INTISARI

Fusobacterium nucleatum merupakan bakteri Gram negatif pembentuk plak yang menjadi etiologi penyakit periodontal. Biji melinjo (*Gnetum gnemon L.*) mengandung senyawa flavonoid, saponin, tanin, dan alkaloid yang berpotensi menjadi bahan antibakteri pada perawatan penyakit periodontal. Tujuan penelitian ini adalah mengetahui pengaruh konsentrasi larutan ekstrak etanolik biji melinjo (*Gnetum gnemon L.)* terhadap daya hambat bakteri periodontopatogen *Fusobacterium nucleatum* secara in vitro.

Bakteri *Fusobacterium nucleatum* ATCC 25586 yang diencerkan sesuai dengan standar 0,5 McFarland (1,5 x 10^8 CFU/mL) menjadi objek penelitian. Sampel penelitian terdiri atas 8 kelompok, yaitu larutan ekstrak etanolik biji melinjo konsentrasi 1,56%, 3,125%, 6,25%, 12,5%, 25%, 50%, kontrol negatif aquades steril, kontrol positif klorheksidin glukonat 0,2%. Uji antibakteri dilakukan dengan metode difusi cakram. Daya hambat bakteri dilihat melalui pengukuran diameter zona hambat setelah diinkubasi selama 1x24 jam. Data hasil penelitian dianalisis menggunakan uji *One-Way ANOVA*, uji *Post Hoc LSD*, dan uji *Pearson*.

Hasil uji *ANOVA* menunjukkan bahwa larutan ekstrak etanolik biji melinjo 6,25%, 12,5%, 25%, dan 50% berpengaruh dalam menghambat pertumbuhan *Fusobacterium nucleatum* ($p<0,05$). Hasil uji *Post Hoc LSD* menunjukkan adanya perbedaan bermakna ($p<0,05$) antar seluruh kelompok perlakuan dengan konsentrasi 6,25%, 12,5%, 25%, 50%, dan kontrol positif. Sedangkan pada konsentrasi 1,56% dengan 3,125% serta konsentrasi 1,56% dan 3,125% dengan kontrol negatif tidak terdapat perbedaan bermakna. Hasil uji *Pearson* didapatkan koefisien korelasi sebesar 0,583 yang berarti terdapat hubungan positif antara konsentrasi bahan uji dan diameter zona hambat yang dihasilkan. Kesimpulan penelitian ini adalah larutan ekstrak etanol biji melinjo konsentrasi 6,25%, 12,5%, 25%, dan 50% memiliki kemampuan dalam menghambat pertumbuhan *Fusobacterium nucleatum*.

Kata-kata kunci : ekstrak etanolik, biji melinjo (*Gnetum gnemon L.*), *Fusobacterium nucleatum*, antibakteri, zona hambat

ABSTRACT

Fusobacterium nucleatum is gram-negative bacteria that forms subgingival plaque which is the main etiology of periodontal disease. Melinjo seeds contain tannins, flavonoids, saponins, and alkaloids which can be used as antibacterial agents in the treatment of periodontal disease. The purpose of this study was to determine the effect of melinjo seeds' (*Gnetum gnemon L.*) ethanolic extract's concentrations on the inhibition of periodontopathogenic bacteria *Fusobacterium nucleatum* in vitro.

The research object was *Fusobacterium nucleatum* ATCC 25586 which was diluted according to the standard 0.5 McFarland (1.5×10^8 CFU/mL). Antibacterial test was carried out by disc diffusion method. The research sample consisted of 8 groups, namely positive control (chlorhexidine gluconate 0.2%), negative control (aquades), melinjo seeds' ethanolic extract at concentrations of 1.56%, 3.125%, 6.25%, 12 ,5%, 25%, and 50%. Bacterial growth was observed by measuring the diameter of the inhibition zone after incubation for 1x24 hours. The research data were analyzed using the One-Way ANOVA test and the Post Hoc LSD test and then continued with the Pearson correlation test.

The results showed that the melinjo seeds' ethanolic extract at concentrations of 6.25%, 12.5%, 25%, and 50% had a significant effect on inhibiting the growth of *Fusobacterium nucleatum* ($p<0.05$) and there were significant differences in all treatment test groups except between the negative control and the concentration of 1.56%, the negative control and the concentration of 3.125%, and between the concentration of 1.56% and 3.125%. The results of the Pearson test obtained a correlation coefficient of 0.583, which means that there is a positive relationship between the concentration of test materials and the diameter of the resulting inhibition zone. Therefore, the ethanolic extract of melinjo seeds at concentrations of 6.25%, 12.5%, 25%, and 50% had an effective inhibitory effect on the growth of *Fusobacterium nucleatum*.

Keywords : ethanolic extract, melinjo seed (*Gnetum gnemon L.*), *Fusobacterium nucleatum*, antibacterial, zone of inhibition