* genes in blooms of *Microcystis* and extracellular DNA of pond water. *Afr. J. Microbiol*. Res. 5(4): 374-381. DOI: https://doi.org/10.5897/AJMR10.753

39 Shahi SK, **Rai AK**, Tyagi MB, Sinha RP and Kumar A. 2011. Rhizosphere of rice plants harbor bacteria with multiple plant growth promoting features. *Afr. J. Biotech*. 10 (42): 8296-8305. DOI: https://doi.org/10.5897/AJB11.602

40 Kumar A, **Rai AK**, Srivastava UP, Tyagi, MB and Kumar, A. 2011. Microcystins, a novel class of toxins from cyanobacteria. *In*: Plant Genome; Diversity, Conservation and Manipulation (Eds. Roy BK, Chandary BR and Sinha RP), Narosa Publishing House, New Delhi. ISBN 978-81-8487-113-5. pp 128-139.

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	*Serratia marcescens* strain MK6S3, 16S ribosomal RNA gene	EU040248
2	*Pantoea agglomerans* strain V1S7, 16S ribosomal RNA gene	EU040249
3	*Enterobacter cloacae* strain MK11S6 , 16S ribosomal RNA gene	EU040250
4	*Klebsiella oxytoca* strain MK3S11, 16S ribosomal RNA gene	EU040251
5	*Bacillus megaterium* strain J1S9 , 16S ribosomal RNA gene	EU040252
6	*Bacillus megaterium* strain M2S7, 16S ribosomal RNA gene	EU040253
7	*Acinetobacter sp*. MK2S9, 16S ribosomal RNA gene	EU040254
8	*Microbacterium sp*. J2S10 , 16S ribosomal RNA gene	EU040255
9	*Bacillus megaterium* strain G1S3 , 16S ribosomal RNA gene	EU040256
10	*Cronobacter turicensis* strain M2S10, 16S ribosomal RNA gene	EU040257
11	*Sphingomonas sp.* C3S5 , 16S ribosomal RNA gene	FJ012066
12	*Ancylobacter sp.* AJ 3-2 , 16S ribosomal RNA gene	GU056816
13	*Agrobacterium tumefaciens* strain VA9S9, 16S ribosomal RNA gene	HQ916822
14	*Acinetobacter sp*. strain VA2S2, 16S ribosomal RNA gene	HQ916823
15	*Bacillus pumilus* strain SB 3-2 , 16S ribosomal RNA gene	HQ916824

