Bactericidal and cytotoxic effects of Erythrina fusca leaves aquadest extract

Abstrak:

Background: Empirically, Erythrina fusca has been used as traditional herb for its antibacterial and antiinflammation properties. Periodontal disease is one of the most oral infectious diseases with microorganism predominated as the contributing factors. Porphyromonas gingivalis (P. gingivalis) is one of the main bacteria pathogen found in periodontal diseases. Purpose: The purpose of this study was to examine the bactericidal effect on P. gingivalis and cytotoxic effect on fibroblast of Erythrina fusca Leaves Aquadest Extract (EFLAE) at various concentrations. Methods: Pure P. gingivalis was cultured in Brain Heart Infusion (BHI) medium for 24 hours with or without various concentrations of treatment of EFLAE. Calculation and statistical analysis of remaining bacteria were performed by inhibitory zone method to evaluate the EFLAE bactericidal effect and compared to chlorhexidine as positive control. To evaluate the cytotoxic effect, NIH 3T3 cells were cultured in Dulbecco’s Modification of Eagle’s Medium (DMEM) containing of 10% fetal bovine serum (FBS) and 1% penicillin-streptomycin, pH 7.2, in 5% CO2, and stored in humidified incubator under temperature 370 C. Cells were treated with/without various concentrations of EFLAE for 48 hours. The viable cells were then counted using 3-(4,5-Dimethylthiazol-2-yl)-2,5 diphenyl tetrazodium bromide (MTT) method. Results: EFLAE have bactericidal effect on P. gingivalis in a concentration dependent manner starting from 78%. The concentration of 90% EFLAE had stronger bactericidal effect (35.004 ± 1.546) than those of chlorhexidine as positive control (32.313 ± 1.619). One-way ANOVA showed significant bactericidal effect differences among concentrations of EFLAE and chlorhexidine (p<0.05) while Tuckey HSD test showed significant difference only between lower concentration of EFLAE (78%, 79%) and chlorhexidine. With the highest concentration of EFLAE (100%) applied in the bactericidal test, no cytotoxic effect of EFLAE on NIH 3T3 cells was detected. Conclusion: EFLAE could inhibit the growth of P. gingivalis in a concentration dependent manner, starting from 78%. There was no evidence of EFLAE’s cytotoxic effect on fibroblast.

Keyword:

Daftar Pustaka:

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