

## Uji penghambatan tirosinase, peredaman radikal dpph dan penapisan fitokimia fraksi dan ekstrak etanol daun dan kulit batang matoa (*Pometia pinnata*) = Tyrosinase inhibition, dpph radical scavenging activity and phytochemical screening of fractions and ethanol extract from leaves and stem bark of matoa (*Pometia pinnata*)

Nur Azizah, author

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### Abstrak

Kelebihan produksi melanin dapat dikontrol oleh penghambat tirosinase atau antioksidan. Daun dan kulit batang matoa (*Pometia pinnata* J.R. Forst & G. Forst) (Sapindaceae) mengandung senyawa fenolik, namun penelitian mengenai aktivitas antioksidannya masih terbatas dan belum pernah diteliti sebagai penghambat tirosinase. Tujuan penelitian ini adalah meneliti potensi matoa sebagai penghambat tirosinase dan peredam radikal bebas, serta mengidentifikasi golongan senyawa pada fraksi teraktif dan ekstrak etanol daun dan kulit batang matoa. Uji penghambatan tirosinase dilakukan dengan mengukur serapan L-dopakrom pada  $\lambda = 490$  nm. Aktivitas antioksidan diuji dengan metode DPPH. Ekstrak teraktif difraksinasi secara partisi cair-cair dan dilakukan pengujian antioksidan dari fraksi-fraksi yang diperoleh. Persen inhibisi ekstrak etanol daun dan kulit batang matoa terhadap aktivitas tirosinase berturut-turut adalah  $24,54 \pm 0,22\%$  dan  $21,93 \pm 0,57\%$  (konsentrasi akhir  $200 \mu\text{g/mL}$ ). Nilai  $IC_{50}$  kedua ekstrak tersebut dalam peredaman DPPH berturut-turut adalah  $6,11 \mu\text{g/mL}$  dan  $5,47 \mu\text{g/mL}$ . Fraksi teraktif dari ekstrak etanol kulit batang matoa adalah fraksi etil asetat (nilai  $IC_{50} = 5,38 \mu\text{g/mL}$ ). Ekstrak etanol daun dan kulit batang matoa serta fraksi etil asetat mengandung flavonoid, tanin, saponin, triterpenoid, dan glikosida. Matoa tidak memiliki kemampuan sebagai penghambat tirosinase yang baik, namun memiliki aktivitas antioksidan yang baik meskipun masih lebih rendah dibandingkan kuersetin.

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Excess production of melanin can be controlled by tyrosinase inhibitors or antioxidants. Leaves and stem barks of matoa (*Pometia pinnata* J.R. Forst & G. Forst) (Sapindaceae) contain phenolic compounds, but study of its antioxidant activity was limited and has not been studied as tyrosinase inhibitor. This study aims to investigate potency of matoa as tyrosinase inhibitor and antioxidant. We also identified the chemical compounds in the most active fraction and ethanol extract from the leaves and stem bark of matoa. The extracts were tested by evaluated the formation of L-dopachrome at 490 nm. Antioxidant activity were tested using DPPH method. The most active extract were liquid-liquid partition fractionated and the antioxidant activity assay of the fractions were performed. Ethanol extract of leaves and stem bark of matoa showed weak anti-tyrosinase activity (% inhibition were  $24.54 \pm 0.22\%$  and  $21.93 \pm 0.57\%$ , respectively, final concentration  $200 \mu\text{g/mL}$ ), but they showed strong DPPH-radical scavenging activity ( $IC_{50}$  values were  $6.11 \mu\text{g/mL}$  and  $5.47 \mu\text{g/mL}$ , respectively). The ethyl acetate fraction was the most active fraction with  $IC_{50}$  value  $5.38 \mu\text{g/mL}$ . Ethanol extract from leaves and stem bark of matoa, and the ethyl acetate fraction contain flavonoids, tannins, saponins, triterpenoids and glycosides. The result showed that matoa doesn't have potency as tyrosinase inhibitor, but it has good antioxidant activity although that's still lower than quercetin.