HAMBATAN PEMBENTUKAN EXTRACELLULAR POLISACCHARIDE (EPS) BIOFILM PORPHYROMONAS GINGIVALIS AKIBAT PAPARAN EKSTRAK KULIT MANGGIS (GARCINIA MANGOSTANAL L) (THE EFFECT OF MANGOSTEEN PERICARP EXTRACT AGAINST THE AMOUNT OF EXTRACELLULAR POLYSACCHARIDE (EPS) PORPHYROMONAS GINGIVALIS BIOFILM)

ABSTRACT

Background. Biofilm is a trap nutrient for the growing population of microorganisms and help the bacterial adhesions to the surface to produce a molecular chain Extracellular Polysaccharide (EPS). Mangosteen pericarp extract affects decreasing porphyromonas gingivalis biofilm. Purpose. The aim of this research is to prove influence of mangosteen pericarp extract against the EPS of porphyromonas gingivalis biofilm. Methods. Initially, biofilms were grown for 48h; then, the early-formed biofilms were treated for dextran alexa fluor conjugate 647 staining. Biofilms were harvested at 72h with one of the following: (i) mangosteen pericarp extract 0,2%; (ii) mangosteen pericarp extract 0,8%; (iii) mangosteen pericarp extract 1,2%; (iv) control group (biofilm). Confocal Laser Scanning Microscopy (CLSM) determined EPS per biofilm. Results. The EPS biofilm treated with the test agents were significantly less than those treated with control group (P<0,05). Biofilms treated with the test agents also resulted in lower amount of polysaccharide. Conclusion. Mangosteen pericarp extract (Garcinia Mangostana) affected the accumulation and polysaccharide content of P. Gingivalis biofilms without major impact on the bacterial viability.

Keywords: garcinia mangostana, EPS, porphyromonas gingivalis, biofilm, polysaccharide