


## FACULTY PROFILE

Title	Dr.	First Name	Mamta	Last Name	Baunthiyal	
Designation		Professor and Head				
Dept. Name		Department of Biotechnology				
Address:		G B Pant Institute of Engineering and Technology, Ghurdauri, Pauri Garhwal (Uttarakhand)				
Phone No.		919690600013				
Email		1. <a href="mailto:mamtabaunthiyal@yahoo.co.in">mamtabaunthiyal@yahoo.co.in</a>		2. <a href="mailto:mamtabaunthiyal@gmail.com">mamtabaunthiyal@gmail.com</a>		
WebPage(ifany)						
Subjects Taught		Enzyme technology, Nanotechnology, Environment Biotechnology, Phytochemistry				
Areas of Interest/Specialization		Phytoremediation technology with special reference to fluoride Stress physiology Enzymes from unexplored environments Harnessing potential of medicinal plants (from research to product).				
Experience(inyears)		Total	27 years			
		Industry				
		Teaching	27 years			
		Research				
Educational Qualifications		UG	Kurukshetra University, Haryana, India BSc. Biology, 1992			
		PG	Kurukshetra University, Haryana, India MSc. Biochemistry, 1994			
		Doctorate	Banasthali University, Banasthali, Rajasthan India Ph.D in Biotechnology, 2008, Ph.D thesis topic: Screening of local flora for bioremediation of fluoride rich soil and water.			
		Anyother				
Research Publications in Journals		56				

Papers Published in Conference Proceedings	13		
Books Authored	<ol style="list-style-type: none"> <li>1. Comprehensive laboratory Manual of Life Science 2019, Mamta Baunthiyal, Indu Ravi, Jyoti Saxena; Scientific Publishers, Jodhpur (India) . ISBN No. 978-93-87893-93-1</li> <li>2. Advances in Biotechnology, 2013, Indu Ravi, Mamta Baunthiyal, Jyoti Saxena; Springer Publisher. ISBN 978-81-322-1553-0</li> <li>3. Laboratory manual of Microbiology, Biochemistry and Molecular Biology, 2012 Jyoti Saxena, Mamta Baunthiyal, Indu Ravi; Scientific Publishers, Jodhpur (India), 380 pp. ISBN No. 8172337663, 9788172337667</li> </ol>		
/Book Volume Chapters	11 (Eleven)		
No. of Conferences	National	Attended	Organized
		33	6
	International		
Research Guidance	Awarded	PG	Doctorate
		36	5
	Undergoing	2	
Research Projects	Completed	3	
	Undergoing		
Awards & Distinctions			
Administrative Assignments Handled	<ul style="list-style-type: none"> <li>➤ Analyzed departmental documents for appropriate distribution and filing.</li> <li>➤ Worked with graduate students on classroom material and laboratory practicums.</li> <li>➤ Maintained office hours to help students with questions and educational support.</li> <li>➤ Chaired department meetings covering new implementations, problem-solving and other operational areas.</li> </ul>		
Association with Professional Bodies	<ol style="list-style-type: none"> <li>1. IEEE Membership Member#97163099 Uttar Pradesh Section</li> <li>2. The Indian Science Congress Association- Life Member Section: New Biol (including Biochemistry, Biophysics and Mol. Bio &amp; Biotech). Membership number L12682</li> <li>3. International Society for Fluoride Research</li> </ol>		

AnyotherAchievements	
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## Research Publications in Journals

1. V. Singh, G.-D. Lee, H. Son, S. Amani, M. Baunthiyal, and J.-H. Shin, "Anti-diabetic prospects of dietary bio-actives of millets and the significance of the gut microbiota: A case of finger millet," *Frontiers in Nutrition*, vol. 9, Dec. 2022, doi: 10.3389/fnut.2022.1056445.
2. M. Baunthiyal, P. Semwal, and S. Dwivedi, "Haemostatic Potential of Medicinal Plants and Their Phytochemicals," *Journal of Mountain Research*, vol. 16, no. 1, Jan. 2021, doi: 10.51220/jmr.v16i1.8.
