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Tyrosinase inhibition, anti-acetylcholinesterase, and antimicrobial activities of the phytochemicals from *Gynotroches axillaris* Blume (Article)

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Abstract

The leaves of *Gynotroches axillaris* were chemically and biologically studied. Sequential extraction of the leaves using petroleum ether, chloroform, and methanol afforded three extracts. Purification of pet. ether extract yielded, squalene and β -amyryn palmitate as the major compounds, together with palmitic acid and myristic acid as the minor components. The methanol extract yielded two flavonoids, quercitrin and epicatechin. The isolated compounds were characterized by MS, IR and NMR (1D and 2D). Anti-acetyl cholinesterase screening using TLC bio-autography assay showed that palmitic acid and myristic acid were the strongest inhibition with detection limit 1.14 and 1.28 $\mu\text{g}/5 \mu\text{L}$ respectively. Antibacterial against Gram-positive and negative and antifungal activities exhibited that β -amyryn palmitate was the strongest (450-225 $\mu\text{g}/\text{mL}$) against all the tested microbes. The tyrosinase inhibition assay of extracts and the pure compounds were screened against tyrosinase enzyme. The inhibition percentage (%) of methanol extract against tyrosinase enzyme was stronger than the other extracts with value 68.4%. Quercitrin (59%) was found to be the highest in the tyrosinase inhibition activity amongst the pure compounds. To the best of our knowledge, this is first report on the phytochemicals, tyrosinase inhibition, anti-acetylcholinesterase and antimicrobial activities of the leaves of *G. axillaris*.

Author keywords

Anti tyrosinase; Anti-cholinesterase; Antimicrobial; *Gynotroches axillaris*; Phytochemicals

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1 **Total phenolic, antioxidant, antimicrobial activities and toxicity study of gynotroches axillaris blume (Rhizophoraceae)**

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