Department of Microbiology

School of Biological Sciences
Dr. Harisingh Gour Vishwavidyalaya (A Central University), Sagar, MP.
470003. India

Departmental IQAC Profile

Criterion 3: Research, Innovations and Extension

Faculty Members:

Professor Naveen Kango JRF (CSIR), CDRI, Lucknow, 1996. Ph.D. (2004) Dr. H.S. Gour University, Sagar Assistant Professor, Dr. HS Gour University, Sagar, India, 1997-2008. NRF Post Doctoral Fellow, Durban University of Technology, South Africa, 2004-05. UGC-CIMO Fellow, Helsinki University, Finland, 2008-09. Reader, Dr. HS Gour University, Sagar, India, 2008-11. Associate Professor, Dr. HS Gour University, Sagar, India, 2011-2014 Professor, Dr. HS Gour University, Sagar, India, 2014-2021 **Quick Links:** https://dhsgsu.irins.org/profile/126267#honours_information_panel http://scholar.google.co.in/citations?user=Y3UBMrsAAAAJ&hl=hi https://orcid.org/0000-0003-0362-3599 www.scopus.com/authid/detail.uri?authorId=57203219860	

Dr. Yogesh Bhargava

M.Phil, Department of Biosciences and Bioengineering, IIT Bombay, India, 2005.
PhD, Max Planck Institute of Biophysics, Frankfurt am Main, Germany, 2009.
Post Doctoral Fellowship, Wolfson Institute for Biomedical Research, London, UK, 2013.
Assistant Professor, Dr. HS Gour Central University, Sagar, India, 2013 onwards.

Quick Links:
https://dhsgsu.irins.org/profile/98168
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https://www.scopus.com/authid/detail.uri?authorId=36770269100
https://publons.com/researcher/3349902/yogesh-bhargava/

Past faculty members:

1. Prof. S. C. Agarwal (Upto 2005)
2. Prof. P. C. Jain (Upto 2012)
3. Dr. S K Chaurasiya (Upto 2019)
4. Dr. Rajesh Mondal (Upto 2018)

Research profile:

Prof. Naveen Kango : Enzyme Technology and molecular catalysis Laboratory

His research interests include Production and Application of Microbial Glycosidases (Xylanases, Mannanases, Inulinases) from fungi; Biodiversity of thermophilic fungi, actinomycetes, L-asparaginase.

Dr. Yogesh Bhargava : Molecular Infection, Immunity and Inflammation Lab

His long term research interest lies in studying the interplay of three factors infection, immunity and inflammation He is interested probing impact of stress (microbial, chemical and physical) and inflammation on the physiology and behaviour of vertebrates using optical imaging of zebrafish as an animal model.

Research Publications

1. Prof. Naveen Kango

2021

1. Agrawal, S, Jana, UK and Kango, N (2021) Heterologous expression and molecular modelling of L-asparaginase from *Bacillus subtilis* ETMC-2. **International Journal of Biological Macromolecules (IF 6.95) (Accepted for Publication)**

2. Suresh Nath and Naveen Kango (2021) Recent Developments in Industrial Mycozymes: A Current Appraisal. **Mycology 1-25 (Cite score: 4.3)** https://doi.org/10.1080/21501203.2021.1974111

3. Jana, UK, Kango N and Pletschke, B. I. (2021) Hemicellulose derived oligosaccharides: Emerging prebiotics in disease alleviation. **Frontiers in Nutrition** 8:427 **(IF: 6.7)** https://doi.org/10.3389/fnut.2021.670817

4. Rawat, H. K., Soni, H., Suryawanshi, RK, Choukade, R., Prajapati, B.P., **Kango, N.(2021)** Exo-inulinase production from *Aspergillus fumigatus* NFCCI 2426: purification, characterization, and immobilization for continuous fructose production. **Journal of Food Science (IF: 3.167)**
https://doi.org/10.1111/1750-3841.15681

5. Shrivastava, P., Jain, T.,Nema, V., Gupta, M.K., **Kango, N.**, Singhal, P.K., Chaubey, G. and Kumawat, RK. (2021) Can alcohol kill harmful microbes from our skin? **Gene Reports 24: 101207 (IF: 0.72)**
https://doi.org/10.1016/j.genrep.2021.101207

6. Choukade, R. and **Kango, N. (2021)** Production, properties and applications of Fructosyl-transferase: A current appraisal. **Critical Reviews in Biotechnology (IF 8.49). 1-16**
https://doi.org/10.1080/07388551.2021.1922352

7. Prajapati, B. and **Kango, N. (2021)** Rice straw saccharification using cellulolytic cocktail from *Aspergillus tubingensis* and structure alterations studies of the wall polymer. **Biomass Conversion and Biorefinery**. **(IF 4.98)**
https://doi.org/10.1007/s13399-020-01237-4

