



DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

Faculty Name: Bindhu O S

Specialization: MEDICAL BIOCHEMISTRY

Education

- Highest: **Ph D in Cancer Biology**

Work Experience: 17 years 2 months

1. Jain (Deemed to be University), Bangalore (2009-till date) (13 years)

- From April 2022 till date- working as Head of the Department of Chemistry and Biochemistry
- August 2015-March 2022- working as Associate Professor and Head of the Department of Biochemistry
- From 30th September 2009 – 2015 August – working as Assistant Professor, Dept of Biochemistry, Centre for Post Graduate Studies, Jain University, Bangalore started guiding M.Phil. and Ph.D. students

2. Administrative Management College, Bangalore (From 24th January 2006 to 31st August 2009)(3 years 7 months)

- Served as Assistant Professor and Head of the P. G. Department of Biochemistry

3. National Institute of Engineering and Management, Rai Foundation, Gottigere, Bangalore (16th August 2005 to December 2005)(5 months).

- Served as guest faculty for the BTech Biotechnology students.

Key Areas of Research interest

1. Cancer biology
2. Wound healing
3. Plant proteases and their industrial applications.

Publications

1. Bindhu O S, PhD, Ramadas K, MD, Paul Sebastian, MD and M Radhakrishna Pillai, FRCPATH, PhD, FASc. NF kappa B activation in the oral mucosa parallels gelatinase expression during tumor progression. *Head and Neck*, October, 28(10): 2006 (TR IF: 3.006).
2. Shreya N, Raghavendra NP, Vivaswan M, Maria V R, Namrata K, Pradeep AS, Ghosh SK and Bindhu OS. Larvicidal activity of *Calotropis gigantea* (L.) R.Br. on dengue and chikungunya vector *Aedes aegypti*. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 3(3),2012 (IF:0.35)

3. Maheshwari Kumari Singh, Bindhu O.S, Hemostatic, Milk Clotting and Blood Stain Removal Potential of Cysteine Proteases from *Calotropis gigantea* (L.) R. Br. Latex; *Pharmacognosy Magazine*, 2014, 10(38): 350-356 (<http://doi/10.4103/0973-1296.133294>) (TR IF: 1.53).
4. R. Anusha · Maheshwari Kumari Singh · O. S. Bindhu. Characterisation of potential milk coagulants from *Calotropis gigantea* plant parts and their hydrolytic pattern of bovine casein. *European Food Research and Technology*, 2014, 238 (6): 997-1006 (<http://doi/10.1007/s00217-014-2177-0>)(TR IF: 1.44).
5. Anusha R., Maheshwari Kumari Singh and Bindhu O. S. Screening of latex producing plants for their milk clotting activity. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 4(4), 2013 ISSN: 0975-8585 (557-561) (IF: 0.35)
6. Sayeeda Mussavira, Mala Dharmalingam and Bindhu O. S. Salivary gluciose and antioxidant defense markers in type II DM. *Turkish Journal of Medical Sciences*, 2015, 45: 141-147 (<http://doi/10.3906/sag-1306-116>)(TR IF:0.84).
7. Maheshwari Kumari Singh, Usha R., Hithayshree K.R and Bindhu O. S. Hemostatic potential of Latex proteases from *Tabernaemontana divaricata* (L.) R. Br. ex. Roem. and Schult. and *Artocarpus altilis* (Parkinson ex. F.A. Zorn) Forsberg. *Journal of Thrombosis and Thrombolysis*, 2015, 39:43-49 (<https://doi.org/10.1007/s11239-013-1012-y>), (TR IF:2.04).
8. Lazaro Alessandro Soares Nunes, Sayeeda Mussavira, O. S Bindhu. Clinical and diagnostic utility of saliva as a non-invasive diagnostic fluid: a systematic review. *Biochemia Medica*, 2015; 25(2):177–92 (<http://dx.doi.org/10.11613/BM.2015.018>), (TRIF: 3.6).
9. Anusha R and Bindhu O S. Three phase partitioning to concentrate milk clotting proteases from *Wrightia tinctoria* R. Br and its characterization. *International Journal of Biological Macromolecules*, 2018, (<https://doi.org/10.1016/j.ijbiomac.2018.06.042>) 118: 279-288, (TRIF: 6.9).
10. Anusha Rajagopalan, Malini Soundararajan and Bindhu Omana Sukumaran. Proteases from *Calotropis gigantea* stem, leaf and calli as milk coagulant source. *Turkish Journal of Biochemistry*, Published Online: 2018-07-17; 44(3): 240–247. (<https://doi.org/10.1515/tjb-2017-02682019>) (TRIF: 0.40).
11. Sayeeda Mussavira, and Bindhu O. S. Metabolomics: Global Scenario and Explored Avenues. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 2019,10(1), 1317-1332 (IF:0.35).
12. Divya, G, Prithvi, B.R, Santhosh, S, Bindhu Omana Sukumaran, Anusha Rajagopalan and Malini Soundararajan. Triacontanol, jasmonic acid and ascorbic acid enhances protease activity in *in vitro* cultured tissues of *Calotropis gigantea*, *International Journal of Advanced Life Sciences (IJALS)*, 2018, Vol II, Issue I (<https://doi.org/10.26627/IJALS/2018/11.01.0041>) \
13. Apurva Kumar Ramesh Joshi*, Bindhu Omana Sukumaran. Metabolic dyshomeostasis by organophosphate insecticides: insights from experimental and human studies, *EXCLI Journal*, 2019;18:479-484 – ISSN 1611-2156 (Short Communication) (<http://dx.doi.org/10.17179/excli2019-1492>)(TR IF: 4.068)
14. Sayeeda Mussavira, Harish H Kumar, Bindhu O. S. Evaluation of sialic acid, uric acid, total protein and amylase activity in biofluids of oscc patients. *RJLBPCS*, 2020 Jan – Feb 6(1) Page No.16 (<http://doi.org/10.26479/2020.0601.02>)

