

## Evaluation of Anti-tyrosinase activity of leaf extracts of *Dialium ovoideum thwaites*

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Melanin protects human skin from ultraviolet radiation. However, abnormal melanin production leads to pigmentation problems. Since tyrosinase is the key enzyme that catalyzes melanin synthesis in humans, tyrosinase inhibitors could be a desirable therapy option for hyperpigmentation. Though several natural and synthetic regulators have been identified, the discovery of novel selective and potent plant-based tyrosinase inhibitors that are less hazardous to human health is still in development. Hence, this study investigated the tyrosinase inhibitory activity of the leaf extracts of *Dialium ovoideum thwaites*. Sequential extraction was conducted for leaves of *D. ovoideum thwaites* using hexane, ethyl acetate and methanol at room temperature for 24 hours for each solvent. The extracts were evaluated for their total phenolic content, antioxidant activity (DPPH radical scavenging assay) and tyrosinase inhibitory activity (dopachrome method). The methanol extract possessed the highest phenolic content of  $80.59 \pm 1.88$  mg GAE/g, antioxidant properties of  $IC_{50}$  value of  $300 \pm 1.04$   $\mu$ g/mL (compared to  $IC_{50}$  value of ascorbic acid of  $36 \pm 0.69$   $\mu$ g/mL), and 12%-44% tyrosinase inhibitory activity at a concentration range of 4.0-32.0 mg/mL (compared to kojic acid of 58%-61%). These results suggest that the methanol extract of leaves of *D. ovoideum thwaites* exhibits moderate tyrosinase inhibition which is positively correlated with its antioxidant properties and total phenolic content.

**Keywords:** *Dialium ovoideum thwaites*, Leaf extracts, Mushroom tyrosinase, Anti-tyrosinase activity

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