

INTISARI

SINERGISME SENYAWA BIOAKTIVITAS DAUN STEVIA *Stevia rebaudiana* Bertoni. DAN DAUN SIRIH HIJAU *Piper betle* L. TERHADAP BAKTERI *Propionibacterium acnes*

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Daun stevia (*Stevia rebaudiana* Bert.) dan daun sirih hijau (*Piper betle* L.) memiliki beragam fitokimia yang dapat dimanfaatkan dalam bidang farmasi sebagai agen antimikrobia, antifungal, antibakteri dan antioksidan. Penelitian ini bertujuan untuk mengetahui adanya sinergisme aktivitas antibakteri *Propionibacterium acnes* dari kombinasi ekstrak daun stevia dan daun sirih hijau, serta mengetahui kandungan beberapa fitokimia dan aktivitas antioksidan dari masing-masing jenis ekstrak. Kedua bahan diekstraksi secara maserasi dengan pelarut polar etanol 70%. Keberadaan senyawa fenol, flavonoid, saponin dan antosianin diuji secara kualitatif dan kuantitatif. Kandungan antioksidan dihitung menggunakan metode spektrofotometri pada larutan DPPH. Aktivitas antibakteri ekstrak daun stevia dan sirih hijau terhadap bakteri *P. acnes* diuji dengan metode *Kirby Bauer Diffusion Disc* untuk mengetahui konsentrasi dengan daya hambat terbaik dari sediaan tunggal dan sediaan kombinasi. Hasil penelitian menunjukkan bahwa pada ekstrak daun stevia mengandung fenol sebanyak 7,71 mg/g, flavonoid sebanyak 3,61 mg/g, dan saponin kasar sebesar 50%, sedangkan ekstrak daun sirih hijau terdapat senyawa fenol sebanyak 9,27 mg/g, flavonoid sebanyak 2,88 mg/g dan saponin kasar sebesar 66%. Nilai IC_{50} aktivitas antioksidan ekstrak daun stevia adalah 16,21 μ g/ml, sedangkan ekstrak daun sirih hijau adalah 5,49 μ g/ml. Aktivitas antibakteri tertinggi ekstrak daun stevia yaitu konsentrasi 150 mg/ml dengan rerata diameter zona hambat 6,67 mm, sedangkan ekstrak daun sirih hijau yaitu konsentrasi 200 mg/ml dengan rerata diameter zona hambat 6,10 mm. Kombinasi terbaik antara ekstrak daun stevia dan sirih hijau diperoleh dengan perbandingan 135:65 mg/ml dengan rerata diameter hambat 9,10 mm. Diameter hambat pada sediaan kombinasi lebih tinggi dibandingkan dengan sediaan tunggal. Penelitian ini menunjukkan adanya potensi pemanfaatan ekstrak daun stevia dan sirih hijau sebagai sumber antioksidan dan antibakteri *P.acnes*.

Kata Kunci: Fitokimia, Antibakteri, Antioksidan, Ekstrak Kombinasi, *Propionibacterium acnes*

ABSTRACT

THE SINERGISM OF BIOACTIVITY COMPOUNDS ON STEVIA *Stevia rebaudiana* Bertoni. AND GREEN BETLE *Piper betle* L. AGAINST *Propionibacterium acnes* BACTERIA

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The leaves of Stevia (*Stevia rebaudiana* Bert.) and green betle (*Piper betle* L.) have various phytochemicals that can be utilized in the pharmaceutical field as antimicrobial, antifungal, antibacterial and antioxidant agents. This study was aimed to determine the synergism of antibacterial activity in a combined extract of stevia leaf and green betle leaf, also to determine the phytochemicals content and antioxidant activity of each extract. Both materials were extracted by maceration with a polar solvent of 70% ethanol. Phenol phytochemical compounds, flavonoids, saponins and anthocyanins were tested qualitatively and quantitatively. The antioxidant content was calculated based on the absorbance value of the sample against DPPH solution in the spectrophotometer. The antibacterial activity of stevia leaf and green betel leaf extract against *Propionibacterium acnes* was tested by Kirby Bauer Diffusion Disc method to determine the concentration with the best inhibitory effect in single and combined preparations. The results showed that in *S. rebaudiana* leaf extract there were 7.71 mg/g of phenol compounds 3.61 mg/g of flavonoids, and crude saponins percentage at 50%, whereas in *P. betle* leaf extract there were phenol compounds at 9.27 mg/g, flavonoids at 2.88 mg/g and crude saponins percentage at 66%. IC₅₀ value of antioxidant content in *S. rebaudiana* extract was 16.21 µg/ml, whereas in *P. betle* extract was 5.49 µg/ml. The highest antibacterial activity of stevia leaf extract concentration was 150 mg / ml with an average of inhibition diameter at 6.67 mm, while green betel leaf extract concentration was 200 mg / ml with an average of inhibition diameter at 6.10 mm. The best combination of stevia leaf extract and green betel is obtained with a ratio of 135: 65 mg / ml with an average inhibition diameter at 9.10 mm. The inhibitory diameter in combination preparations is higher than single preparations. This study showed the potential use of stevia leaf extract and green betel leaf as a source of antioxidants and antibacterial of *P. acnes*.

Keywords: Phytochemistry, Antibacteria, Antioxidant, Combined Extract, Acne Vulgaris