

**EFFECT OF *Citrus maxima* FRUIT JUICE ON MALE
REPRODUCTIVE SYSTEM IN HIGH-FAT DIET
INDUCED SPRAGUE DAWLEY RATS**

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ABSTRACT

EFFECT OF *Citrus maxima* FRUIT JUICE ON MALE REPRODUCTIVE SYSTEM IN HIGH-FAT DIET INDUCED SPRAGUE DAWLEY RATS

High-fat diet (HFD) will results in the formation of oxidative stress which lead to metabolic disorder including diabetes mellitus and obesity. This metabolic disorder will give an effect on male reproductive system and fertility. The present study investigated the effect of *C. maxima* on reproductive system and blood glucose in HFD induced Sprague dawley (SD) rats. Male SD rats (n=18) were divided into three groups (6 in each group): Control group, HFD group (HFD untreated) and CM group (HFD treated with *C. maxima*). Pre-treatment, which is to induce HFD to the rats were performed for 6 week, then continue with the treatment using *C. maxima* fruit juice for 28 days. The data (relative organ weight, body weight, sperm count, sperm motility, sperm morphology and fasting blood glucose) were compared and analyzed using a One-way Analysis of Variance (ANOVA) with $p < 0.05$. Results in relative organ weight does not shows any significant different between the group. Relative liver weight for HFD and CM groups shows decrement in weight as compared to control group although the results are not significant. Other organ in HFD and CM groups shows slight increment as compared to control group. Body weight of rats in CM group increased significantly throughout the treatment period. Although there is a significant different between these groups, the body weight of the rats shows a normal growing pattern during the treatment except for HFD group that shows decrement in week 4. Sperm count for HFD and CM groups shows decrement as compared to the control group although the results is not significant. HFD group show significant decrease in PM sperms, highest percent in NPM and NM sperms compared to control group. HFD and CM groups shows significant decrease in normal sperm compared to control group, with CM group shows better result compared to HFD group. HFD shows significant decrease in blood glucose level compared to control group. The findings therefore reveal that *C. maxima* does have antioxidant to counterattack the effect of HFD, eventhough the result are not significant.