



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

POSITION : **Assistant Professor**

Personal Data

Nationality : Indian
Date of Birth : 16/07/1979
Department : Biochemistry
Official IAU Email : akrai@iau.edu.sa
Secondary Email : akraibiotech@gmail.com
Office Phone No. : 33 31162



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	Banaras Hindu University, Varanasi-221005, India (https://www.bhu.ac.in/)
2004	M.Sc. (Applied Biochemistry)	Jaunpur, India	V.B.S. Purvanchal University, Jaunpur, 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 <i>Microcystis</i> spp.
M.Sc.	Dissertation title: 'Biochemical and Genetic Basis of a mental disorder'



Fellowship	<ul style="list-style-type: none"> ● 2015: Awarded under SERB-DST Young Scientist Scheme (Start-Up Research Grant-Young Scientist) as a Principal Investigator (fellowship and research grant) by SERB, Department of Science and Technology, Government of India, New Delhi. ● 2006: Senior Research Fellowship (SRF) from Indian Council of Agricultural Research (ICAR), Government of India, New Delhi, India. ● 2006: Qualified in GATE (Graduate Aptitude Test in Engineering) in subject are -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.
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Scientific/Professional Recognition:

- 2018 – date: **Academic Editor** of the prestigious Journal **PLOS-One** (<http://journals.plos.org/plosone/>).
- 2017- 2019: Editorial Board Member of ‘Mexican Journal of Biotechnology’.
- 2017 to date: **Invited Reviewer** for various prestigious journals.
 - Scientific Reports
 - BMC Microbiology
 - PLOS-One
 - Plan Cell Reports
 - Bioresource Technology
 - J. Plant Growth Regulation
 - Circular Economy & Sustainability

Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work		Date
Assistant Professor	IAU, K.S.A.	Department of Biochemistry, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam (https://www.iau.edu.sa/en)	Nov. 2017 to date
Scientist / Principal Investigator	JNU, 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, 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

Scientific Achievements

Published Refereed Scientific Research:

(Peer Reviewed: In Chronological Order Beginning with the Most Recent)

- Singh, PP, Suravajhala P, Basu Mallick C, Tamang R, **Rai AK**, Machha P, Singh R, Pathak A, Mishra VN, Shrivastava P, and Singh KK. 2021. COVID-19: Impact on linguistic and genetic isolates of India. **Genes & Immunity** (Nature group). 1-4. doi: <https://doi.org/10.1038/s41435-021-00150-8>
Web- <https://www.nature.com/articles/s41435-021-00150-8>
- Wahid M, Dar SA, Jawed A, Mandal RK, Akhter N, Khan S, Khan F, Jogiah S, **Rai AK**, Rattan R. 2021. Microbes in Gynecologic Cancers: Causes or Consequences and Therapeutic Potential. **Seminars in Cancer Biology** (Elsevier). 1-11. Academic Press. doi: <https://doi.org/10.1016/j.semancer.2021.07.013>
Web- <https://www.sciencedirect.com/science/article/pii/S1044579X2100208X>
- Patwardhan SB, Savla N, Pandit S, Gupta PK, Mathuriya AS, Lahiri D, Jadhav DA, **Rai AK**, KanuPriya, 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. <https://doi.org/10.3390/app112210777> ; <https://www.mdpi.com/2076-3417/11/22/10777>
- 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> ; Web- <https://www.mdpi.com/2311-5637/7/3/169>
- 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). doi: [10.3389/ferng.2020.614212](https://doi.org/10.3389/ferng.2020.614212)
Web- <https://www.frontiersin.org/articles/10.3389/ferng.2020.614212/full>
- 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). ISSN: 2352-3409, Vol: 27, Page: 104574. doi: <https://doi.org/10.1016/j.dib.2019.104574>
Web link - <https://www.sciencedirect.com/science/article/pii/S2352340919309291>



