

Determination of Phytochemicals Content and Total Antioxidant of *Annona muricata*, *Phyllanthus emblica*, and *Morus Alba*.

Samarakoon, K. V. R. M.¹, Niroshika, K. K. H.¹, Jayasooriya, R. G. P. T.^{1*}

¹Department of Bioprocess Technology, Faculty of Technology, Rajarata University of Sri Lanka

*prasadrgtj@gmail.com

Plant-based remedies have been used for centuries to improve human health, with phytochemicals in plants potentially preventing cellular damage and reducing chronic diseases. Underutilized crops, such as *Annona muricata*, *Phyllanthus emblica*, and *Morus alba* have significant potential for pharmaceutical and nutraceutical value reported in traditional medicine. This research aims to determine the bioactivity of phytochemicals extracted from these plants. The crude extract was prepared by cold maceration technique using 80% methanol. Obtained extracts were freeze-dried to produce dry powder and 100 mg/ml stock solutions were made using dimethyl sulfoxide (DMSO) and working solutions were prepared by diluting the stock with phosphate-buffered saline (PBS) as required. Polyphenol content, flavonoid content, and antioxidant capacity were estimated by the Folin-Ciocalteu method, aluminum chloride method, and ABTS (2,2-azino-bis-3-ethyl benzothiazoline-6-sulfonic acid) respectively. According to the results, *Phyllanthus emblica* showed significantly higher Total phenolic content (220.68 mg GAE/g), Total flavonoid contents (78.87 mg QE/g), and Antioxidant capacity (41.23 mg TE/ g) than *Annona muricata* and *Morus alba*. Therefore, the phytochemicals of *Phyllanthus emblica* extracts can be explored in further experiments to utilize it as a raw material for nutraceutical or pharmaceutical products.

Keywords: Underutilized; Extract; Phytochemical; Antioxidant

Acknowledgment: This research was supported by the Science and Technology Human Resource Development Project, Ministry of Higher Education, Sri Lanka, funded by the Asian Development Bank (Grant No. R2RJ4).