16	*Pseudomonas putida* strain MK12S6 , 16S ribosomal RNA gene	HQ916825
17	*Pseudomonas sp.* AJ 1-4 , 16S ribosomal RNA gene	GU056817
18	*Enterobacter sp.* AJ 2-3 , 16S ribosomal RNA gene	GU056818
19	*Pantoea sp.* AJ 3-3 , 16S ribosomal RNA gene	GU056819
20	*Sphingomonas sp* AJ 4-5, 16S ribosomal RNA gene	GU056820
21	*Sphingomonas sp* AJ 5-2 , 16S ribosomal RNA gene	GU056821
22	*Pseudomonas sp.* GS1S1, 16S ribosomal RNA gene	GU056822
23	*Pseudomonas sp.* GS8S2 , 16S ribosomal RNA gene	GU056823
24	*Enterobacter sp.* AJ 9-2 , 16S ribosomal RNA gene	GU056824
25	*Stenotrophomonas maltophilia strain* SR2-2, 16S ribosomal RNA gene	GU056825
25	*Microbacterium testaceum Strain* C3S3 , 16S ribosomal RNA gene	GU056826
27	*Sphingomonas sp.* J2S5A , 16S ribosomal RNA gene	GU056827
28	*Microbacterium sp.* SB 4-5, 16S ribosomal RNA gene	GU056828
29	*Enterobacter asburiae strain* SB 7-5, 16S ribosomal RNA gene	GU056829
30	*Pseudomonas sp.* VA1S2 , 16S ribosomal RNA gene	GU056830
31	*Advenella incenata* strain VA2S3A, 16S ribosomal RNA gene	GU056831
32	*Gamma proteobacterium* VA3S1 , 16S ribosomal RNA gene	GU056832
33	*Pseudomonas sp.*VA4S7, 16S ribosomal RNA gene	GU056833
34	*Rhizobium sp* VB4S6 , 16S ribosomal RNA gene	GU056834
35	*Rhizobium sp*. strain AJ 6-1 , 16S ribosomal RNA gene	HM031382
36	*Pseudomonas putida* strain AJ 10-4, 16S ribosomal RNA gene	HM031383
37	*Microbacterium sp. strain* BX 3-3A , 16S ribosomal RNA gene	HM031384
38	*Agrobacterium sp*. strain C2S1 , 16S ribosomal RNA gene	HM031385
39	*Curtobacterium sp*.strain SB1-5, 16S ribosomal RNA gene	HM031386
40	*Enterobacter sp*. strain SB 2-2, 16S ribosomal RNA gene	HM031387
	Novel Cyanobacterial strains (Isolation & Characterizations)	
41	*Microcystis aeruginosa* V-08 16S ribosomal RNA gene, partial sequence.	JF799854
42	*Microcystis aeruginosa* V-08 16S ribosomal RNA gene (V6-V8), partial sequence	JF799856
43	*M. aeruginosa* V-08 microcystin synthetase (*mcyA*) gene, partial cds	JF799858
44	*M. aeruginosa* V-08 microcystin synthetase-like (*mcyB*) gene, partial sequence	JF799860
45	*M. aeruginosa* V-08 microcystin synthetase-like (*mcyC*) gene, partial sequence	JF799862
46	*Microcystis aeruginosa* V-08 polyketide synthase (*mcyD*) gene, partial cds	JF799864
47	*M. aeruginosa* V-08 microcystin synthetase (*mcyE*) gene, partial cds	JF799866
48	*Microcystis aeruginosa* V-08 polyketide synthase (*mcyG*) gene, partial cds	JF799868
49	*M. aeruginosa* V-08 microcystin synthetase-like (*mcyA*) gene, partial sequence	JF799870
50	*Sphingomonas* sp. strain A-5, 16S ribosomal RNA gene sequence	HQ916826
51	*Microcystis aeruginosa* G-01 16S ribosomal RNA gene, partial sequence.	JF799855
52	*Microcystis aeruginosa* G-01 16S ribosomal RNA gene (V6-V8), partial sequence	JF799857
53	*M. aeruginosa* G-01 microcystin synthetase-like (*mcyA*) gene, partial sequence	JF799859
54	*M. aeruginosa* G-01 microcystin synthetase-like (*mcyB*) gene, partial cds	JF799861
55	*M. aeruginosa* G-01 microcystin synthetase-like (*mcyC*) gene, partial sequence	JF799863
56	*Microcystis aeruginosa* G-01 polyketide synthase (*mcyD*) gene, partial cds	JF799865
57	*M. aeruginosa* G-01 microcystin synthetase-like (*mcyE*) gene, partial cds	JF799867
58	*Microcystis aeruginosa* G-01 polyketide synthase (*mcyG*) gene, partial cds	JF799869

59	*M. aeruginosa* G-01 microcystin synthetase-like (*mcyA*) 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 *Caenorhabditis elegans* during *Vibrio* spp. and *Klebsiella pneumoniae* 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. Participated in a training/ webinar on "*Using Action Research in Teaching*" organized by Deanship of Academic Development, IAU, Dammam, KSA (Sept. 07, 2022).
2. Participated in a training workshop program on "*Facilitating Metacognition in the classroom*" organized by Deanship of Academic Development, IAU, Dammam, KSA (Aug. 31, 2022).
3. Participated in a training workshop on "*OSCE*" organized by College of Medicine, IAU (April 12, 2022).
4. 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).
5. 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).
6. Attended "*The 19th International Learning and Technology Conference*" under session 'Healthcare and artificial intelligence applications' (online), organized by Effat University, KSA (January 24, 2022).
7. 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).
8. Participated in a workshop/ webinar on "*Learning Outcomes for Programs and Courses*" organized by Deanship of Academic Development, IAU, KSA (Oct. 12, 2021).
9. 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).
10. Participated in a webinar on "*Accessing and Using Microsoft SharePoint*" organized by Deanship of Information & Communication Technology, IAU, KSA (Oct. 05, 2021).
11. 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)
12. Participated in a webinar on "*Providing Effective Feedback*" organized by College of Medicine & Vice Presidency for Academic, IAU, KSA (Sept. 07, 2021)
13. Participated in webinar(s) on "*Faculty Orientations Program/ Week*" organized by College of Medicine, IAU, KSA (August 30-31, 2021 & Sept. 01, 2021).
14. 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).
15. 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).

