

UNIVERSITI TEKNOLOGI MARA

**EFFECT OF SUPPLEMENTATION OF
TOCOTRIENOLS ON SPERM COUNTS
COLLECTED FROM MALE RAT SUBJECTED
TO FORCE SWIMMING STRESS**

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ABSTRACT

The study was conducted to determine the effect of tocotrienols to sperm counts in male rats which were subjected to force swimming stress. Twenty four adult male *Sprague-Dawley* strain rats were randomly divided into four groups, each group consist of six rats. The control group (CG) which labeled as group A were fed normally and do not subjected to force swimming stress. Second group (group B) does not subject to force swimming stress but were received 0.2ml corn oil orally. Third group (Group C) were subjected to force swimming stress two hours a day, for 30 days. Fourth group (group D) were subjected to force swimming stress and fed orally with 60mg/ml of tocotrienol. After 30 days of experiment the rats were sacrificed and the sperm samples were taken from epididymis cauda. Sperm sample were analyzed by using standard hemocytometer chamber. The result are the sperm count, percentages of dead sperm count and percentages of life sperm counts of male rats between the group B, group C and group D shows a significant different ($p=0.00$) with the group A. This experiment shows that intensive forced swimming stress can cause oxidative stress which may reduce the number and increase mortality rate of the sperm in male rats which can be protected with supplementation of the tocotrienol.

CHAPTER I

INTRODUCTION

Male factor infertility accounts for up to half of all cases of infertility and affects one man in 20 in the general population (McLachlan and de Kretser, 2001). Male infertility has many causes. Examples of factor that lead to male infertility are excessive stress, chronic alcohol abuse, smoking, anabolic steroid use, overly intense exercise and others. These factors are related to oxidative stress.

There is some evident that reactive oxygen species (ROS) mediated damage to the sperm become a main factor of male infertility. ROS is defined as ions or very small molecules that include oxygen ions, free radicals and peroxides and cause infertility or reduce sperm count by two principals (Kelton Tremellen, 2008). ROS directly damage the membrane of the sperm thus reduce the motility and also will damage the DNA of the sperm which in turn lead to abnormality of the embryo.

Excessive physical stress will generate reactive oxygen species (ROS) which then lead to oxidative stress. This fact is support by a research that had been done by Konstantinos Margonis et al in 2007 which found that overtraining induces a marked response of oxidative stress. Oxidative stress furthermore will lead to reduce sperm counts in man. Other causes of reactive oxygen species generation are exposure to radiation, and redox