8. Sharma, Isha and **Kango, N. (2021)** Production and characterization of keratinase by *Ochrobactrum intermedium* for feather keratin utilization. **International Journal of Biological Macromolecules** (**IF 6.95) 166, 1046-1056**
https://doi.org/10.1016/j.ijbiomac.2020.10.260

9. Jana, U.K., Suryawanshi, R.K., Prajapati, B.P. and **Kango, N. (2021)** Prebiotic mannooligosaccharides: Synthesis, characterization and bioactive properties. **Food Chemistry Volume 342, 128328 (IF 7.514)**
https://doi.org/10.1016/j.foodchem.2020.128328

10. Choukade, R. and **Kango, N.** (2021) Applications of Fungal Inulinases. Encyclopedia of Mycology (Eds. Vries, R. P. and Makela, M.) 2: 337-347 Elsevier.
https://doi.org/10.1016/B978-0-12-819990-9.00016-0

11. Jana, UK and Kango, N. (**2021**) Applications of Fungal Hemicellulases. Encyclopedia of Mycology (Eds. Vries, R. P. and Makela, M.) 2: 305-315 Elsevier.
https://doi.org/10.1016/B978-0-12-819990-9.00058-5

12. Suryawanshi, R.K. and **Kango, N. (2021)** Production of mannooligosaccharides from various mannans and evaluation of their prebiotic potential. **Food Chemistry** 334, 127428 **(IF 7.514)**
doi: 10.1016/j.foodchem.2020.127428

2020

13. Choukade, R., Jaiswal, A. and **Kango, N. (2020)** Characterization of biogenically synthesized silver nanoparticles for therapeutic applications and enzyme nanocomplex generation. **3Biotech** 10: 462 **(IF 2.3)**
https://doi.org/10.1007/s13205-020-02450-8

14. Khangwal, I., Suresh Nath, **Kango, N.** & Shukla, P. (2020) Endo-xylanase induced xylooligosaccharide production from corn cobs, its structural features, and concentration-dependent antioxidant activities. **Biomass Conversion and Biorefinery (IF 4.98)**
https://doi.org/10.1007/s13399-020-00997-3

15. Prajapati B.P., Jana U.K., Suryawanshi R.K., **Kango, N**. **(2020)** Sugarcane bagasse saccharification using *Aspergillus tubingensis* enzymatic cocktail for 2G bio-ethanol production. **Renewable Energy,** 152: 653-663 **(IF 8.001).**
https://doi.org/10.1016/j.renene.2020.01.063

16. Jana, U.K., **Kango, N. (2020)** Characteristics and bioactive properties of mannooligosaccharide derived from agro-waste mannans. **International Journal of Biological Macromolecules**. 149: 931-940 **(IF 6.95).**
doi: 10.1016/j.ijbiomac.2020.01.304

17. Skariyachan, S., Khangwal, I., Niranjan, V., **Kango, N.** and Shukla, P. (2020) Deciphering effectual binding potential of xylo-substrates towardsxylose isomerase and xylokinase through molecular docking andmolecular dynamic simulation. **Journal of Biomolecular Structure and Dynamics, 39 (11): 3948-3957 (IF 3.310)**
doi: 10.1080/07391102.2020.1772882

2019

18. Choukade, R.and **Kango, N. (2019)** Characterization of a mycelial fructosyltransferase from *Aspergillus tamarii* NKRC 1229 for efficient synthesis of fructooligosaccharides. **Food Chemistry** 286: 434-440 **(IF 7.514).**
doi: 10.1016/j.foodchem.2019.02.025

19. Suryawanshi, R.K., Jana, U.K., Prajapati, B.P. and **Kango, N. (2019)** Immobilization of *Aspergillus quadrilineatus* RSNK-1 multi-enzymatic system for fruit juice treatment and mannooligosaccharide generation **Food Chemistry** 289: 95-102 **(IF 7.514).**
doi.org/10.1016/j.foodchem.2019.03.035

20. Agrawal, S., **Kango, N. (2019).** Development and catalytic characterization of L-asparaginase nano-bioconjugates. **International Journal of Biological Macromolecules** 135: 1142–1150 **(IF 6.95).**
https://doi.org/10.1016/j.ijbiomac.2019.05.154

21. Ghosh, M., Dey, K.K. and **Kango, N.** (2019). Investigation of the Internal Structure and Dynamics of Cellulose by 13C-NMR Relaxometry and 2DPASS-MAS-NMR Measurements. **Journal of Biomolecular NMR**73: 601–616 **(IF 2.3).**

DOI: 10.1007/s10858-019-00272-2

22. Ghosh, M., Prajapati, B.P., **Kango, N.** and Dey, K.K. **(2019).** A comprehensive and comparative study of the internal structure and dynamics of natural β-keratin and regenerated β-keratin by solid state NMR spectroscopy. **Solid State Nuclear Magnetic Resonance**. 101: 1-11**(IF 2.02).**
doi: 10.1016/j.ssnmr.2019.04.007