- 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 Edition, ISSN- 0039-7660), 163(6): 132-152. Web - <http://sylvan.ibles.org/archive.php?v=163&i=6>
- **Rai AK***, Chaturvedi R and Kumar A. 2018. Proteomic evidences for microcystin-RR induced toxicological alterations in mice liver. *Nature Scientific Reports*. 8: 1310 (2018). 14 pages. doi: 10.1038/s41598-018-19299-w
Web- <https://www.nature.com/articles/s41598-018-19299-w>
- **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. Singh DP, Singh HB and Prabha R). **Springer**. ISBN 978-81-322-2645-1. pp103-115. doi: 10.1007/978-81-322-2647-5_6.
Web- https://link.springer.com/chapter/10.1007/978-81-322-2647-5_6
- 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: 10.1007/978-81-322-2644-4_9.
Web- https://link.springer.com/chapter/10.1007/978-81-322-2644-4_9
- **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>
- **Rai AK*** and Kumar A. 2013. DNA fragmentation induced by microcystin-RR in mice liver. *Int. J. Basic Appl. Sci.* 2(2): 56-59.
- 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.
- **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.
- 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.



- 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.
- 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.
- **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.

Refereed Scientific Research Papers Accepted for Publication

#	Name of Investigator(s)	Research Title	Journal	Acceptance Date

Scientific Research Papers Presented to Refereed Specialized Scientific Conferences

- **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 published & available at PubMed / NCBI: (Rai AK, et al.)

Identification and Characterization of Novel bacteria:

~60 NCBI GenBank Accession Numbers have been received. All the 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) Rai AK, et al.	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 sp.</i> 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	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	July 2018

Current Researches

#	Research Title	Name of Investigator(s)



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

1. 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).
2. Participated in a workshop/ webinar on “Learning Outcomes for Programs and Courses” organized by Deanship of Academic Development, IAU, KSA (Oct. 12, 2021).
3. 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).
4. Participated in a webinar on “Accessing and Using Microsoft SharePoint” organized by Deanship of Information & Communication Technology, IAU, KSA (Oct. 05, 2021).
5. 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)
6. Participated in a webinar on “Providing Effective Feedback” organized by College of Medicine & Vice Presidency for Academic, IAU, KSA (Sept. 07, 2021)
7. Participated in webinar(s) on “**Faculty Orientations Program/ Week**” organized by College of Medicine, IAU, KSA (**August 30-31, 2021 & Sept. 01, 2021**).
8. 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).
9. 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).
10. 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).
11. 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)
12. 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**).
13. 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)
14. 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**).
15. Participated in a training program on “Questioning to Develop Higher-Order Thinking Skills” organized by Deanship of Academic Development, IAU, KSA (Oct. 08, 2019).
16. Participated in a training program on “Attract Students with Your PowerPoint” organized by Deanship of Academic Development, IAU, KSA (Sept 24, 2019).
17. Participated in a training program on “Assessment Foundations” organized by Deanship of Academic Development, IAU, KSA (Sept. 17, 2019).
18. Participated in a training cum- workshop on “Effective Searching of Electronic Information Resources” organized by Deanship of Library Affairs, IAU, KSA (Sept. 10, 2019).
19. 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) .
20. 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).
21. Participated in a training program on “First Day of Class: Get Ready” organized by Deanship of Academic Development, IAU, KSA (Aug. 25, 2019).