16. 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).
17. Participated in an International webinar on '*Accelerating Clinical & Translational Research using AL/ML enabled deep data Analytics'* organized by JNU India, & Nanofluid Res. Pvt. Ltd. USA (Nov. 23, 2020)
18. Participated in several training/ workshop sessions (no. >20) organized by Deanship of Academic Development, IAU, KSA during Academic Session 2020-2021 (Sept. 2020 to May 2021).
19. 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)
20. 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).
21. Participated in a training program on "*Questioning to Develop Higher-Order Thinking Skills*" organized by Deanship of Academic Development, IAU, KSA (Oct. 08, 2019).
22. Participated in a training program on "*Attract Students with Your PowerPoint*" organized by Deanship of Academic Development, IAU, KSA (Sept 24, 2019).
23. Participated in a training program on "*Assessment Foundations*" organized by Deanship of Academic Development, IAU, KSA (Sept. 17, 2019).
24. Participated in a training cum- workshop on "*Effective Searching of Electronic Information Resources*" organized by Deanship of Library Affairs, IAU, KSA (Sept. 10, 2019).
25. 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) .
26. 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).
27. Participated in a training program on "*First Day of Class: Get Ready*" organized by Deanship of Academic Development, IAU, KSA (Aug. 25, 2019).
28. Participated in a training program on "*Creating a Positive Classroom Community*" organized by Deanship of Academic Development, IAU, KSA (Aug. 20, 2019).
29. 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).
30. Participated in workshop on "*Integrating Leadership Skills in the Academic Curriculum*" organized by Deanship of Academic Development, IAU, KSA (April 02, 2019).
31. 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).
32. 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).
33. Participated in training -workshop on "*Summon Web Discovery Tool*" organized by Deanship of Library Affairs, IAU, KSA (March 19, 2019).
34. Participated in workshop on "*Analyzing & Reading Test's Results*" organized by Deanship of Academic Development, IAU, KSA (March 13, 2019).
35. Participated in workshop on "*Alternative Assessment & Effective Methods*" organized by Deanship of Academic Development, IAU, KSA (March 12, 2019).
36. Participated in workshop on "*The Pursuit of Excellence in Mentoring*" organized by Deanship of Academic Development, IAU, KSA (March 05, 2019).
37. 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).
38. Participated in training workshop on "*Endnote Desktop*" organized by Deanship of Library Affairs, IAU, KSA (Feb. 19, 2019).
39. Participated in workshop on "*Providing Constructive Feedback*" organized by Deanship of Academic Development, IAU, KSA (Feb. 13, 2019).
40. 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).

41. 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).
42. Participated in workshop on "*Facilitating Metacognition in the Classroom*" organized by Deanship of Academic Development, IAU, KSA (Feb. 05, 2019).
43. Participated in workshop on "*Creative and Active Teaching and Learning Strategies*" organized by Deanship of Academic Development, IAU, KSA (Jan. 29, 2019).
44. Participated in training workshop on "*Advance e-Book Searching*" organized by Deanship of Library Affairs, IAU, KSA (Jan. 22, 2019).
45. Participated in workshop on "*Student Motivation and Learning*" organized by Deanship of Academic Development, IAU, KSA (Jan. 16, 2019).
46. Participated in workshop on "*Analyzing & Reading Test's Results*" organized by Deanship of Academic Development, IAU, KSA (Jan. 15, 2019).
47. Participated in workshop on "*Advance Multiple-Choice Questions to Test, higher-order thinking*" organized by Deanship of Academic Development, IAU, KSA (Jan. 08, 2019).
48. Participated in training workshop on "*How to present research paper in International Conference*" organized by Deanship of Library Affairs, IAU, KSA (Dec. 12, 2018).
49. Participated in workshop on "*Flipped Classroom*" organized by Deanship of Education Development, IAU, KSA (Nov. 28, 2018).
50. Participated in workshop on "*Preventing Faculty Burnout*" organized by Deanship of Education Development, IAU, KSA (Nov. 13, 2018).
51. Participated in training- workshop on "*How to Get Published in Quality Research Journal*" organized by Deanship of Library Affairs, IAU, KSA (Nov. 06, 2018).
52. Participated in training workshop on "*How to Search Specific Types of Health Studies*" organized by Deanship of Library Affairs, IAU, KSA (Oct. 30, 2018).
53. Participated in workshop on "*Effective Assessment Through Rubrics*" organized by Deanship of Education Development, IAU, KSA (Oct. 24, 2018).
54. Participated in training workshop on "*Web of Science*" organized by Deanship of Library Affairs, IAU, KSA (Oct. 16, 2018).
55. Participated in workshop on "*Assessing Projects and labs*" organized by Deanship of Education Development, IAU, Dammam, KSA (Oct. 10, 2018)
56. Participated in training workshop on "*Scopus for Literature Searching and Research Impact*" organized by Deanship of Library Affairs, IAU, KSA (Oct. 09, 2018).
57. Participated in workshop on "*Questioning Strategy and Leading Discussion in Classroom*" organized by Deanship of Education Development, IAU, KSA (Oct. 03, 2018)
58. Participated in training on "*Developing a Plan for Academic Program Assessment*" organized by The Vice Presidency for Academic Affairs, IAU, KSA (Oct. 02, 2018)
59. Participated in workshop on "*Using Action Research in Teaching and Assessment*" organized by Deanship of Education Development, IAU, KSA (Sept. 26, 2018)
60. Participated in workshop on "*Enhancing Learning Through the Use of Technology*" organized by Deanship of Education Development, IAU, KSA (Sept. 12, 2018)
61. Attended the workshop on topic "*Objective Structured Clinical Examination (OSCE*)" organized by Department of Medical Education, College of Medicine, IAU, KSA (May 01, 2018).
62. Participated in training workshop on "*Writing Systematic Literature Review*" organized by Deanship of Library Affairs, IAU, KSA (April 26, 2018).
63. Participated in training workshop on "*EndNote*" organized by Deanship of Library Affairs, IAU, KSA (April 24, 2018).
64. Participated in training workshop on "*Advance E-Book Searching*" organized by Deanship of Library Affairs, IAU, KSA (March 20, 2018).
65. Participated in training workshop on "*Understand Plagiarism*" organized by Deanship of Library Affairs, IAU, KSA (March 15, 2018).
66. Participated in training workshop on "*Scopus*" organized by Deanship of Library Affairs, IAU, KSA (March 07, 2018).