23. Ghosh, M., Prajapati, B.P., Suryavanshi, R.K., Dey, K.K. and **Kango, N.(2019).** Study of the effect of enzymatic deconstruction on natural cellulose by NMR measurements. **Chemical Physics Letters** 727: 105-115 **(IF 1.86).**
doi: 10.1016/j.cplett.2019.04.063

2018

24. Jana, U.K., Prajapati, B.K., Suryavanshi, R.K., Soni, H.K. and **Kango, N.** (**2018**) Production optimization and characterization of MOS generating β-mannanase from *Aspergillus oryzae*. **Biresource Technology** 268: 308-314 **(IF 9.642)**
doi: 10.1016/j.biortech.2018.07.143

25. Agrawal S., Sharma I., Prajapati B.P., Suryawanshi R.K., **Kango N. (2018)** Catalytic characteristics and application of L-asparaginase immobilizedon aluminum oxide pellets. **International Journal of Biological Macromolecules** 114:504–511 **(IF 6.95).**
doi.org/10.1016/j.ijbiomac.2018.03.081

26. Prajapati, B.P., Suryawanshi, R.K., Agrawal,S., Ghosh, M. and **Kango, N.** (**2018**) Characterization of cellulase from *Aspergillus tubingensis* NKBP-55 for generation of fermentable sugars from agricultural residues. **Bioresource Technology**250: 733-740. **(IF 9.642).**
doi: 10.1016/j.biortech.2017.11.099

2017

27. Ahirwar S., Soni H., Prajapati B., **Kango, N. (2017)** Isolation and Screening of thermophilic and thermotolerant fungi for production of hemicellulases from heated environment. **Mycology** 8: 125-134. **(Cite score: 4.3)**
doi.org/10.1080/21501203.2017.1337657

28. Rawat, H.K., Soni**,** H., **Kango, N.** and Ganesh kumar, C. **(2017)** Continuous generation of fructose from *Taraxacum officinale* tap root extract and inulin by immobilized inulinase in a packed-bed reactor. **Biocatalysis and Agricultural Biotechnology** 9: 134-140.**(Cite score** 3.9**).**
https://doi.org/10.1016/j.bcab.2016.11.007

2016

29. Soni, H., Rawat, H.K., Pletschke, B.I. and **Kango, N. (2016)** Purification and characterization of β-mannanase from *Aspergillus terreus* and its applicability in

depolymerization of mannans and saccharification of lignocellulosic biomass. **3 Biotech** 6: 136 (**IF 2.4).**
doi: 10.1007/s13205-016-0454-2

30. Ahirwar, S., Soni, H., Rawat, H.K., Prajapati, B.P. and **Kango, N. (2016)** Experimental design of response surface methodology used for utilisation of palm kernel cake as solid substrate for optimised production of fungal mannanase. **Mycology,** 7 (3): 143-153. **(Cite score: 4.3)**
doi: 10.1080/21501203.2016.1229697

31. Soni, H., Rawat, H.K., Ahirwar, S. and **Kango, N. (2017)** Screening, statistical optimized production, and application of β-mannanase from some newly isolated fungi. **Engineering in Life Sciences17(4), 392–401 (IF 2.678).**
https://doi.org/10.1002/elsc.201600136

32. Rawat H.K., Soni, H., Treichel, H. and **Kango, N.** (**2016**) Biotechnological potential of microbial inulinases: Recent perspective. **Critical Reviews in Food Science and Nutrition** 57 (18): 3818 - 3829 (**IF 11.17).**
doi: 10.1080/10408398.2016.1147419.

33. Ahirwar, S., Soni, H., Rawat H.K., Ganaie, A., Pranaw, K. and **Kango, N.** (**2016**) Production optimization and functional characterization of thermostable β-mannanase from *Malbrancheacinnamomea* NFCCI 3724 and its applicability in mannotetraose (M4) generation. **Journal of the Taiwan Institute of Chemical Engineers** 63:344-353 (**IF 5.876).**
https://doi.org/10.1016/j.jtice.2016.03.033

34. Prajapati, B.P., Suryawanshi, R.K., Agrawal, S. and **Kango, N.** (**2016**) Cellulolytic potential of some soil fungi. **Journal of the Botanical Society**, 48:239-253.

35. Agrawal, S., Rawat, H.K. and **Kango, N. (**2016**)** Isolation and screening of alkaline protease producing bacteria from different soil habitats, **Madhya Bharti** 60: 44- 48.

