

Effects of *Mangifera zeylanica*, *Persea americana*, and *Passiflora edulis* seed extracts on *in vitro* anti-tyrosinase activity

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Abstract

Melanogenesis is the process that determines human skin pigmentation via the production of melanin. The high demand for skin-lightening products globally had contributed to the drastic increase in commercialization of synthetic and herbal products. However, most of the products in the market are synthetic substances such as kojic and ascorbic acid, which are reported to be highly associated with adverse side effects such as irritation, dermatitis, toxicity, and cancer upon long-term use. *M. indica* (Indian Mango), *P. americana* (Avocado), and *P. edulis* (Passion fruit) seed extracts have proven to exhibit anti-tyrosinase activity, but their synergistic effect or the individual effect of *M. zeylanica* (Sri Lankan wild Mango) has not been determined yet. Therefore, the current study aimed to determine the synergistic and individual effects of the aqueous seed extracts compared to a positive control (Ascorbic acid). The crude extracts were screened for anti-tyrosinase activity by the spectrophotometry method using mushroom tyrosinase and dopachrome. *P. americana* (0.8 µg/ml) and *P. edulis* (60, 80, and 100 µg/ml) had a significant anti-tyrosinase activity with a maximum effect of 15.2±1.9% and 45.5±4.9% (100 µg/ml) respectively (P<0.05). However, they were all statistically significantly low compared to the positive control which had 93.9±0% (60 µg/ml) of inhibition (P<0.05). None of the tested concentrations of the combinations showed significant anti-tyrosinase activity. The aqueous seed extract of *P. edulis* could be used as an effective and inexpensive potential skin-whitening agent after further investigations.

Keywords: *Anti-melanogenic, Anti-tyrosinase activity, Seed extracts, skin whitening products*