Penetapan kadar flavonoid total dan uji efektivitas antimikroba terhadap mikroba penyebab infeksi oral dari ekstrak etanol buah dan daun andaliman = Determination of total flavonoid content and antimicrobial effectiveness test on microbial causes of oral infection from the ethanol extract of andaliman fruit and leaves

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Abstrak

Andaliman (Zanthoxylum acanthopodium DC.) merupakan tanaman yang termasuk dalam suku Rutaceae. Tanaman ini diketahui memiliki beberapa kandungan senyawa metabolit sekunder seperti flavonoid dan telah dilaporkan memiliki aktivitas antimikroba. Penelitian ini dilakukan untuk mengetahui kadar flavonoid total dan efektivitas antimikroba dari ekstrak etanol 96% buah dan daun Andaliman. Penetapan kadar flavonoid total dilakukan dengan pereaksi aluminium klorida, dengan kuersetin sebagai standar. Uji efektivitas antimikroba dilakukan dengan metode uji koefisien fenol terhadap bakteri Gram-positif aerob Enterococcus faecalis, Gram-positif anaerob fakultatif Streptococcus mutans, dan jamur Candida albicans dengan klorheksidin sebagai kontrol positif. Hasil penetapan kadar flavonoid total ekstrak etanol 96% buah dan daun Andaliman masing-masing adalah 20,84 dan 131,73 mg ekuivalen kuersetin (EK)/gram sampel. Hasil uji koefisien fenol yang dilakukan pada ekstrak etanol 96% buah Andaliman adalah 0 terhadap ketiga mikroba uji. Sedangkan, hasil uji koefisien fenol ekstrak etanol 96% daun Andaliman adalah kurang dari 1 terhadap Enterococcus faecalis, tidak dapat ditentukan terhadap Streptococcus mutans, dan 0 terhadap Candida albicans. Dari hasil keseluruhan uji dapat disimpulkan bahwa ekstrak etanol 96% daun Andaliman memiliki efektivitas antimikroba terhadap Enterococcus faecalis yang lebih baik dibandingkan dengan ekstrak etanol 96% buah Andaliman. Selain itu, kadar flavonoid total ekstrak etanol 96% buah dan daun Andaliman diduga mempengaruhi efektivitas antimikroba, dimana kadar flavonoid total ekstrak etanol 96% daun Andaliman yang lebih tinggi dari kadar flavonoid total ekstrak etanol 96% buah Andaliman memiliki efektivitas antimikroba yang lebih baik dibandingkan efektivitas antimikroba ekstrak etanol 96% buah Andaliman. <hr /> Andaliman (Zanthoxylum acanthopodium DC.) is a plant from Rutaceae family. This plant is known to have several secondary metabolite compounds such as flavonoids and has been reported to have antimicrobial activity. This study was conducted to determine total flavonoid content and antimicrobial effectiveness of 96% ethanol extract of Andaliman fruit and leaves. Determination of total flavonoid content was carried out by AlCl₃ reagents with quercetin as standard. Antimicrobial effectiveness test was carried out using phenol coefficient test on Gram-positive aerobic bacteria Enterococcus faecalis, facultative anaerobic Streptococcus mutans, and the fungus Candida albicans with chlorhexidine as positive control. The results from determination of total flavonoid content of 96% ethanol extract of Andaliman fruit and leaves were 20.84 and 131.73 mg quercetin equivalent (QE)/gram sample respectively. The results of the phenol coefficient test obtained from 96% ethanol extract of Andaliman fruit were 0 on all microbes.The phenol coefficient value from 96% ethanol extract of Andaliman leaves is less than 1 for Enterococcus faecalis, cannot determined for

Streptococcus mutans, and 0 for Candida albicans. From the overall results of the test it was concluded that the 96% ethanol extract of Andaliman leaves has better antimicrobial effectiveness against Enterococcus faecalis compared to the 96% ethanol extract of fruit. In addition, total flavonoid content of 96% ethanol extract of Andaliman fruit and leaves are thought to affect the effectiveness of antimicrobials where higher flavonoid levels of 96% ethanol extract of Andaliman leaves has better antimicrobial effectiveness compared to ethanol extracts of 96% of fruit.