



Centre for Research & Development

Research Supervisor (Guide) Profiles

Discipline of Supervision: **Genetics**



Dr. Mamatha N Murthy

Assistant Professor
Department of Life Sciences
School of Biological and Forensic Sciences

Areas of Specialisation:

Neurogenetics, UAS/Gal4 Disease Modeling in *Drosophila*, *Drosophila* Behaviour, Nanoformulation of Phytocompounds

Dr. Mamatha N. Murthy is an Assistant Professor in the Department of Life Sciences, School of Biological and Forensic Sciences, at Kristu Jayanti (Deemed to be University), Bengaluru. She earned her Ph.D. in Genetics from the University of Mysore, supported by the DST INSPIRE Fellowship. Her research focuses on understanding the mechanistic basis of the gut-brain axis in the progression of neurodegenerative disorders. She is particularly interested in how alterations in gut microbiota composition, intestinal barrier integrity, and immune signaling influence neuroinflammation, oxidative stress, protein aggregation, and neuronal survival. Building on her experience with humanized *Drosophila* models of neurodegeneration, she aims to investigate conserved molecular pathways linking gut dysbiosis to brain dysfunction using genetically tractable systems. In addition, she explores the ethnopharmacological potential of selected Indian medicinal herbs traditionally used for cognitive health, evaluating their neuroprotective, anti-inflammatory, and microbiota-modulating effects in experimental models. She also served as resource person on *Drosophila* workshop funded by Fly Base, USA. She has published 5 research articles and guides undergraduate and postgraduate projects in genetics, developmental biology, and neurodegeneration. She actively contributes to curriculum development, academic coordination, student mentoring, conferences, scientific programmes, and training activities. Her scholarly work integrates genetic, molecular, behavioral, functional, and ethnopharmacological approaches to advance neurodegeneration research while fostering innovation and mentoring the next generation of life science researchers.

Selected Publications:

1. **Murthy, M. N., & Shyamala, B. V. (2023).** Ashwagandha–*Withania somnifera* (L.) Dunal as a multipotent neuroprotective remedy for genetically induced motor dysfunction and cellular toxicity in human neurodegenerative disease models of *Drosophila*. *Journal of Ethnopharmacology*, 318, 116897. <https://doi.org/10.1016/j.jep.2023.116897>
2. **Murthy, M. N., & Shyamala, B. V. (2023).** Human tau E14 mutation-induced neurodegeneration in *Drosophila melanogaster* is ameliorated by developmental supplement of Ashwagandha root extract. *Journal of Complementary and Alternative Medical Research*, 22. <https://doi.org/10.9734/JOCAMR/2023/v22i3461>
3. Saraswathi, S., Tavarekere Venkataravanappa, J., Nambiar, C., Saji, S., Kori, V., **Murthy, M. N.**, Somanna, P., Babu, S. V., Sreeramulu, A. K., Dayalan, A., Mohan, S. P., Chaithra, & Srinivas Murthy. (2026). Plant-derived neuroprotective compounds and nanoformulations targeting Parkinson's disease: A semi-systematic review of mechanisms and therapeutic potential. *Metabolic Brain Disease*, 41. <https://doi.org/10.1007/s11011-026-01868-y>