

ABSTRAK

Merokok dapat berdampak buruk pada kesehatan tubuh, salah satunya adalah infertilitas karena kandungan radikal bebas di dalamnya. Buah tomat (*Lycopersicon esculentum*, Mill) dikenal memiliki zat antioksidan yaitu likopen yang kadarnya ditemukan lebih banyak pada tomat olahan. Tujuan penelitian untuk mengetahui pengaruh pemberian pasta tomat terhadap kualitas spermatozoa mencit Balb/C jantan yang dipapar asap rokok kretek.

Penelitian eksperimental dengan rancangan *post test only control group design* ini menggunakan 30 ekor mencit (*Mus musculus*) Balb/C jantan dibagi lima kelompok secara acak. Kelompok 1: kontrol normal tanpa perlakuan, 2: kontrol negatif dipapar asap rokok kretek, dan kelompok 3, 4, 5 dipapar asap rokok dan diberi pasta tomat 0,16 gr; 0,32 gr; dan 0,48 gr. Pasta tomat diberikan selama 14 hari, sedangkan paparan asap rokok kretek dilakukan selama 7 hari terakhir penelitian. Kualitas spermatozoa yang diamati meliputi konsentrasi, morfologi, dan motilitas. Konsentrasi dan morfologi spermatozoa dianalisis dengan *One Way Anova*, sedangkan motilitas spermatozoa dianalisis dengan Kruskal Wallis.

Pemberian pasta tomat 0,32 gr paling efektif dalam meningkatkan konsentrasi ($2.595,8 \times 10^5$ sperma/ml), morfologi normal (78%), dan motilitas spermatozoa (38,33%) dibandingkan dengan kelompok kontrol negatif yang memiliki konsentrasi, morfologi normal dan motilitas spermatozoa masing-masing sebesar $750,0 \times 10^5$ sperma/ml; 51,67%; dan 15,0% ($p < 0,05$).

Disimpulkan bahwa pemberian pasta tomat berpengaruh terhadap peningkatan kualitas spermatozoa mencit Balb/C yang dipapar asap rokok kretek.

Kata kunci : Tomat, Konsentrasi, Morfologi, Motilitas Spermatozoa, Asap rokok.

ABSTRACT

Smoking may be harmful for health such as infertility. Tomatoes (*Lycopersicon esculentum*, Mill) has been shown to contain antioxidants *i.e* lycopene which is higher in processed tomatoes. The objective of this research was to determine the effect of tomato paste on sperm quality in male BALB/c (*Mus musculus*) mice exposed to cigarette smoke.

In this experimental research with post test only control group, 30 male BALB/c mice divided randomly into 5 Groups. Group 1 (without treatment) and group 2 (exposed to cigarette smoke) served as the normal and negative control group respectively. Group 3, 4, 5 were given tomato paste 0.16, 0.32, 0.48 g respectively for 14 days. On day 8 to 14 the treatment group were exposed to cigarette smoke. After termination, the concentration, motility and morphology of sperm were assessed. The data were analyzed by One Way Anova and Kruskal Wallis.

The result showed that the highest sperm concentration (2595.8×10^5 sperm/ml), *percentage of motile sperm* (38.33%) and of normal morphology (78%), were found in group 4. There was a significant different between treatment group and control group ($p < 0.05$).

In conclusion, the administration of tomato paste has an effect on the sperm quality in male BALB/c mice were exposed to cigarette smoke.

Keywords: Tomato, Concentration, Morphology, Motility of Sperm, and Smoke