EFFECTS OF COFFEE ON PREVENTION OF OXIDATIVE STRESS AND INFLAMMATION INDUCED BY CIGARETE SMOKE IN MALE RATS (Rattus norvegicus)

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Abstract

Free radicals in cigarette smoke are known to cause oxidative stress. Free radical activity can be inhibited by antioxidants such as chlorogenic acid inside the coffee. The purpose of this study was analyzes whether the administration of coffee may help prevent oxidative stress and inflammation in male rats (Rattus norvegicus) exposed by cigarette smoke.

The research design was posttest only control group design. The total sample size of 5 group was 30 male rats (Rattus norvegicus) weighing 200-250 grams. The Independent variables were cigarette smoke and coffee, while the
dependent variables were MDA and TNF-α. Normality test data by Shapiro Wilks was esed (α = 0.05) and homogeneity by Levene test was used(α = 0.05). Test different between groups by Brown Forsyte (α = 0.05) and continued with Games Howell test (α = 0.05).

Test results of Brown Forsyte on MDA showed significant difference between groups (p = 0.001), and Games Howell test result showed there were significant differences between the levels of MDA between group (non white + coffee) with a control group, a group (cigarette + coffee) with the (non white + coffee). TNF-α showed a significant difference (p = 0.000) levels as well. TNFα between groups and by using test Games Howel there are significant differences between the control group and group exposed by mild/white cigarettes, while the (cigarette + coffee) differ significantly from the cigarette group and white/mild cigarettes group.

To sum up, the provision of coffee in a dose of 1.35 mg / g bw / day has not been able to prevent oxidative stress, but it can prevent the inflammation caused by cigarette smoke expossure.

Keywords: smoke, coffee, MDA and TNF-α