22. Participated in a training program on “Creating a Positive Classroom Community” organized by Deanship of Academic Development, IAU, KSA (Aug. 20, 2019).
23. 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).
24. Participated in workshop on “Integrating Leadership Skills in the Academic Curriculum” organized by Deanship of Academic Development, IAU, KSA (April 02, 2019).
25. 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).
26. 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).
27. Participated in training -workshop on “Summon Web Discovery Tool” organized by Deanship of Library Affairs, IAU, KSA (March 19, 2019).
28. Participated in workshop on “Analyzing & Reading Test’s Results” organized by Deanship of Academic Development, IAU, KSA (March 13, 2019).
29. Participated in workshop on “Alternative Assessment & Effective Methods” organized by Deanship of Academic Development, IAU, KSA (March 12, 2019).
30. Participated in workshop on “The Pursuit of Excellence in Mentoring” organized by Deanship of Academic Development, IAU, KSA (March 05, 2019).
31. 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**).
32. Participated in training workshop on “Endnote Desktop” organized by Deanship of Library Affairs, IAU, KSA (Feb. 19, 2019).
33. Participated in workshop on “Providing Constructive Feedback” organized by Deanship of Academic Development, IAU, KSA (Feb. 13, 2019).
34. 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).
35. 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).
36. Participated in workshop on “Facilitating Metacognition in the Classroom” organized by Deanship of Academic Development, IAU, KSA (Feb. 05, 2019).
37. Participated in workshop on “Creative and Active Teaching and Learning Strategies” organized by Deanship of Academic Development, IAU, KSA (Jan. 29, 2019).
38. Participated in training workshop on “Advance e-Book Searching” organized by Deanship of Library Affairs, IAU, KSA (Jan. 22, 2019).
39. Participated in workshop on “Student Motivation and Learning” organized by Deanship of Academic Development, IAU, KSA (Jan. 16, 2019).
40. Participated in workshop on “Analyzing & Reading Test’s Results” organized by Deanship of Academic Development, IAU, KSA (Jan. 15, 2019).
41. Participated in workshop on “Advance Multiple-Choice Questions to Test, higher-order thinking” organized by Deanship of Academic Development, IAU, KSA (Jan. 08, 2019).
42. Participated in training workshop on “How to present research paper in International Conference” organized by Deanship of Library Affairs, IAU, KSA (Dec. 12, 2018).
43. Participated in workshop on “Flipped Classroom” organized by Deanship of Education Development, IAU, KSA (Nov. 28, 2018).
44. Participated in workshop on “Preventing Faculty Burnout” organized by Deanship of Education Development, IAU, KSA (Nov. 13, 2018).



45. Participated in training- workshop on “How to Get Published in Quality Research Journal” organized by Deanship of Library Affairs, IAU, KSA (Nov. 06, 2018).
46. Participated in training workshop on “How to Search Specific Types of Health Studies” organized by Deanship of Library Affairs, IAU, KSA (Oct. 30, 2018).
47. Participated in workshop on “Effective Assessment Through Rubrics” organized by Deanship of Education Development, IAU, KSA (Oct. 24, 2018).
48. Participated in training workshop on “Web of Science” organized by Deanship of Library Affairs, IAU, KSA (Oct. 16, 2018).
49. Participated in workshop on “Assessing Projects and labs” organized by Deanship of Education Development, IAU, Dammam, KSA (Oct. 10, 2018)
50. Participated in training workshop on “Scopus for Literature Searching and Research Impact” organized by Deanship of Library Affairs, IAU, KSA (Oct. 09, 2018).
51. Participated in workshop on “Questioning Strategy and Leading Discussion in Classroom” organized by Deanship of Education Development, IAU, KSA (Oct. 03, 2018)
52. Participated in training on “**Developing a Plan for Academic Program Assessment**” organized by The Vice Presidency for Academic Affairs, IAU, KSA (Oct. 02, 2018)
53. Participated in workshop on “Using Action Research in Teaching and Assessment” organized by Deanship of Education Development, IAU, KSA (Sept. 26, 2018)
54. Participated in workshop on “Enhancing Learning Through the Use of Technology” organized by Deanship of Education Development, IAU, KSA (Sept. 12, 2018)
55. Attended the workshop on topic “**Objective Structured Clinical Examination (OSCE)**” organized by Department of Medical Education, College of Medicine, IAU, KSA (May 01, 2018).
56. Participated in training workshop on “Writing Systematic Literature Review” organized by Deanship of Library Affairs, IAU, KSA (April 26, 2018).
57. Participated in training workshop on “EndNote” organized by Deanship of Library Affairs, IAU, KSA (April 24, 2018).
58. Participated in training workshop on “Advance E-Book Searching” organized by Deanship of Library Affairs, IAU, KSA (March 20, 2018).
59. Participated in training workshop on “Understand Plagiarism” organized by Deanship of Library Affairs, IAU, KSA (March 15, 2018).
60. Participated in training workshop on “Scopus” organized by Deanship of Library Affairs, IAU, KSA (March 07, 2018).
61. Participated in training workshop on “Mix Method Research” organized by Deanship of Library Affairs, IAU, KSA (March 06, 2018).
62. Participated in training workshop on “Web of Science” organized by Deanship of Library Affairs, IAU, KSA (Feb. 20, 2018).
63. Participated in training workshop on “PubMed” organized by Deanship of Library Affairs, IAU, Dammam, KSA (Feb. 13, 2018).
64. Participated in conference “*BioEpoch 2017*” organized by School of Biotechnology, Jawaharlal Nehru University, New Delhi (March 23-24, 2017).
65. 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).
66. Participated in a workshop on “**Lipidomics /metabolomics**” organized by SCIEX USA & SCIEX India at SCIEX, Gurgaon, India (23rd May 2016 to 24th May 2016).
67. Participated in National Conference on “**Nano-Bio Interface 2016**” organized by Jawaharlal Nehru University, New Delhi (March 18-20, 2016).
68. Participated in conference “*BioEpoch 2016*” organized by School of Biotechnology, Jawaharlal Nehru University, New Delhi (March 14-15, 2016).



