

**Determining Tyrosinase Inhibition Ability of Selected Fruit Crops Through
Mushroom Tyrosinase Assay**

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Tyrosinase is a leading enzyme in melanin synthesis that catalyzes the initial rate-limiting steps of melanin synthesis. Irregular and excessive melanin synthesis cause serious dermatological diseases including melasma, senile lentigo, freckles, and age spots. Tyrosinase inhibition can be a promising strategy for skin lightening and hyperpigmentation treatment. In attempts to extract bioactive compounds *Aegle marmelos* and *Limonia acidissima* fruit mash and find potent tyrosinase inhibitory activity of those ethanolic extracts. Sri Lanka is a tropical country rich with diverse fruit crop varieties but unfortunately, most of these fruit crops remain underutilized especially, in terms of industrial uses. Plant sources contain numerous natural compounds which can be used as whitening, anti-aging anti-wrinkle ingredients and also for the treatment of dermatological disorders. These fruits crops are affluent with large number of bioactive compounds, largely polyphenols. These compounds can use as main ingredient of cosmetics products. This study aims to extract bioactive compounds from fruit mash and evaluate the tyrosinase inhibitory potential of ethanolic extracts of Bael fruit (*Aegle marmelos*) and woodapple (*Limonia acidissima*) using the mushroom tyrosinase assay. In this study, 70% ethanolic extraction resulted in $6.61 \pm 1.59/g$ and $8.89 \pm 4.58/g$ of extract percentage yield Woodapple and Bael fruit respectively. The study will determine the tyrosinase inhibitory activity of different concentrations of the extracts and compare their efficacy with a known tyrosinase inhibitor, such as kojic acid. The findings of this study could contribute to the development of natural and effective skincare products based on these fruits.

Keywords: *Aegle marmelos*; Anti-tyrosinase; Ethanolic extraction; *Limonia acidissima* L.; Polyphenols

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