Isolasi metabolit sekunder dari Rimpang Temu Putih (Curcuma zedoaria) dan Aktivitasnya Sebagai Antibakteri = Isolation of secondary metabolite from White Tumeric Rhizome (Curcuma zedoaria) and its activity as antibacterial

Dwi Ayu Setyani, author

Abstrak

Temu Putih (Curcuma zedoaria) adalah tanaman dari famili Zingiberaceae yang berasal dari Himalaya, India. Penelitian sebelumnya pada rimpang temu putih menunjukkan bahwa tanaman ini mengandung metabolit sekunder dari golongan alkaloid, fenolik, dan terpenoid yang diketahui memiliki aktivitas antibakteri. Tujuan penelitian ini adalah mengisolasi metabolit sekunder dari ekstrak metanol rimpang kunyit putih dan menguji aktivitas antibakterinya terhadap bakteri penyebab jerawat yaitu Propionibacterium acnes dan Staphylococcus epidermidis. Pada penelitian ini diperoleh hasil maserasi ekstrak rimpang kunyit putih dengan rendemen 3,68%. Ekstrak metanol kemudian dipartisi dan persentase rendemen ekstrak etil asetat adalah 47,06%. Ekstrak partisi etil asetat selanjutnya difraksinasi menggunakan berbagai teknik kromatografi seperti kromatografi cair vakum (KCV), kromatografi kolom (KK), kromatografi radial (KR), dan kromatografi lapis tipis preparatif (KLT). Senyawa hasil isolasi kemudian dikarakterisasi menggunakan instrumen FTIR, UV-Vis, dan LC-MS/MS. Dari penelitian ini berhasil diisolasi tiga senyawa golongan fenolik, yaitu dimethoxycurcumin (A), 3,5,7-trihydroxy-4'-methoxyflavon (B), dan 7-methoxyumarin (C). Uji aktivitas antibakteri terhadap bakteri penyebab jerawat dilakukan dengan metode difusi cakram dengan kontrol positif klindamisin dan kontrol negatif DMSO. Berdasarkan hasil uji aktivitas, baik ekstrak kasar metanol, ekstrak etil asetat terpartisi, maupun senyawa hasil isolasi tidak memiliki aktivitas antibakteri terhadap bakteri P. acnes dan S. epidermidis. Berdasarkan hasil penelitian, kandungan metabolit sekunder rimpang kunyit putih tidak cukup potensial sebagai antibakteri terhadap bakteri P. acnes dan S. acnes.

Temu Putih (Curcuma zedoaria) is a plant from the Zingiberaceae family originating from the Himalayas, India. Previous research on temu putih rhizome showed that this plant contains secondary metabolites from the alkaloid, phenolic, and terpenoid groups which are known to have antibacterial activity. The purpose of this study was to isolate secondary metabolites from methanol extract of white turmeric rhizome and to test its antibacterial activity against acne-causing bacteria, namely Propionibacterium acnes and Staphylococcus epidermidis. In this study, the results of maceration of white turmeric rhizome extract were obtained with a yield of 3.68%. The methanol extract was then partitioned and the percentage yield of the ethyl acetate extract was 47.06%. The ethyl acetate partition extract was further fractionated using various chromatographic techniques such as vacuum liquid chromatography (KCV), column chromatography (KK), radial chromatography (KR), and preparative thin layer chromatography (TLC). The isolated compounds were then characterized using FTIR, UV-Vis, and LC-MS/MS instruments. From this study, three phenolic compounds were isolated, namely dimethoxycurcumin (A), 3,5,7-trihydroxy-4'-methoxyflavone (B), and 7-methoxyumarin (C). Antibacterial activity test against acne-causing bacteria was carried out by disc diffusion method with positive control of clindamycin and negative control of DMSO. Based on the activity

test results, both the crude methanol extract, the partitioned ethyl acetate extract, and the isolated compound did not have antibacterial activity against P. acnes and S. epidermidis bacteria. Based on the results of the study, the secondary metabolite content of white turmeric rhizome is not enough potential as an antibacterial against P. acnes and S. acnes bacteria.