UNIVERSITI TEKNOLOGI MARA

ACUTE TOXICITY OF A NOVEL SYNTHESIZED STILBENE

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ABSTRACT

Stilbene is a naturally and synthetically compound with have several biological activities such as antioxidants, anti-inflammatory, anticancer, antibacterial and antifungal agent. The toxicity of newly synthesized compound were determined by using *in vivo* studies before being approved as a safety compound to prevent damage or any adverse effects to the vital organ in the body. However, acute toxicity test normally carried out with definite order by choosing the critical dose range in order to investigate the lowest dose that induces any side effects and toxicity and the highest dose possible that do not show any effect to the tested animal. Therefore, two different groups of mice were used to determine the acute toxicity of newly synthesized stilbene. These studies were conducted at Laboratory Animal Facility & Management (LAFAM) and Pharmacology Laboratory at Universiti Teknologi MARA (UiTM) in Puncak Alam campus. The primary objective of the study is to determine the acute toxicity of the 3,4,10-trimethoxystilbene on male and female albino mice. There are several parameters were used to determine the toxicity of the compound. During 14 days of treatment, the result were observed for changes in clinical sign and mortality included behaviour changes of the treated mice before and after administration of doses, thus the comparison of body weight, water intake and food intake for all groups of mice were did not show any significant difference ($p < 0.05$) between controlled and treated group. After 14 days of the treatment, both groups of controlled and treated mice were sacrifices via cardiac puncture. The collected blood were centrifuge to collect the serum of the blood for biochemical analysis using ILAB machine to determine the level of ALT, AST, ALP, cholesterol and urea presence in the blood. This parameter were used to determine the toxicity of the compound by comparing between treated and control group of the mice, the result shows there is no significant difference ($p < 0.05$) between both groups. However, the organ that removed for gross necropsy were undergo histology of organ tissue where several step involved before getting complete staining slice and observed under light microscope to examined any abnormal changes related with the mice tissue structures when treated with stilbene compound. Therefore, the result shows no significant difference ($p < 0.05$) regarding the severity of tissue changes between controlled and treated group of mice. The study give more information in determine the toxicity studied involving newly synthesized compound.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Toxicology is a study that is related with the adverse effects of chemicals, as well as biological and physical agents on living organism and environment (Wexler, 1990). The toxicity studies are conducted to determine the degree to which substances are toxic (poisonous) for human, animal or the environment, to assess the mechanism of toxic chemicals, or to improve tests for specific types of chemically induced effects. Furthermore, the toxicity testing is conducted to know the precise toxicity in some animal testing group; whereas at the same time to ensure that the toxicity is not detected in other exposed groups and the effect are not caused by the error in the methodology. The adverse effects of compound on animal physiology can be class from minor changes for instead loss weight gain, changes of the hormones circulating level in the body, to severe effects such as organ dysfunction (a major cause of acute toxicity), leading to death (Schwenk, Werner, & Younes, 2002). Therefore, this study aims to assess dose of