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**EFFECT OF ORAL SUPPLEMENTATION OF PALM OIL TOCOTRIENOL-
RICH FRACTION ON GAMETES AND REPRODUCTIVE ORGAN OF
FEMALE RATS**

By

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**Thesis Submitted in Partial Fulfillment of the Requirement for the Degree of
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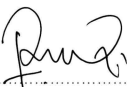
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Undergraduate, University Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The world statistic on female infertility were accounted more than 12.4% which aged around 22 to 44 years old. The current treatment on infertility problem shows some adverse effect that affecting a women health. However, the palm oil tocotrienol-rich fraction (TRF) that one of the vitamin E isomer were known to have potential health benefit towards human such as anti-cancer and anti-proliferative. This study were performed to investigate the improvement of female reproductive system through oral supplementation of palm oil TRF. TRF were diluted with corn oil as a vehicle. Thirty (30) female of Wistar albino rats were randomly divided into five group (n=6) which are, negative control group administrated orally with distilled water, positive control group administrated orally with corn oil and treatment groups were administrated orally with different TRF concentration which are 30 mg/kg, 60 mg/kg and 90 mg/kg. On day five and seven, the rats were superovulated by injection of PMSG and hCG hormone. The euthanized process were done after 24 hours of hCG injection and the blood were collected for blood analysis. The oviduct were collected for oocyte count and grading as well as ovary for histology study. The ovary group shows no significant different between negative control groups and three different concentration of TRF treated group. Meanwhile, the group 60 mg/kg shows the increased of oocyte count and quality but were not significant. 60 mg/kg and 90 mg/kg of TRF treated group shows significant higher of ovarian surface epithelial which suggested proliferation process. Three different TRF concentration treated group shows no hepatotoxicity effect. While, 90 mg/kg of TRF treated group shows nephrotoxicity effect with significant increase of urea. This present study suggested the 60 mg/kg of TRF might have potential effect on improvement of female reproductive system by increase the oocyte count and quality. However, the proliferation of OSE still remain unclear either due to physiological changes or pathological changes.

CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND OF STUDY

1.1.1. Female Reproduction Health

Women known to be the most person sustained the difficulty of reproductive health or ill health. The health of women can be enhanced through the chances for them to make the decision on their own reproductive ways either on the sex, contraception, pregnancy and the important events in their own reproductive lives (Schenker & Eisenberg, 1997). Apparently, women reproductive system are the most sensitive part that easier to be affected by the physiological stress and any reproductive abnormalities (Warren & Perlroth, 2001). Amenorrhea, polycystic ovarian cysts, endometriosis, cervical cancer and infertility are among female reproductive disorders or diseases that can affect women life.

1.1.2. Female Infertility

Statistically about 15 % of couples faced the infertility problem at some phase through their reproductive years (Meniru, Hecht, & Hopkins, 2002). This infertile problem were affected both male and female. A further point, the prevalence of infertile women in 190 countries were 12.4% that ranging from 22 to 44 years old (B. Fu et al., 2014). This infertility problems arose from the several factors that involving the abnormal of genetics, environmental agents and some of the diseases that affect the reproductive system (Macaluso et al., 2010). Nevertheless, the infertility still can be cure and treated with several methods and technique such as by the intake of fertility drug (Gaware, Parjane, N, Pattan, & Dighe, 2009) and assisted reproductive technique such as in vitro fertilization (Macaluso et al., 2010).