67. Participated in training workshop on "*Mix Method Research*" organized by Deanship of Library Affairs, IAU, KSA (March 06, 2018).
68. Participated in training workshop on "*Web of Science*" organized by Deanship of Library Affairs, IAU, KSA (Feb. 20, 2018).
69. Participated in training workshop on "*PubMed*" organized by Deanship of Library Affairs, IAU, Dammam, KSA (Feb. 13, 2018).
70. Participated in conference "*BioEpoch 2017*" organized by School of Biotechnology, Jawaharlal Nehru University, New Delhi (March 23-24, 2017).
71. 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).
72. Participated in a workshop on "*Lipidomics /metabolomics*" organized by SCIEX USA & SCIEX India at SCIEX, Gurgaon, India (23rd May 2016 to 24th May 2016).
73. Participated in National Conference on "*Nano-Bio Interface 2016*" organized by Jawaharlal Nehru University, New Delhi (March 18-20, 2016).
74. Participated in conference "*BioEpoch 2016*" organized by School of Biotechnology, Jawaharlal Nehru University, New Delhi (March 14-15, 2016).
75. Participated in International Symposium on "*Emerging discovery in Microbiology"* organized by School of Life Sciences, Jawaharlal Nehru University, New Delhi (Dec. 7-10, 2015) .
76. 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).
77. 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).
78. Participated and presented a poster in National Symposium on "*Emerging Trends In Plant Sciences*", CAS in Botany, BHU, Varanasi, (March 3- 4, 2011).
79. 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).
80. Participated in International Conference on "*Functional Genomics: Prospects and Challenges*" organized by Cytogenetics Sections, Dept. of Zoology, BHU, Varanasi, India (Oct.2-4, 2010).
81. Participated and presented a poster in "*International Symposium of Phycological Research*,' CAS in Botany, BHU, Varanasi, (Feb.25-27, 2010).
82. 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).
83. Participated in International Conference on "*Emerging Trends in Biotechnology & 6th Annual Convention of The Biotech Research Society, India"*, BHU, Varanasi (Dec.4-6, 2009).
84. 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).
85. 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).
86. 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).
87. 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 2011.
  Web Link (BRSI): https://brsi.in/
- **Life-time member** of 'Associations of Microbiologists of India' since 2012.
  Web Link (AMI): https://amiindia.info/

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 3rd year)	BIOCH-305	Labs / Instructions
3	Biochemistry (Dentistry & Pharmacy 2nd 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.	Undergrad.	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

Student Academic Supervision and Mentoring

#	Level	Number of Students	From	To

Supervision of Master and/or PhD Thesis

#	Degree Type	Title	Institution	Date

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

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	I can work on several software packages like 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:** ● 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. Superior diagnostics skills, expertise in identifying issues, forming hypothesis, designing and conducting analysis, synthesizing conclusions into recommendations and implementing change.
5	**Area of interest**: Microbial Biotechnology, Environmental Microbiology, Biochemistry, Environmental Toxicology, Cyanotoxins, Molecular Biology, Proteomics, Synthetic Biology & Biofuels

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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