

Phytochemical screening, profiling and study of antioxidant capacities of fruits of three selected banana varieties

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Unripe fruits of *Musa paradisiaca* possess the AChE inhibitory activity, which enhances the signal transmission time period among neurons by binding with the AChE receptor. Therefore, this research project was focused on the phytochemical screening, profiling and study of antioxidant capacities of fruits of three abundant *Musa* varieties in Sri Lanka, namely, *Musa accuminata* AAA, *Musa accuminata* AAB and *Musa balbisiana* ABB with an intention of investigating their AChE inhibitory activity and potential to treat Alzheimer's lately. The ethanolic and aqueous extracts of each banana variety were prepared by shaking fresh, chopped banana pieces in ethanol and water separately using a shaker for two days at room temperature. Phytochemical screening of each extract exhibits the presence of alkaloids, flavonoids, proanthocyanidins, unsaturated sterols, triterpenes and saponins. The quantitative determination of the total phenolic-, flavonoid-, condensed tannin-, alkaloid- contents and the antioxidant activities were carried out using standard colorimetric assays. Among the three banana varieties analyzed, the ethanolic extract of *Musa balbisiana* ABB indicates the highest total phenolic-, flavonoid- and condensed tannin- contents as 65.86±0.35 mg gallic acid equivalent/100 g, 549.39±11.59 mg catechin equivalent/100 g and 863.49±20.94 mg catechin equivalent/100 g, respectively. The ethanolic extracts of *Musa accuminata* AAB represents the highest total alkaloid content, 11.71±0.35 mg caffeine equivalent/100 g while the ethanolic extract of *Musa balbisiana* ABB indicates the highest antioxidant activity, 35.25±1.99 mgL⁻¹. The studied three *Musa* varieties can be used as potential sources of natural antioxidants.

Keywords: Alzheimer's disease (AD), Acetylcholinesterase (AChE), antioxidant activity, banana varieties and natural products

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