3. S. Kumar, R. Pathak, D. B. Singh, A. Bhatt, and M. Baunthiyal, "Chemo-informatics guided study of natural inhibitors targeting rho GTPase: a lead for treatment of glaucoma," *In Silico Pharmacology*, vol. 9, no. 1, Jan. 2021, doi: 10.1007/s40203-020-00061-y.
4. D. Sharma, S. Dwivedi, S. Ranghar and M. Baunthiyal, "Evaluation of Antinephrolithiatic Potential of Some Ethnomedicinal Plants of Uttarakhand, India." *Journal of Science and Healthcare Exploration (JSHE)*, Vol. 2, Issue 6, Nov-Dec – 2020, doi:10.2019/JSHE.2581.8473/202006005.
5. D. Sharma, S. Dwivedi, S. Ranghar and M. Baunthiyal, "Systematic review of medicinal plants as potential anti-urolithiatic agents." *Int. J. of Adv. Res.* 8 (Aug).
6. R. Pathak, M. Baunthiyal, D. Pandey, and A. Kumar, "Computational analysis of microarray data of *Arabidopsis thaliana* challenged with *Alternaria brassicicola* for identification of key genes in Brassica," *Journal of Genetic Engineering and Biotechnology*, vol. 18, no. 1, Jul. 2020, doi: 10.1186/s43141-020-00032-y.
7. P. K. Sharma, S. Ranghar, and M. Baunthiya, "Identification and Optimization of Fermentation Medium for Production of Antibacterial Compounds from Endophytic *Streptomyces* sp. GBTPR-167," *International Journal of Current Microbiology and Applied Sciences*, vol. 9, no. 6, pp. 2594–2608, Jun. 2020, doi: 10.20546/ijcmas.2020.906.316.
8. A. K. Bhandari, M. Baunthiyal, V. K. Bisht, J. C. Kaim, and B. S. Negi, "Baseline Information on Physico-taxonomical Characteristics of *Amomum subulatum* Roxb. Cultivars Grown in Uttarakhand, India," *National Academy Science Letters-india*, Dec. 2020, doi: 10.1007/s40009-020-00927-x.
9. G. Rana, R. Pathak, R. Shukla, and M. Baunthiyal, "In silico identification of mimicking molecule(s) triggering von Willebrand factor in human: a molecular drug target for regulating coagulation pathway," *Journal of Biomolecular Structure & Dynamics*, vol. 38, no. 1, pp. 124–136, Jan. 2020, doi: 10.1080/07391102.2019.1568303.
10. M. Baunthiyal and S. Ranghar, "Attitudes and Ambitions Towards Science, Technology Engineering and Mathematics", *IJRAR - International Journal of Research and Analytical Reviews (IJRAR)*, Vol. 6, Issue 2, Page No. 768-776, June 2019.
11. P. Sharma and M. Baunthiyal, "Endophytic Actinobacteria from *Pinus roxburghii*: Isolation, diversity and antimicrobial potential against human pathogens." *Journal of Pharmacognosy and Phytochemistry*, 2018, Vol. 7(5), pp. 3021-3027.
12. S. Mamgain, S. Dhiman, R. Pathak, and M. Baunthiyal, "In silico identification of agriculturally important molecule(s) for defense induction against bacterial blight disease in Soybean (*Glycine max*)," *Plant Omics*, vol. 11, no. 02, pp. 98–105, May 2018, doi: 10.21475/poj.11.02.18.1238.
13. R. Pathak, M. Baunthiyal, D. Pandey, and A. Kumar, "Augmentation of crop productivity through interventions of omics technologies in India: challenges and opportunities," *3 Biotech*, vol. 8, no. 11, Oct. 2018, doi: 10.1007/s13205-018-1473-y.
14. R. Pathak, A. Gupta, R. Shukla, and M. Baunthiyal, "Identification of new drug-like compounds from millets as Xanthine oxidoreductase inhibitors for treatment of Hyperuricemia: A molecular docking and simulation study," *Computational Biology and Chemistry*, vol. 76, pp. 32–41, Oct. 2018, doi: 10.1016/j.compbiolchem.2018.05.015.