15. Anusha Rajagopalan, Bindhu Omana Sukumaran. Quality analysis of fresh cheese prepared using *Wrightia tinctoria* proteases. *Current Nutrition & Food Science*, 2020, 16, 1-9 (<https://doi.org/10.2174/1573401316666200214102828>) (TRIF: 0.92)
16. Maheshwari K. Singh, Deepthi. N. Rao, B.A. Sathish, S.P. Soundarya, Anusha Rajagopalan and Bindhu O. Sukumaran. *Tabernaemontana divaricata* stem and latex proteases as haemostatic agent with temporally spaced intense fibrinogenolytic and mild fibrinolytic activity. *Current Biotechnology*, 9(2), 2020, pp. 134-142 (<http://doi.org/10.2174/2211550109999200801020116>) (IF-0.667)
17. Anusha Rajagopalan, Vasuki Aluru and Bindhu Omana Sukumaran. Characterisation of hydrolysate for identifying initial peptide cleavage site of κ -casein by milk coagulating *Wrightia tinctoria* serine proteases. *International dairy Journal*, Volume 115, April 2021, 104934 (<https://doi.org/10.1016/j.idairyj.2020.104934>) (WOS TRIF-3.032)
18. MK Singh, A Rajagopalan, H Tanimu, BO Sukumaran. Purification, characterization and fibrino(geno)lytic activity of cysteine protease from *Tabernaemontana divaricata* latex. *3 Biotech*, 11(2), 1-12 (<https://doi.org/10.1007/s13205-021-02643-9>) (WOS TRIF: 2.45).
19. Anusha Rajagopalan, Vasuki Aluru, Malini Soundarajan & Bindhu O. Sukumaran (2021). Potential utility of callus proteases as a milk clotting alternative to naturally propagated *Wrightia tinctoria* proteases. *Preparative Biochemistry & Biotechnology*, (<http://doi.org/10.1080/10826068.2021.1931882>) (WOS TRIF: 2.16).
20. Bassil Yaseen Aljallah, Harshitha D P, Sreelakshmi Desai, Uzma Tanzeem, Vasuki Aluru, Bindhu O S (2021). Three phase purification of milk clotting protease from *Wrightia tinctoria* fruit and studies on its casein subunit specificity. *International Journal of Agro Nutrifood Practices (IJANP)*, Volume 1. Issue 2, PP.1-8.
21. Rajagopalan Anusha, Aluru Vasuki, Sukumaran Omana Bindhu. May (2022). Evaluation of plant proteases from medicinal plants as potential vegetable coagulant alternative. *Research Journal of Biotechnology*, Vol. 17 (5) 21. (<https://doi.org/10.25303/1705rjbt151159>) (Scopus & WOS IF-0.4).
22. Sunil Kumar Khokhar, Maltesh Kambali, Sayeeda Mussavira, Bindhu O. S., T. R. Laxmi. 31st May 2022. Role of an enriched environment in ameliorating early life stress-induced changes in structure and functions of hippocampus and amygdala in rats. *Indian Journal of Physiology and Pharmacology*, Vol 66 (1) (http://doi.org/10.25259/IJPP_96_2022) (scopus & WOS IF -0.252)
23. Habibu Tanimu, Nadasha Koonath Vijayan, and Bindhu Omana Sukumaran. Emerging trends in wound management through polyherbal approach. *International Journal of Pharmaceutical Sciences and Drug Research* (Date of submission: 24.01.22, Accepted)(<http://doi.org/10.22376/ijpbs/lpr.2022>) (TRIF- 0.9).
24. Vasuki Aluru, Mrinalini Menon, Bindhu Omana Sukumaran. Biotechnological application prospects of latex proteases from Apocynaceae family. *Biotechnology and Applied Biochemistry* (Date of submission: 02.02.2022, Under Review) (TRIF: 2.4).