2015

36. Rawat H.K., Ganaie, M.A. and **Kango, N.** (**2015**) Production of inulinase, fructosyltransferase and sucrase from fungi on low-value inulin-rich substrates and their use in generation of fructose and fructooligosaccharides. **Antonie van Leeuwenhoek** 107(3):799-811**(IF 2.2).**
doi: 10.1007/s10482-014-0373-3

37. Rawat H.K., Jain S.C. and **Kango, N.** (**2015**) Production and properties of inulinase from *Penicillium* sp. NFCC 2768 grown on inulin containing vegetal infusions. **Biocatalysis and Biotransformation** 33(1):61-68 **(IF 2.18).**
doi.org/10.3109/10242422.2015.1018188

38. Soni H., Ganaie A, Pranaw K and **Kango, N.** (**2015**) Design-of-experiment strategy for production of mannanase biocatalysts using palm kernel cake and its application to

degrade locust bean and guar gum. **Biocatalysis and Agricultural Biotechnology** 4(2): 229-234. **(Cite score: 4.3)**
doi.org/10.1016/j.bcab.2015.01.001

39. Saxena A., Upadhyay R. and **Kango, N.** (**2015**) Isolation and identification of actinomycetes for production of novel extracellular glutaminase free L-asparaginase. **Indian Journal of Experimental Biology**(NISCAIR) 53: 786-793 **(IF 0.818)**
http://hdl.handle.net/123456789/33459

40. Rawat H. K., Soni H. and **Kango N.** (**2015**) Screening of inulinase producing fungi isolated from inulin containing sources and use of exoinulinase in generation of fructose. **Madhya Bharti**, 59: 10-14.

2014

41. Ganaie M.A., Rawat, H.K., Wani, O.A., Gupta, U.S. and **Kango, N.** (**2014**) Immobilization of fructosyltrasferase by chitosan and alginate for efficient production of fructo-oligosaccharides. **Process Biochemistry** 49: 840-44. **(IF 3.7)**
doi.org/10.1016/j.procbio.2014.01.026

2013

42. Ganaie M.A., Gupta, U.S. and **Kango, N.** (**2013**) Screening microorganisms for Fructosyl Transferase (FTase) activity for generation of fructo-oligosaccharides (FOS). **Journal of Molecular Catalysis B: Enzymatic** 97: 12– 17 **(IF: 2.269)**
doi.org/10.1016/j.molcatb.2013.07.008
43. Saxena A., Upadhyay, R. Kumar, D. and **Kango, N.** (**2013**) Isolation, antifungal activity and characterization of soil actinomycetes. **Journal of Scientific and Industrial Research** 72: 491-497(NISCAIR) **(IF 0.735)**
http://hdl.handle.net/123456789/20257

44. Soni H. and **Kango, N.** (**2013**) Hemicellulases in Lignocellulose Biotechnology: Recent Patents. **Recent patents in Biotechnology** 7: 207-218
doi: 10.2174/18722083113076660011

2012 and earlier

45. Maijala P., **Kango, N.,**Szijarto, N. and Viikari, L. (**2012**) Characterization of hemicellulases from thermophilic fungi. **Antonie van Leeuwenhoek** 101(4): 905-17. **(IF 2.2)**
doi: 10.1007/s10482-012-9706-2

46. **Kango, N.** and Jain, S.C. (**2011**). Production and Properties of Microbial Inulinases: Recent Advances. **Food Biotechnology**. 25 (3): 165-212 **(IF 1.564)**
doi.org/10.1080/08905436.2011.590763

47. Nagal, S., **Kango, N.** and Jain, P.C. (**2010**) Production of alkaline protease from *Elizabethkingia meningoseptica* KB042 using chicken feathers. **Annals of Microbiology.** 60:629-635 **(IF 2.1)**
https://doi.org/10.1007/s13213-010-0101-9

48. **Kango, N.** (**2008**) Production of inulinase using tap roots of Dandelion (*Taraxacum officinale*) by *Aspergillus niger*. **Journal of Food Engineering.** 85:473-478 **(IF 5.35)** doi.org/10.1016/j.jfoodeng.2007.08.006

49. **Kango, N. (2007)** Lignocellulose Biotechnology: Harnessing renewable plant materials for energy and chemicals **Everyman's Science** XLII (4): 194-197. **(Indian Science Congress Association)**

50. Shukla, P., Dutta, S. and **Kango, N.** (**2007-08**) Isolation of actinomycetes from various soil samples of Ranchi district (Jharkhand) and studies on their antimicrobial activities. **Hindustan Antibiotic Bulletin.** 49-50:5-9.

