

**FORMULASI DAN AKTIVITAS SEDIAAN FACIAL WASH
EKSTRAK DAUN CEMPEDAK (*Artocarpus integer*)
SEBAGAI ANTI ACNE TERHADAP BAKTERI
PROPIONIBACTERIUM ACNES
SECARA *IN VIVO***

DEVI AYU NINGSIH
Progam S1 Farmasi

INTISARI

Jerawat merupakan masalah kulit yang umum terjadi, terutama pada remaja, dan salah satu penyebabnya adalah bakteri *Propionibacterium acnes*. Penggunaan antibiotik topikal maupun oral dapat menyebabkan resistensi bakteri, sehingga dibutuhkan alternatif alami seperti tanaman herbal. Daun cempedak (*Artocarpus integer*) mengandung senyawa aktif seperti flavonoid, alkaloid, tanin, dan saponin yang berpotensi sebagai antibakteri. Penelitian ini bertujuan untuk memformulasikan sediaan *facial wash* dari ekstrak daun cempedak dan mengevaluasi aktivitas antibakterinya terhadap *Propionibacterium acnes* secara *in vitro* dan *in vivo*. Ekstrak diperoleh melalui metode maserasi menggunakan etanol 70%. Formulasi *facial wash* diuji mutu fisiknya meliputi organoleptis, pH, daya busa, daya sebar, homogenitas, dan viskositas. Uji aktivitas antibakteri dilakukan secara *in vitro* dengan metode difusi dan secara *in vivo* pada kelinci albino galur *New Zealand*. Hasil uji *in vitro* menunjukkan ekstrak daun cempedak memiliki aktivitas antibakteri terhadap *Propionibacterium acnes*, dengan formulasi *facial wash* konsentrasi 15% menunjukkan zona hambat terbesar (16,6 mm), termasuk kategori kuat. Analisis data SPSS menggunakan uji Kruskal-Wallis menunjukkan perbedaan signifikan ($p \leq 0,05$) antara kelompok perlakuan (konsentrasi ekstrak 3%, 9%, dan 15%) dan kontrol (Clindamycin dan DMSO). Uji Mann-Whitney menunjukkan perbedaan signifikan antara kontrol positif (Clindamycin) dengan semua konsentrasi ekstrak ($p < 0,05$), tetapi ekstrak 15% menunjukkan aktivitas paling mendekati kontrol positif. Hasil uji *in vivo* menunjukkan formulasi *facial wash* konsentrasi 15% efektif menurunkan grade jerawat pada kelinci, meskipun viskositas dan daya sebar tidak memenuhi standar SNI. Analisis data SPSS menggunakan uji Kruskal-Wallis menunjukkan perbedaan signifikan ($p = 0,009$) antar kelompok perlakuan. Uji Mann-Whitney menunjukkan perbedaan signifikan antara kontrol positif dengan F1 dan F2 ($p \leq 0,05$), tetapi tidak signifikan dengan F3 ($p = 0,114$). Meskipun demikian, F3 menunjukkan hasil yang mendekati kontrol positif. Kontrol negatif (basis sediaan tanpa ekstrak) memperparah kondisi jerawat.

Kata kunci : Daun cempedak, Sabun Cuci Muka, *In vitro*, *In vivo*, *Propionibacterium acnes*

FORMULATION AND ACTIVITY OF FACIAL WASH EXTRACT OF CEMPEDAK (*Artocarpus integer*) LEAVES AS ANTI ACNE AGAINST ACNES PROPIONIBACTERIUM BACTERIES IN VIVO

DEVI AYU NINGSIH
Bachelor of Pharmacy Program

ABSTRACT

Acne is a common skin problem, especially among adolescents. One of its causes is the bacterium *Propionibacterium acnes*. Using topical and oral antibiotics can cause bacterial resistance, so natural alternatives, such as herbal plants, are needed. Cempedak (*Artocarpus integer*) leaves contain active compounds, including flavonoids, alkaloids, tannins, and saponins, which have antibacterial properties. The objective of this study is to formulate a facial wash from cempedak leaf extract and to evaluate its antibacterial activity against *Propionibacterium acnes* in vitro and in vivo. The extract was obtained using the maceration method with 70% ethanol. The facial wash formulation was tested for physical quality, including organoleptic properties, pH level, foamability, spreadability, homogeneity, and viscosity. The antibacterial activity test was conducted in vitro using the diffusion method and in vivo on New Zealand albino rabbits. The in vitro test results showed that the cempedak leaf extract has antibacterial activity against *P. acnes*. The facial wash formulation with a 15% extract concentration showed the largest inhibition zone (16.6 mm) and fell into the strong category. SPSS data analysis using the Kruskal–Wallis test revealed significant differences ($p \leq 0.05$) between treatment groups (3%, 9%, and 15% extract concentrations) and controls (clindamycin and dimethyl sulfoxide [DMSO]). The Mann-Whitney test revealed a significant difference between the positive control (clindamycin) and all of the extract concentrations ($p < 0.05$). However, the 15% extract exhibited the most similar activity to the positive control. In vivo testing revealed that the 15% facial wash formulation effectively reduced acne severity in rabbits, though its viscosity and spreadability did not meet SNI standards. SPSS data analysis using the Kruskal–Wallis test revealed significant differences ($p = 0.009$) among the treatment groups. The Mann-Whitney test revealed a significant difference between the positive control and F1 and F2 ($p \leq 0.05$), but not with F3 ($p = 0.114$). However, the results of F3 were close to the positive control. The negative control (base preparation without extract) worsened the acne condition.

Keywords : Cempedak leaf, Facial wash, In vitro, In vivo, *Propionibacterium acnes*