

TS1.3

## Extraction and Purification of New Compounds from *Murraya paniculata* to Investigate their Cytotoxic Potential

Sanju Kumari<sup>1,2</sup>, Jac Fredo AR<sup>1</sup> and Shreyans Kumar Jain<sup>2\*</sup>

<sup>1</sup>School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi - 221005, India

<sup>2</sup>Department of Pharmaceutical Engineering and Technology (BHU), Varanasi - 221005, India

\* Corresponding Author's Email ID: sanjukumari.rs.bme20@iitbhu.ac.in

### ABSTRACT

*Murraya paniculata*, commonly known as the orange jasmine plant, is renowned for its traditional medicinal uses and culinary significance due to its aromatic leaves. In this study, we have isolated and purified novel bioactive compounds from *Murraya paniculata* to explore potential therapeutic applications. Various extraction methods, including solvent extraction, steam distillation, and maceration, were employed to isolate compounds from different parts of the plant. The crude extracts obtained were subjected to chromatographic techniques such as column chromatography, thin-layer chromatography, and high-performance liquid chromatography for further purification and isolation. Ten new compounds were purified using repeated silica matrix column chromatography employing a mobile phase of hexane and ethyl acetate. The chemical structure elucidation was done via extensive spectral techniques constituting nuclear magnetic resonance, mass spectrometry, and X-Ray diffraction experiments.

The preliminary bioactivity screening of the crude extract and isolated compounds was conducted through in vitro assays to evaluate their potential therapeutic properties, including antimicrobial and anticancer activities. The results demonstrated significant bioactivity, suggesting the potential of the isolated compounds for future drug development and pharmacological research. This study sheds light on isolating and purifying new bioactive compounds from *Murraya paniculata*, highlighting their potential as valuable natural products for various pharmaceutical and medicinal applications. Further research is warranted to explore these compounds' complete chemical profile and pharmacological properties, paving the way for their utilization in drug discovery and development.

**Keywords:** *Murraya paniculata*, Coumarin, Nuclear magnetic resonance spectroscopy, Extraction