51. **Kango, N.**, Agrawal, S.C. and Jain, P.C. **(2003).** Production of xylanase by *Emericella nidulans* NK-62 on low-value lignocellulosic substrates. **World Journal of Microbiology and Biotechnology** 19 (7): 691-694 **(IF 3.3)** doi.org/10.1023/A:1025123323834

Book Chapters / Conference Proceedings

52. Nath, S. and **Kango, N.** (2021) Progress in Fungal Mannanolytic Enzyme Research In India. Springer Nature Singapore Pte Ltd. In T. Satyanarayana et al. (eds.), Progress in Mycology (Accepted)

53. Sharma, I., Kapale, R. and **Kango, N.** (2020) Ethnic Fermented Foods and Beverages of Madhya Pradesh *InHistory, Culture and Science of Ethnic Fermented Foods and Alcoholic Beverages of India* (Ed. Tamang, J.P.), Springer Nature Singapore Pte Ltd., Singapore. pp 287-303

54. **Kango, N.**, Jana, U. and Choukade, R. (2019) Fungal Enzymes: Sources and Biotechnological *In* Applications in *Advancing Frontiers in Mycology and Mycotechnology- Basic and Applied Aspects of Fungi.* (Eds. Satyanarayana, T., Deshmukh, S.K. and Deshpande, M.V.) pp. 515-536

55. **Kango, N**. Soni, H. and Rawat H. (2017) Extremophilic Xylanases *In Extremophilic Bioprocessing of Lignocellulosic Feedstocks to Biofuels, Value-Added Products, and Usable Power* (Eds. Rajesh K. Sani and R. Navanietha) Springer USA pp.73-88.

56. Rawat, H.K., Soni, H. and **Kango, N.** (2017)Fungal Inulinolytic Enzymes: A Current Appraisal *In* Developments in Fungal Biology and Applied Mycology, Springer Nature, Singapore Pte Ltd.pp. 279-293.

57. Soni H. and **Kango, N.** (2013) Microbial mannanases: properties and applications *In Advances in Enzyme Biotechnology* (Eds. Shukla, P. and Pletscke, B.I.) Springer India pp. 41-56.

58. **Kango, N.** (2011) Management of Microbial Resoruces *In Bioresources management in India* (Eds. A.K. Kandya and J.P.N. Pandeya, Aavishkar Publishers, Jaipur), pp. 162-177.

59. **Kango, N.** (2011) Thermophilic fungi: Occurrence, characteristics and enzymatic potential *In Microbial Biotechnology and Ecology* (Eds. D. Vyas *et al*.). Daya Publ. House, N. Delhi, pp. 303-319.

60. Jain, R., **Kango, N.** and Jain, P.C. (2010). Proteases: Significance and Applications *In Industrial Exploitation of Microorganisms* (Eds. Maheshwari, D.K., Dubey, R.C. and Saravanamuthu, R.); I.K. International Publishers, New Delhi, pp. 228-254.

61. **Kango, N.** and Jain, P.C. (2005). Production and application of fungal xylanases *In Fungi: Diversity and Biotechnology* (Eds. Rai, M.K. and Deshmukh S.K.), Scientific Publishers, New Delhi. pp. 251-281.

62. **Kango, N.**, Agrawal, S.C. and Jain, P.C. (2004). In: Xylanase production by thermophilic fungi from soil and decomposing organic matter *In Microbiology and Biotechnology for Sustainable Development.* (Ed. P.C. Jain), CBS publishers and Distributors, New Delhi. pp0. 293-299.

63. Shukla, P., K**ango, N.** and Bondre, V. (2004).Transfer of drug resistance plasmid with Km^r gene in *Vibrio cholera* KB 207 *In Microbiology and Biotechnology for Sustainable Development*.(Ed. P.C. Jain), CBS Publishers and Distributors, New Delhi. pp. 277-282.

64. **Kango, N**., Jain, P.C. and Agrawal, S.C. (2000). Growth of Fusaria on media with varied water activity *InIntegrated management of Plant Resources* (Eds. Rai, M.K., Varma, A. and Rajak, R.C.). Scientific Publishers, Jodhpur. pp. 375-378.

TextBooks

Textbook of Microbiology by Naveen Kango (2010; Reprint 2013) I.K. International Publishers and Distributors, New Delhi, ISBN 9789380026442. p 436

Economic Botany and Biotechnology (2018). (Dr. Anil K. Thakur, Dr. Susheel K. Bassi and **Dr. Naveen Kango)**S.P. Jain, B.E., S. Dinesh & Co., Jalandhar (For the students of B.Sc. Botany Sem. V of H.P.U. and various other Indian Universities as per new syllabus)

2. Dr. Yogesh Bhargava

2021

1. Pullaguri N, Grover P, Abhishek S, Rajakumara E, **Bhargava Y**, Bhargava A. "Triclosan affects motor function in zebrafish larva by inhibiting ache and syn2a genes". **Chemosphere**, 266, 2021, 128930.
(Impact factor: 7.08) (ISSN: 00456535)
DOI: 10.1016/j.chemosphere.2020.128930
(https://pubmed.ncbi.nlm.nih.gov/33223207/)

2020

2. Chouryal YN, Nema S, Sharma RK, Kewat H, Pandey A, Ghosh P, **Bhargava Y***. "Nano-Bio Interaction of Rare-Earth Doped BaF2 Nanophosphors Shapes the Developmental Processes of Zebrafish". **Biomaterials Science**, 2020, 8, 6730 – 6740.
(Impact factor: 6.84) (ISSN: 20474849)
DOI: 10.1039/d0bm01282c.
(https://pubmed.ncbi.nlm.nih.gov/33111724/)