National Publications

1. Bindhu O S. Role of gelatinases as molecular marker in the surgical margin and tumor distant tissues of oral carcinoma. *Pariprashna* (Academic Journal) 2009, Feb, vol-IV, Issue-I, 16-24.
2. Archana Maru, Neeharini, Pravalika, Garima, Akshatha, Mala Dharmalingam and Bindhu O S. Salivary glucose as an indicator for diabetes mellitus. *Pariprashna* (Academic Journal) Vol-V, Issue-I, February-2010.
3. Sayeeda Mussavira, Mala Dharmalingam and Bindhu OS. Salivary glucose as a diagnostic marker and associated changes in SOD and total AOA in Tpe 2 diabetic patients. *Academic Studies National Journal of Jyoti Research Academy*, 7(1), 2013.

BOOK chapters:

1. Anusha R and Bindhu O S. Bioactive peptides from milk. *Book: Milk Protein*, INTECH open science publishers, 2016(<http://dx.doi.org/10.5772/62993>).
2. Muralidhar Meghwal, R. Anusha and O. S. Bindhu. Plant based coagulants in cheese making: Review. *Book Name: Dairy Engineering – Advanced technologies and their applications. Innovations in Agricultural and Biological Engineering*. Apple Academic Press. 2017. ISBN 978-1-77188-380-1 (hardcover). ISBN 978-1-77188-381-8 (PDF) (Meghwal, Murlidhar, Goyal, Megh Raj, editor & Chavan, Rupesh S., editors)
3. Maheshwari Kumari Singh and Bindhu O S “Plant latex: A rich source of haemostatic proteases”, **Book Name: “Herbal Medicine in India -Indigenous Knowledge, Practice, Innovation and its value”** Springer publishers (Springer India Pvt Ltd), 2020, (Saikat Sen & Raja Chakraborty: Editor) ISBN 978-981-13-7247-6 ISBN 978-981-13-7248-3 (eBook) <https://doi.org/10.1007/978-981-13-7248-3>

PhD Guidance:

Completed: 3

Ongoing: 6

Projects (External funded/Internal):

ICMR Funded project on “A multimodal approach to evaluate the efficacy of enriched environment in ameliorating early maternal separation induced changes in brain function: A morphological, biochemical and behavioral study in rats” with Dr. Laxmi Rao, NIMHANS, Bangalore.

Period of collaboration: **Since October 2011 till 2022**

Patents: In process