69. Participated in **International Symposium on “Emerging discovery in Microbiology”** organized by School of Life Sciences, Jawaharlal Nehru University, New Delhi (Dec. 7-10, 2015) .
70. 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).
71. 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).
72. Participated and presented a poster in “National Symposium on “Emerging Trends In Plant Sciences”, CAS in Botany, BHU, Varanasi, (March 3- 4, 2011).
73. 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).
74. Participated in International Conference on **“Functional Genomics: Prospects and Challenges”** organized by Cytogenetics Sections, Dept. of Zoology, BHU, Varanasi, India (Oct.2-4, 2010).
75. Participated and presented a poster in **“International Symposium of Phycological Research, CAS in Botany, BHU, Varanasi, (Feb.25-27, 2010).**
76. 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).
77. Participated in International Conference on **“Emerging Trends in Biotechnology & 6th Annual Convention of The Biotech Research Society, India”**, BHU, Varanasi (Dec.4-6, 2009).
78. 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).
79. 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).
80. 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).
81. 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. <http://www.brsi.in/>
- **Life-time member** of ‘Associations of Microbiologists of India’ since 2012. <http://www.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 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

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

BIOCH-205 (Public Health): Protein structure & Metabolism, Nucleotide Metabolism
BIOCH-212 (Pharma D) : Metabolic Pathway of Nucleic Acid, Xenobiotics
Nutr-222 (Nutrition) : Dietary Carbohydrates

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
	Biochemistry						
1	BIOCH-205: Lecture (Male & Female)	Coordinator (Male & Female)		UG		2018	Date
2	BIOCH-205, Lab (Male & Female)	Coordinator (Male & Female)		UG		2018	Date
3	BIOCH-305, Lab (Male)		Co-Coord.	UG		2018	Date
4	BIOCH-212, Lab (Male)		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

Ongoing Research Supervision

#	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 organization
2	2017	2019	Editorial Board	Mexican Journal of Biotechnology
3	2018	date	Associate Editor	Journal of Biotechnology & Bioresearch
4	2016	date	Invited reviewer	Scientific Reports, PLOS-One and others

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 and Corel Draw, Sigma Plot, Graph Pad Prism, Quantity One (BIO-RAD), PDQuest software etc.
3	Bioinformatics: Biological sequence analysis, NCBI BLAST-search, FASTA, MEGA, NTSYSpc. 3-D Molecular Modeling and Docking analysis with software: Swiss-pdb (Offline), Swiss-Model Workspace (Online), Hex 6.3, and other modeling & docking software.
4	<p>Expertise/ Scientific Skill: (Biochemistry, Microbial Biotechnology, Molecular Biology, Proteomics, Environmental Toxicology, Cyanotoxins, Genetic Engineering, Bioinformatics)</p> <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. Superior diagnostics skills, expertise in identifying issues, forming hypothesis, designing and conducting analysis, synthesizing conclusions into recommendations and implementing change.

Scientific / Social Media Web Link

Dr. Ashutosh Kumar Rai

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Publons : <https://publons.com/researcher/1415234/ashutosh-kumar-rai/>

Google Scholar : <https://scholar.google.com/citations?user=7Jm3SkcAAAAJ&hl=en>

ResearchGate : https://www.researchgate.net/profile/Ashutosh_Rai

LinkedIn : <https://www.linkedin.com/in/dr-ashutosh-kumar-rai-46a5a128/>

Loop Profile : <https://loop.frontiersin.org/people/348709/overview>

IAU web page : <https://www.iau.edu.sa/en/colleges/college-of-medicine/faculty/ashutosh-kumar-rai>

Last Update

Nov. 2021