3. Sharma RK, Chouryal YC, Nema S, Nigam S, Bera SP, **Bhargava Y***, Ghosh P. "Green EmittingCe3+/ Tb3+-Doped BaF2 Nanocrystals and Their Impact on Skeletal Muscle of Developing Zebrafish Larvae". **Chemistry Select,** 2020, 5, 9105 – 9110.
(Impact factor: 2.10) (ISSN: 23656549)
https://doi.org/10.1002/slct.202001268
(https://chemistry-europe.onlinelibrary.wiley.com/doi/abs/10.1002/slct.202001268)

4. Pullaguri N, Nema S, **Bhargava Y***, Bhargava A. "Triclosan alters adult zebrafish behavior and targets acetylcholinesterase activity and expression". **Environmental Toxicology and Pharmacology**, 2020, 75, 103311.
(Impact factor: 4.86) (ISSN: 13826689)
DOI: 10.1016/j.etap.2019.103311 (https://www.ncbi.nlm.nih.gov/pubmed/31841724)

5. Dohare S, **Bhargava Y**, Kango N. Bioremediation of hydrocarbon pollutants: A green approach. **Madhya Bharti Journal of Science (India)**, 2020.

2019

6. Sharma RK, Nigam S, Chouryal YN, Nema S, Bera SP, **Bhargava Y** and Ghosh P. "Eu-Doped BaF2 Nanoparticles for Bioimaging Applications". **ACS Applied Nano Materials**, 2019, 2, 927 – 936.
(Impact factor: 5.09) (ISSN: 25740970)
https://doi.org/10.1021/acsanm.8b02180
(https://pubs.acs.org/doi/10.1021/acsanm.8b02180)

2018

7. Gaur H, Pullaguri N, Purushothaman S, Nema S, **Bhargava Y*** and Bhargava A. "ZebraPace: An open-source method for cardiac rhythm estimation in untethered zebrafish larvae". **Zebrafish,** 2018, 15, 254 – 262.
(Impact factor: 1.98) (ISSN: 15458547 and 15578542)
DOI: 10.1089/zeb.2017.1545
https://www.ncbi.nlm.nih.gov/pubmed/29653072

8. Nema S and **Bhargava Y***. "Quantitative assessment of cypermethrin induced behavioural and biochemical anomalies in adult zebrafish". **Neurotoxicology and Teratology,** 2018, 68, 57 – 65.
(Impact factor: 3.76) (ISSN: 08920362 and 18729738)
DOI: 10.1016/j.ntt.2018.05.003
https://www.ncbi.nlm.nih.gov/pubmed/29802885

9. Gaur H, Purushothaman S, Pullaguri N, **Bhargava Y**, Bhargava A. "Sodium benzoate induced developmental defects, oxidative stress and anxiety-like behaviour in zebrafish larva". **Biochemical and Biophysical Research Communications,** 2018, 502, 364 – 369.
(Impact factor: 3.57) (ISSN: 10902104 and 0006291X)
DOI: 10.1016/j.bbrc.2018.05.171
https://www.ncbi.nlm.nih.gov/pubmed/29842881

10. **Bhargava, Y***. "Open-design Recirculating Systems for Zebrafish Culture". **Aquacultural Engineering,** 2018, 81, 71 – 79.
(Impact factor: 3.2) (ISSN: 01448609 and 18735614)
https://doi.org/10.1016/j.aquaeng.2018.03.004
https://www.sciencedirect.com/science/article/pii/S0144860917301644

2017

11. Nema S and **Bhargava Y***. "Open-RAC: Open-Design, Recirculating and Auto-Cleaning Zebrafish Maintenance System". **Zebrafish,** 2017, 14, 371 – 378.
(Impact factor: 1.98) (ISSN: 15458547 and 15578542)
DOI: 10.1089/zeb.2016.1403
https://www.ncbi.nlm.nih.gov/pubmed/28537503

2016

12. Nema S, Hasan W, Bhargava A, **Bhargava Y*.** "A novel method for automated tracking and quantification of adult zebrafish behaviour during anxiety". **Journal of Neuroscience Methods,** 2016, 271, 65 – 75.
(Impact factor: 2.39) (ISSN: 01650270 and 1872678X)
DOI: 10.1016/j.jneumeth.2016.07.004
http://www.ncbi.nlm.nih.gov/pubmed/27396369

13. Nema S and **Bhargava Y***. "Designing and Testing of Self-Cleaning Recirculating Zebrafish Tanks". **Zebrafish**, 2016, 13, 369 – 373.
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Books and Chapters

1. **Bhargava Y*** and Bhargava A*. "ZebraTrack: An Automated Method to study Zebrafish Behaviour". (Reference Book on new technologies. ISBN: 978-3-659-90051-8, Feb-2017, Lambert Academic Publishing, OmniScriptum GmbH & Co. KG, Saarbrücken, Germany).