15. D. Srivastava, M. Baunthiyal, A. Kumar, K. Yadav, D. Yadav and S. Kumar, "Comparative study on the Effect of Different Lead Concentrations on Two varieties of *Triticum aestivum* L.(Wheat)." *Journal of Pharmacognosy and Phytochemistry*, 2018, Vol. 7 (1), pp. 479-483.
16. R. K. Pathak, M. Baunthiyal, N. Pandey, D. Pandey and A. Kumar. "New model provides clues for fighting fungal disease in oilseeds." *Nature India*, doi:10.1038/nindia.2018.36.
17. P. Semwal, V. Rawat, P. Sharma and M. Baunthiyal. "Actinobacteria from Cow Feces: Isolation, Identification and Screening for Industrially Important Secondary Metabolites." *Microbiology and Biotechnology letters*, 2018, Vol. 46 (1), pp. 68-76.
18. M. Tasleem, M. Baunthiyal and G. Taj. "Induction of MPK3, MPK6 and MPK4 Mediated Defense Signaling in Response to *Alternaria* Blight in Transgenic *Brassica Juncea*." *Biosciences Biotechnology Research Asia*, 2017, Vol. 14 (4), pp. 1469-1474
19. M. Tasleem, M. Baunthiyal, A. Kumar and G. Taj. "Determination of antioxidant activity in overexpressed MPK3 transgenic *Brassica juncea* for induction of defense against *Alternaria* blight disease." *Journal of Pharmacognosy and Phytochemistry*, 2017, Vol. 6 (6), pp. 2579-2582.
20. R. Pathak, M. Baunthiyal, N. Pandey, D. Pandey, and A. Kumar, "Modeling of the jasmonate signaling pathway in *Arabidopsis thaliana* with respect to pathophysiology of *Alternaria* blight in Brassica," *Scientific Reports*, vol. 7, no. 1, Dec. 2017, doi: 10.1038/s41598-017-16884-3.
21. A. K. Bhandari, M. Baunthiyal, V. K. Bisht, J. C. Kaim and B. S. Negi. "Chemometric Resolution for Baseline Identification of *Amomum subulatum* Roxb. Essential Oils through FT-IR Spectroscopy Technique". *International Journal of Organic Chemistry*, 2017, Vol. 7, pp. 319-324.
22. A. K. Bhandari, M. Baunthiyal, V. K. Bisht, J. C. Kaim and B. S. Negi. "Influence of Plant Growth Regulators and Media strength on In vitro Propagation of *Amomum subulatum* Roxb". *Research Journal of Medicinal Plants (4)*: 160-166, 2017, doi: 10.3923/rjmp.2017.160.16611.
23. M. Baunthiyal, V. Singh and S. Dwivedi. "Insights of Antioxidants as Molecules for Drug Discovery," *International Journal of Pharmacology*, Vol. 13 (7), pp. 874-889, 2017.
24. M. Baunthiyal and V. Sharma. "Phytoremediation potential of selected hydrophytes for fluoride in aquatic environment". *World Review of Science, Technology and Sustainable Development*, 2017, Vol. 13, No. 2, pp.133-144.
25. R. Pathak, M. Baunthiyal, R. Shukla, D. Pandey, G. Taj, and A. Kumar, "In Silico Identification of Mimicking Molecules as Defense Inducers Triggering Jasmonic Acid Mediated Immunity against *Alternaria* Blight Disease in Brassica Species," *Frontiers in Plant Science*, vol. 8, Apr. 2017, doi: 10.3389/fpls.2017.00609.
26. A. K. Bhandari, M. Baunthiyal, V. K. Bisht, B. S. Negi and J. C. Kaim. "Assessment of Intra-Specific Variation in Essential Oil Composition in *Amomum Subulatum* Roxb. Cultivated in Uttarakhand, India". *Asian Journal of Chemistry and Pharmaceutical Sciences*, 2017, Vol 2(1), pp. 1-5.
27. Priyanka and M. Baunthiyal. "An ethno-botanical study of medicinal plants of Ghurdauri region, Uttarakhand, India". *Journal of Medicinal Plants Studies*, 2016, Vol. 4, Issue 5, Part C 200-205.
28. A. Mutahir, M. Bisht and M. Baunthiyal. "Comparative assessment of fluoride tolerance in two genotypes of *Zea mays*". *Journal of Medicinal Plants Studies*, 2016; Vol. 4(5), pp. 253-258.
