



Protective role of *Stichopus hermanii* ethanol extract supplementation to oxidative stress and oral hyperkeratosis in smoking exposed rats

Syamsulina Revianti^{1*}, Soetjipto², Retno Pudji Rahayu³,
Kristanti Parisihni¹

¹Faculty of Dentistry, Hang Tuah University, Surabaya, Indonesia

²Faculty of Medicine, Airlangga University, Surabaya, Indonesia

³Faculty of Dentistry, Airlangga University, Surabaya, Indonesia

Abstract : Objective : Cigarette smoking (CS) is known as one of the most important risk factors for oral leukoplakia. CS contains various oxygen-free radicals which are considered as the main causes of oxidative stress and oral hyperkeratosis. *Stichopus hermanii* (SH) ethanol extract contains antioxidant and antiproliferative agents. The aim of this study was to examine the preventive effect of SH ethanol extract on cigarette smoke-induced oxidative stress and oral hyperkeratosis in wistar rat animal model.

Materials and Methods: Thirty wistar rats were randomly divided into five groups, i.e. sham air (SA) as normal control group, cigarette smoke exposed group (CS), and three treatment groups each received supplementation with SH 4.25; 8.5; and 17 ml/kgBW.

The exposure to smoking was carried out in a smoking machine, given as a single daily dose for 90 days. SA were exposed to air instead of cigarette smoke. Saliva were collected for lipid peroxidation and catalase activity measurement, while tongue were biopsied for histology assay. Data were analyzed by Anova and LSD.

Result : The mean value of lipid peroxidation were found to be increased and catalase activity were decreased in CS group when compared to the SA group ($p < 0.05$). Elevated thickness of epithelial corneum layers were observed in CS group when compared to the SA group. The administration of SH inhibit the increase of lipid peroxidation, the decrease of catalase activity, and the elevation of corneum layer thickness ($p < 0.05$).

Conclusion: Supplementation with SH prevented oxidative stress and oral hyperkeratosis in cigarette smoke-induced wistar rat.

Keywords: *Stichopus hermanii*, saliva, MDA, catalase activity, oral hyperkeratosis.