2. **Bhargava Y***. "Allosteric Interactions in P2X Receptor Subunits – Photolabeling and Fluorescence Technologies to Study P2X Receptors". (Reference Book on new technologies. ISBN: 978-620-2-02541-6, Sept-2017, Lambert Academic Publishing, OmniScriptum GmbH & Co. KG, Saarbrücken, Germany).

Research publication from past faculty members since 2013

- WNT5A-mediated β-catenin-independent signalling is a novel regulator of cancer cell metabolism. V Sherwood, SK Chaurasiya, EJ Ekström, W Guilmain, Q Liu, T Koeck, Carcinogenesis, 2014.

- Antidyslipidemic effect and antioxidant activity of anthraquinone derivatives from Rheum emodi rhizomes in dyslipidemic rats. Mishra SK, Tiwari S, Shrivastava A, Srivastava S, Boudh GK, Chourasia SK, Chaturvedi U, Mir SS, Saxena AK, Bhatia G, Lakshmi V. Journal of natural medicines, 2014

- WNT5A signaling impairs breast cancer cell migration and invasion via mechanisms independent of the epithelial-mesenchymal transition. CP Prasad, SK Chaurasiya, W Guilmain, T Andersson. Journal of Experimental & Clinical Cancer Research, 2016.

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- PknG supports mycobacterial adaptation in acidic environment. R Paroha, R Chourasia, R Mondal, SK Chaurasiya. Molecular and cellular biochemistry. 2018.

- PknG supports mycobacterial adaptation in acidic environment. Ruchi Paroha, Rashmi Chourasia, Rajesh Mondal & Shivendra K. Chaurasiya. Molecular and Cellular Biochemistry. 2018.

- Osteoimmunology: The Nexus between bone and immune system. Hamid Y. Dar, Zaffar Azam, Rajaneesh Anupam, Rajesh K. Mondal, Rupesh K. Srivastava. Frontiers In Bioscience, Landmark. 2018.

- *Lactobacillus acidophilus* inhibits bone loss and increases bone heterogeneity in osteoporotic mice via modulating Treg-Th17 cell balance. Hamid Y. Dar, Prashant Shukla, Pradyumna K. Mishra, Rajaneesh Anupam, Rajesh K. Mondal, Geetanjali B.Tomar, Versha Sharma, Rupesh K.Srivastava. Bone Reports. 2018.

- High dietary salt intake correlates with modulated Th17-Treg cell balance resulting in enhanced bone loss and impaired bone-microarchitecture in male mice. Hamid Y. Dar, Anjali Singh, Prashant Shukla, Rajaneesh Anupam, Rajesh K. Mondal, Pradyumna K. Mishra & Rupesh K. Srivastava. Scientific Reports. 2018.

- Synthesis and Rational design of europium and Lithium Doped sodium Zinc Molybdate with Red emission for optical Imaging. N Jain, R Paroha, RK Singh, SK Mishra, SK Chaurasiya, RA Singh. Scientific reports. 2019.

- Phospholipase C-γ2 promotes intracellular survival of mycobacteria. R Paroha, SK Chaurasiya, R Chourasia. Journal Of Cellular Biochemistry. 2019.

- Intrinsically disordered human T lymphotropic virus type 1 p30 protein: experimental and computational evidence. P Namdev, DL Lyngdoh, HY Dar, SK Chaurasiya, R Srivastava, T Tripathi. AIDS research and human retroviruses. 2019.

- Induction of T7 Promoter at Higher Temperatures May Be Counterproductive. Priyanka Namdev, Hamid Y. Dar, Rupesh K. Srivastava, Rajesh Mondal & Rajaneesh Anupam. Indian Journal of Clinical Biochemistry. 2019.

- Anti-biofilm and Antibacterial Activity of Allium sativum Against Drug Resistant Shiga-Toxin Producing Escherichia coli (STEC) Isolates from Patient Samples and Food Sources. Sushma Bagde Bhatwalkar, Surendra Singh Gound, Rajesh Mondal, Rupesh K. Srivastava & Rajaneesh Anupam. Indian Journal of Microbiology. 2019.

- Facile synthesis of macroporous Ag and CuO monoliths as an efficient nonenzymatic electrochemical sensor and antimicrobial agent. Devendra Ahirwar, Mustri Bano, Imran Khan, Surendra Singh Gound, Mehraj Ud Din Sheikh, Rajesh Mondal, Farid Khan. Journal of Solid State Chemistry. 2019.