29. S. Ranghar and M. Baunthiyal. "Ecological damage in the vicinity of two industrial areas of Uttarakhand". *Environment Conservation Journal*, 2016, Vol. 16(1&2), pp. 179-186.
30. M. Goel, P. Sharma and M. Baunthiyal. "Isolation, Evaluation and Characterization of *Pseudomonas* sp. from Rhizospheric Soil of Marigold Plant with Biocontrol Activity against *Rhizoctonia solani* under *in vitro* conditions". *Indian Journal of Natural Sciences (IJONS)*, 2016, Vol. V (6), June 2016.
31. R. Pathak, G. Taj, D. Pandey, V. Kasana, M. Baunthiyal, and A. Kumar, "Molecular modeling and docking studies of phytoalexin(s) with pathogenic protein(s) as molecular targets for designing the derivatives with anti-fungal action on *Alternaria* spp. of Brassica," *Plant Omics*, vol. 9, no. 3, pp. 172-182, Jun. 2016, doi: 10.21475/poj.16.09.03.p7654.
32. A. Kachru, M. Bisht, and M. Baunthiyal, "In vitro evaluation of anti-nephrolithiatic activity of leaves and seeds of *Macrotyloma uniflorum* dissolution or removal of kidney stones," *Research Journal of Pharmacognosy and Phytochemistry*, vol. 8, no. 1, p. 5, Jan. 2016, doi: 10.5958/0975-4385.2016.00002.9.

33. A. Mutahir, H. Chandra and M. Baunthiyal. "Green synthesis of silver nanoparticles from different parts of the plant *Macrotyloma uniflorum*." *Octa Journal of Biosciences*, Dec. 2015, Vol. 3(2), pp. 58-61.
34. D. Jeena, M. Baunthiyal, D. Pandey and A. K. Gupta. "ATMPK4 and ATMPK6 Transcript and Protein Profiling in *Arabidopsis thaliana* Plants Challenged with Zeatin and *Alternaria brassicae*." *Plant Pathology Journal*, 2015, Vol. 14 (3), pp. 97-112, 2015.
35. K. Jyoti, M. Baunthiyal, and A. B. Singh, "Characterization of silver nanoparticles synthesized using *Urtica dioica* Linn. leaves and their synergistic effects with antibiotics," *Journal of Radiation Research and Applied Sciences*, vol. 9, no. 3, pp. 217-227, Jul. 2016, doi: 10.1016/j.jrras.2015.10.002.
36. S. Mangain, P. Sharma, R. K. Pathak and M. Baunthiyal. "Computer aided screening of natural compounds targeting the E6 protein of HPV using molecular docking." *Bioinformation*, 2015, Vol. 11(5), pp. 236-242.
37. M. Baunthiyal, D. Rai and S. Ranghar. "Water quality assessment and mapping of natural and ground water resources in Pauri region of Uttarakhand." *Environment Conservation Journal*, 2015, Vol. 16(1&2), pp. 51-56.
38. D. Srivastava, A. Singh and M. Baunthiyal. "Lead Toxicity and Tolerance in Plants." *Journal of Plant Science & Research*, 2015, Vol. 2(2), p 123.
39. M. Baunthiyal and S. Ranghar. "Physiological and biochemical responses of plants under fluoride stress: an overview *Fluoride*." 2014, Vol. 47(4), pp. 287-293.
40. M. Baunthiyal and V. Sharma, "Response of fluoride stress on plasma membrane H<sup>+</sup>-ATPase and vacuolar H<sup>+</sup>-ATPase activity in semi-arid plants," *Indian Journal of Plant Physiology*, Aug. 2014, doi: 10.1007/s40502-014-0103-x.
41. R. K. Pathak, M. Baunthiyal, G. Taj and A. Kumar. "Virtual screening of natural inhibitors to the predicted HBx protein structure of Hepatitis B Virus using molecular docking for identification of potential lead molecules for liver cancer." *Bioinformation*, 2014, Vol. 10(7), pp. 428-435.
