ABSTRAK

UJI AKTIVITAS ANTIBAKTERI EKSTRAK ETANOL KULIT LEMON (*Citrus limon*) TERHADAP BAKTERI *Propionibacterium acnes* SERTA APLIKASINYA SEBAGAI SABUN CAIR

Propionibacterium acnes merupakan bakteri utama yang berperan dalam patogenesis jerawat. Antibiotik seperti klindamisin sering digunakan untuk pengobatan jerawat, namun penggunaan yang kurang tepat dapat menimbulkan resistensi. Alternatif pengobatan jerawat adalah dengan menggunakan kulit lemon yang mengandung berbagai jenis senyawa aktif. Efektivitas senyawa aktif yang terkandung dapat ditingkatkan melalui sebuah sediaan salah satunya sebagai sabun cair. Tujuan dari penelitian ini yaitu untuk mengidentifikasi senyawa metabolit sekunder pada ekstrak etanol kulit lemon, menganalisis aktivitas antibakteri ekstrak etanol kulit lemon terhadap bakteri *Propionibacterium acnes*, serta menentukan kualitas mutu sabun cair ekstrak etanol kulit lemon berdasarkan SNI 4085:2017 sabun mandi cair. Skrining fitokimia dilakukan secara kualitatif serta FTIR untuk mengetahui gugus fungsi yang terkandung pada ekstrak, aktivitas antibakteri dilakukan dengan metode difusi cakram, serta pengujian kualitas mutu sabun cair meliputi pH, total bahan aktif, alkali bebas atau asam lemak bebas. Berdasarkan hasil penelitian menunjukkan ekstrak kulit lemon mengandung senyawa alkaloid, flavonoid, tanin, dan terpenoid dengan hasil gugus fungsi pada ekstrak menunjukkan gugus fungsi -OH (3297,573 cm^{-1}), C-H pada alkana (2931,678 cm^{-1}), N-H amina primer (2000,13 cm^{-1}), C-H pada alkena (1646,660 cm^{-1}), C-H (1416,423 cm^{-1}), dan C-O (1082,938 cm^{-1} dan 1038,89 cm^{-1}), =CH siklik (876,37 cm^{-1}), dan C-H alkena (747,63 cm^{-1}). Aktivitas antibakteri ekstrak kulit lemon pada konsentrasi 25%, 50%, dan 75% menunjukkan diameter zona hambat 6 mm, sedangkan pada ekstrak kulit lemon 100% menunjukkan diameter zona hambat 6,40 mm yang menyatakan bahwa ekstrak etanol kulit lemon termasuk kategori daya hambat sedang. Hasil kualitas mutu sabun cair yang dihasilkan sesuai dengan syarat mutu SNI 4085:2017.

Kata-kata kunci: antibakteri; ekstrak etanol kulit lemon; jerawat; *Propionibacterium acnes*; sabun cair.

ABSTRACT

ANTIBACTERIAL ACTIVITY OF LEMON (Citrus **limon***) ETHANOL EXTRACT AGAINST Propionibacterium acnes BACTERIA AND ITS APPLICATION AS LIQUID SOAP*

Propionibacterium acnes is the main bacterium that plays a role in the pathogenesis of acne. Antibiotics such as clindamycin are often used to treat acne, but inappropriate use can lead to resistance. An alternative acne treatment is to use lemon peel which contains various types of active compounds. The effectiveness of the active compounds contained can be increased through a preparation, one of which is liquid soap. The purpose of this study was to identify secondary metabolites in the ethanol extract of lemon peel, to analyse the antibacterial activity of the ethanol extract of lemon peel against Propionibacterium acnes bacteria, and to determine the quality of the ethanol extract of lemon peel liquid soap based on SNI 4085:2017 liquid bath soap. Phytochemical screening was carried out qualitatively as well as FTIR to determine the functional groups contained in the extract, antibacterial activity was carried out using the disc diffusion method, as well as testing the quality of liquid soap including pH, total active ingredients, free alkali or free fatty acids. Based on the results of the study, lemon peel extract contains alkaloids, flavonoids, tannins, and terpenoids with the functional groups in the extract showing functional groups -OH (3297.573 cm-1), C-H in alkanes (2931.678 cm-1), N-H primary amines (2000.13 cm-1), C-H in alkenes (1646.660 cm-1), C-H (1416.423 cm-1), and C-O (1082.938 cm-1 and 1038.89 cm-1), =Cyclic CH (876.37 cm-1), and C-H alkene (747.63 cm-1). Antibacterial activity of lemon peel extract at concentrations of 25%, 50%, and 75% showed an inhibition zone diameter of 6 mm, while 100% lemon peel extract showed an inhibition zone diameter of 6.40 mm which stated that the ethanol extract of lemon peel was in the category of moderate inhibition. The results of the quality of the liquid soap produced are by the quality requirements of SNI 4085: 2017

Keywords: *antibacterial*; *lemon peel ethanol extract; acne; Propionibacterium acnes; liquid soap.*