

ABSTRACT

The Effectiveness of Ethanol Extract of *Syzygium aqueum* Leaf to Inhibit the Growth of *Porphyromonas gingivalis* Bacteria (*in vitro*)

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Introduction: A Chronic periodontitis is often occurred in Indonesia society. This disease is caused by *Porphyromonas gingivalis*. *Porphyromonas gingivalis* growth can be inhibited by antibacterial. One of antibacterial that can be used is ethanol extract of *Syzygium aqueum* leaf because it contains flavonoid, phenolic, saponin, alkaloid, and terpenoid. The aim of this study is to determine the effectiveness of ethanol extract of *Syzygium aqueum* leaf on the growth inhibition of *Porphyromonas gingivalis* bacteria.

Methods: The study was experimental laboratory with post-test only control group design. The study used 25 samples, which consisted of 5 replications and 5 groups. The experiment groups consisted of P1: 25% concentration, P2: 50% concentration, P3: 75% concentration, P4: 100% concentration, and the control group is 0,2% clorhexidine. MHA was inoculated by *Porphyromonas gingivalis*, and then the extracts and chlorhexidine were given to each agar well. The diameter of growth inhibition bacteria were measured by using calipers. The growth inhibition bacteria results were analyzed by *One Way Anova* test and continued with *Post Hoc Games-Howell*.

Results: The mean of diameters of bacterial growth inhibition were P1: 1,540 mm, P2:1,741 mm, P3: 1,952 mm, P4: 2,382 mm, K: 0,883 mm. There were significantly different of the inhibition between ethanol extract of *Syzygium aqueum* leaf and 0,2% chlorhexidine ($p < 0,005$). The comparison of P1, P2, P3, P4, and K were 0,001 ($p < 0,005$).

Conclusions: The ethanol extract of *Syzygium aqueum* leaf is effective to inhibit the growth of *Porphyromonas gingivalis* bacteria. The best concentration to inhibit the bacteria is 100% concentration.

Keywords: Chronic periodontitis, *Porphyromonas gingivalis*, extract *syzygium aqueum*, activity antibacterial, inhibit bacterial growth.