

**UNIVERSITI TEKNOLOGI MARA**

**THE EFFECTS OF TOCOTRIENOL-  
RICH FRACTION ON IMIQUIMOD-  
INDUCED PSORIATIC LESION IN  
MICE**

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of the requirements for the degree of

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## AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results 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 Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.


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## ABSTRACT

**Background:** Psoriasis is a chronic, immune-mediated, inflammatory disorder involving mainly the skin and joints. It is a global health problem which results in localised or extensive development of erythematous scaly plaques, interfering with daily activities. Psoriasis has no cure however available treatment aims at controlling symptoms despite having many side effects. Imiquimod (IMQ)-induced psoriasis murine model has been widely used in research as it mimics human psoriatic lesions at morphological, histological, immunological and genetic levels. Studies comparing the effects of IMQ on male and female mice are scarce. Tocotrienols have anti-oxidative, anti-inflammatory, anti-mitotic and anti-angiogenic properties making them a potential therapeutic candidate for psoriasis. **Aim:** 1) To compare between IMQ-induced psoriatic lesions in male and female mice. 2) To investigate the clinical and histological effects of TRF application on the IMQ-induced psoriatic lesions. **Method:** Twenty-three 8-12 weeks old BALB/c mice were distributed into 4 groups; a female IMQ-TRF, male IMQ-TRF, IMQ-Placebo and IMQ control group. IMQ was applied topically to shaved backs of mice for six days. Psoriasis severity was scored every two days, using the Psoriasis Area Severity Index (PASI) including erythema, thickness and scaling. Tocotrienol-rich fraction (TRF) was applied on the skin lesions for 10 days and the PASI score recorded. The mice were sacrificed and back skin excised then examined histologically. **Results:** Both male and female mice developed similar clinical lesions following IMQ induction and the histological changes were comparable with features of human psoriasis. TRF improved the psoriatic lesions in male and female mice in similar days. Placebo treatment resulted in significantly less healing time compared to TRF. The histological analysis of the mice skin following TRF and placebo treatment showed little difference. **Conclusion:** Both male and female IMQ psoriasis mice model may be used. TRF ameliorates psoriatic lesions in mice however placebo resulted in less healing time. Red palm oil has potential therapeutic effects on psoriatic lesions.

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