Research Innovation:

Patent Details	Patent status Published/Filed	Patent Number	Date of Award
A process for production of novel L-asparaginase with anti-leukemic activity, Indian Provisional Patent Application in the name DBT & Dr. H. S. Gour Central University, Sagar and R. Upadhyay, A. Saxena and N.Kango	Filed	BT/BPFC/04/118/2014-PID	Patent Pending
A cost-effective multimodal optical imaging system to concurrently image diverse biomarkers from live-behaving, untethered whole animal. Indian Patent Application. ***Inventors: Dr. Yogesh Bhargava and Shubham Nema***	Filed on 17/09/2019 PATENT APPLICATION PUBLICATION 11/10/2019	Application No.201921037378 A	Patent Pending

Research Extension:

Contribution for the advancement of science:

- Prof. Naveen Kango served as member of Review Editor, Frontiers in Microbiotech, Editorial Board in Kavaka (being the Transactions of Indian Mycological Society), Madhya Bharti- Journal of Science.

- Prof. Naveen Kango and Dr. Yogesh Bhargava have been serving as Reviewers in leading Scientific Journals e.g. International journal of Biological Macromolecules, Food Chemistry, Plos One, Frontiers in Microbiology, Environmental Science and Pollution Research, Toxicological Sciences, Biology Open, Cell Biology and Toxicology, Chemosphere, Reviews in Aquaculture.

Achievements of the department (Award and Recognitions)

Title of award/recognition	Name of the Awardee	Awarding Agency	Date of Award	Category
Elected as Fellow of Mycological Society of India	Prof. Naveen Kango	Mycological Society of India	2019- 20	Elected Fellow
Dr. V. Aghihothrudu Memorial Award	Prof. Naveen Kango	Mycological Society of India	2020-21	Memorial Lecture award
Application of fungal mannanases	Hemant Soni	30th M.P. Young Scientist Congress MPCST, Bhopal	28 Feb-01 March, 2015	Young Scientist award
Indigenous development of technology to study zebrafish behaviour	Shubham Nema	34th M.P. Young Scientist Congress MPCST, Bhopal	28 Feb-01 March, 2019	Young Scientist award
MPCST Young Scientist Award	Sarika Agrawal	36th M.P. Young Scientist Congress MPCST, Bhopal	28-29 February 2020	Young Scientist award
Best Poster Award	Hemant Rawat	FDEOLS-2014 (International Conference) Department of Biotechnology, Dr. H.S. Gour University, Sagar (M.P.)	13-15 February 2014.	First prize
Best Poster Award	Hemant Rawat	National Conference (MRSC-2015) Organized by Maharaja Ranjit Singh College of Professional Sciences, Indore	16 th October, 2015	First prize
Best Poster Award	Shubham Nema	National Symposium on Frontiers in Modern Biology, jointly organized by Indian Science Congress Association-Sagar Chapter and Department of Zoology, Dr. Harisingh Gour Central University, Sagar (M.P.)	March 24 - 25, 2014	First prize

Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants:

Event	Duration (From-To)	Funding	Remark
Workshop on Advance Imaging and Microscopy-2019	25.02.2019 to 27.02.2019	DST-PURSE	Participants from PG, PhD and faculty members
GIAN program	25.06.2018 to 30.06.2018	MHRD-GIAN scheme	Foreign Expert Dr. Harsh Bais, University of Delaware, USA
International conference	11.01.2017 to 13.01.2017	DST, DBT & UGC	International Conference on Interface of Physical, Chemical and Biological Sciences
International Conference	13.02.2014 to 15.02.2014	DST-PURSE	Frontier Discoveries and Emerging Opportunities in Life Sciences

List of senior microbiologists visited the department (since 2015):

Prof. T. Satyanarayana	Microbiology, Enzyme and Microbial Technology	Dept of Biotechnology, Netaji Subhash University of Technology, New Delhi 09810871815 tsnarayana@gmail.com
Dr. S.K. Deshmukh	Microbial Natural products	Ex-Area Convenor, Nano Biotechnology Centre, Biotechnology & Bioresources Division, TERI Gurgaon, sunild2811@rediffmail.com sunil.deshmukh@teri.res.inTel. (+91 124) 2579296
Prof. A.K. Pandey	Bioremediation Mycology Mushroom Technology	Ex- Chairman, M.P. Private University Regulation Committee Department of Biological Sciences, R.D. University, Jabalpur-482001 MP 0755-2490577, Mob. 09826168512, E-mail: akpmycol@yahoo.in
Prof. Sukhmahendra Singh	Dept of Biotechnology, Banaras Hindu University, Varanasi	Dept of Biotechnology, Banaras Hindu University, Varanasi sukhmahendrasingh@yahoo.com 9415812189

Prof. S. S. Sandhu	Fermentation Technology, Biocontrol	Director, University Innovation Centre, Department of Biological Sciences, R.D. University, Jabalpur-482001 MP 8059931053 ssandhu@rediffmail.com
Prof. P. Shukla	Microbiology, Enzyme and Microbial Technology	Dept of Microbiology, M D University, Rohtak pratyoosh.shukla@gmail.com