

**CHRIST**(DEEMED TO BE UNIVERSITY)
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Notice for the PhD Viva Voce Examination

Ms Gomathy M, Registration Number: 2270164, PhD Scholar at the Department of Life Sciences, School of Sciences, CHRIST (Deemed to be University) will defend her PhD thesis at the public viva-voce examination on Wednesday, 08 April 2026 at 02.30 pm in Room No. 628, 6th Floor, R&D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

Title of the Thesis	:	Therapeutic, Bioactive and Pharmaceutical Potential of <i>Pangasianodon hypophthalmus</i> Mucus
Discipline	:	Zoology
External Examiner - I	:	Dr A Vijaya Anand Professor and Head Division of Epigenetics Department of Human Genetics and Molecular Biology Bharathiar University Coimbatore – 641046 Tamil Nadu
External Examiner - II	:	Dr Shanmugam Sureshkumar Associate Professor Department of Animal Biotechnology Dankook University Cheonan – 31116 South Korea
Supervisor	:	Dr Manikantan P Associate Professor Department of Life Sciences School of Sciences CHRIST (Deemed to be University) Bengaluru - 560029 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Place: Bengaluru
Date: 25 March 2026

Registrar (Academics)

ABSTRACT

Fish based biomaterials are well known for therapeutic properties such as antimicrobial, antioxidant and wound healing. The current study evaluates the bioactive potential of mucus from *Pangasianodon hypophthalmus* for antibacterial, anti-inflammatory, anti-oxidant, biochemical characterization, in-vitro cell viability, cell migration assay and gene expression studies. The aqueous extract showed antimicrobial activity against the bacteria in a dose dependent pattern. Anti-inflammatory activity was evaluated using Red blood cell hemolysis assay and albumin denaturation assay, results showed ~50 % inhibition rate for albumin denaturation and ~80% inhibition for RBC hemolysis. Anti-oxidant activity was studied using DPPH assay, results revealed 80 % inhibition at 150µg/mL concentration. FTIR and NMR analysis interpretation showed the presence of functional groups contributing to the protein, carbohydrate, alcohols and amine. Interpretation from GC-MS analysis showed that 46 bioactive compounds were present of these; Oleic acid was present at higher concentration (46.77%). Molecular docking showed strong binding affinity against VEGF, TP53, NF-kB and low binding affinity against IL-6 genes reducing inflammation and promoting proliferation. Cell cytotoxicity studies were performed on L929 and HaCaT cell lines showing no cytotoxicity levels up to 1200µg/mL concentration. Scratch assay showed complete cell migration with 24 hours of treatment at 150µg/mL concentration. Gene expression studies using qPCR showed upregulation of VEGF, APC and TP53 and down regulation of NF-kB, IL-6, TNF- α . On conclusion, the study shows that mucus from *P. hypophthalmus* could be a promising agent for therapeutic application.

Keywords: *Anti-inflammatory, Cytotoxicity, Wound healing*

Publications:

1. **M. Gomathy** and M. Pappuswamy, "Wound Healing, Cell Viability and Antimicrobial Potency of Mucus from *Pangasianodon hypophthalmus*," *J. Pure Appl. Microbiol.*, vol. 18, no. 4, pp. 2411–2423, Dec. 2024, doi: 10.22207/JPAM.18.4.14.
2. **M. Gomathy** and M. Pappuswamy, "Characterization, molecular docking, and therapeutic properties of biomaterial obtained from *Pangasianodon hypophthalmus*," *NRFHH*, vol. 6, no. 1, pp. 40–56, Jan. 2026, doi: 10.53365/nrfhh/210624.