Isolasi dan identifikasi senyawa dari caesalpinia sappan L. lignum (kayu secang) dengan aktivitas penghambatan terhadap enzim arginase = Isolation and identification of compound from caesalpinia sappan l lignum kayu secang with arginase inhibitory activity

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Abstrak

[Caesalpinia sappan L. lignum atau kayu secang adalah anggota suku
Fabaceae. Kayu secang secara empiris dapat mengobati berbagai penyakit yang berkaitan dengan gangguan pembuluh darah. Penelitian sebelumnya menyatakan bahwa ekstrak kayu secang dapat menghambat aktivitas enzim arginase. Penelitian ini bertujuan untuk mengisolasi dan mengidentifikasi senyawa dengan aktivitas penghambatan terhadap enzim arginase secara in vitro. Isolasi dilakukan berdasarkan bioassay-guided isolation dengan kromatografi kolom. Dari ekstrak etil asetat didapatkan subfraksi dengan potensi penghambatan terhadap enzim arginase, yaitu subfraksi J dan K yang masing-masing mempunyai nilai IC50 67,02 μg/mL dan 75,57 μg/mL. Identifikasi golongan senyawa menunjukkan subfraksi J dan K mengandung senyawa golongan flavonoid dan terpenoid. Dari
ekstrak metanol didapatkan isolat dengan IC50 265,03 μg/mL. Hasil elusidasi struktur isolat dari data spektroskopi UV-Vis, IR, MS, 1H-NMR, 13C-NMR, dan 2D-NMR menunjukkan bahwa isolat tersebut adalah 2-(3,4-dihidroksifenil)-3,5,7-trihidroksikroman-4-on atau kuersetin.;Caesalpinia sappan L. lignum or kayu secang is the member of Fabaceae family. Kayu secang is empirically used as a treatment for various disease related to vascular dysfunction. Previous research reported that the extract of kayu secang was able to inhibit arginase enzyme activity. This research’s aim is to isolate and identicate compound with arginase inhibitory activity in vitro. Isolation is
conducted based on bioassay-guided isolation by column chromatography. From ethyl acetate extract, potential inhibition of arginase enzyme activity was exhibited by subfraction J and K with IC50 67,02 μg/mL and 75,57 μg/mL, respectively. Identification showed that subfraction J and K contains flavonoid and terpenoid compounds. From methanol extract, there is an isolate with IC50 265,03 μg/mL. Structure elucidation by spectroscopy UV-Vis, IR, MS, 1H-NMR, 13C-NMR, and 2D-NMR showed that the isolate is 2-(3,4-dihidroksifenil)-3,5,7-
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