42. M. Baunthiyal and V. Sharma. "Response of Three Semi-Arid Plant Species to Fluoride; Consequences for Chlorophyll Florescence." *International journal of Phytoremediation*, 2014, Vol. 16, (4): 397-414.
43. M. Baunthiyal, A. Bhatt and S. Ranghar. "Fluoride and its effects on Plant metabolism." *Journal of Agricultural Technology*, 2014, Vol. 10(1), pp. 1-27.
44. M. Baunthiyal and S. Ranghar, "Accumulation of Fluoride by Plants: Potential for Phytoremediation," *Clean-soil Air Water*, vol. 43, no. 1, pp. 127-132, Jan. 2015, doi: 10.1002/clen.201300353.
45. D. Anand, M. Baunthiyal, S. Krishnan, N. Singh, K. V. Prabhu, and A. K. Singh, "Novel InDel variation in GS3 locus and development of InDel based marker for marker assisted breeding of short grain aromatic rices," *Journal of Plant Biochemistry and Biotechnology*, vol. 24, no. 1, pp. 120-127, Jan. 2015, doi: 10.1007/s13562-013-0243-5.
46. A. K. Burnham, Ari, M. Baunthiyal, V. K. Bisht, N. Singh, and J. S. Negi, "A quick bud breaking response of a surface model for rapid clonal propagation in *Centella asiatica* (L.)," *International Journal for Biotechnology and Molecular Biology Research*, vol. 4, no. 6, pp. 93-97, Oct. 2013, doi: 10.5897/ijbmr2013.0167.
47. A. K. Bhandari, V. K. Bisht, J. S. Negi and M. Baunthiyal. "1, 8-Cineole: A predominant component in the essential oil of large cardamom (*Amomum subulatum* Roxb.)" *Journal of Medicinal Plants Research*, 2013, Vol 7(26), pp. 1957-60.
48. A. Bhatt, P. Singh., V. Kumar and M. Baunthiyal. "Documentation of Ethno - Veterinary Practices used for Treatments of Different Ailments in Garhwal Himalayan Region." *J. Environ. Nanotechnol.*, 2013, Vol. 2, pp. 20-27.
49. P. Saini, S. Khan, M. Baunthiyal, and V. Sharma. "Effects of fluoride on germination, early growth and antioxidant enzyme activities of legume plant species *Prosopis juliflora*." *Journal of Environmental Biology*, 2013, Vol 34, pp. 205-209.
50. P. Saini, S. Khan, M. Baunthiyal, and Vinay Sharma. "Organwise accumulation of fluoride in *Prosopis juliflora* and its potential for phytoremediation of fluoride contaminated soil." *Chemosphere* 89 , 2012, pp. 633-635

51. S. Khan, M. Baunthiyal, A. Kumari and V. Sharma. "Effect of Fluoride Pollution on Genetic Diversity of a Medicinal Tree, *Syzygium cumini*." *Journal of Environmental Biology*, 2012, Vol. 33, pp. 745-750.
52. M. Baunthiyal and A. Pandey. "Organofluorine metabolism in plants" *Fluoride*, 2012, Vol. 45 (2), pp. 78-85.
53. P. Saini, S. Khan, M. Baunthiyal and V. Sharma. "Mapping of Fluoride endemic area and assessment of F-1 accumulation in soil and vegetation." *Journal of Environmental Monitoring and Assessment*, 26 May 2012, Vol. 185 (2), pp. 2001-2008.
54. M. Baunthiyal and V. Sharma. "Phytoremediation of fluoride contaminated water and soil: A search for fluoride hyperaccumulators". *Journal of Agricultural Technology*, 2012, Vol. 8(6), pp. 1965-1975.
55. D. Anand, M. Baunthiyal, A. Singh, S. G. Krishnan, N. K. Singh, K.V. Prabhu, and A. K. Singh. "Validation of gene based marker-QTL association for grain dimension traits in rice." *Journal of Plant Biochemistry and Biotechnology*, 28 Nov 2012.
56. A. Bhatt, M. Baunthiyal, A. Pandey, H. Dangwal, A. K Singh. "Ethnobotanical uses of plants for curing diseases and ailments in human beings by people of Pauri Garhwal." *Journal of Mountain Research*, 2010., Vol. 5, pp. 129-139.