UNIVERSITI TEKNOLOGI MARA

SUBACUTE TOXICITY STUDY OF *Hibiscus rosa-sinensis L.* LEAVES WATER EXTRACT IN BALB/c MICE: HISTOPATHOLOGICAL ASSESSMENT

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ABSTRACT

Hibiscus rosa-sinensis is a glabrous shrub widely cultivated as an ornamental plant. *Hibiscus rosa-sinensis* is commonly used to treat fever and coughs among ethnics in Malaysia. This study aims to determine toxic dose and histopathological changes on the liver and kidney of BALB/c mice after administration of 50mg/kg, 300mg/kg and 2000mg/kg of *Hibiscus rosa-sinensis* leaves water extract for a period of 28 days. 24 mice were randomly divided into 4 groups consisting 6 mice per group: 3 mice from both sexes. The control groups received tap water (vehicle). In this experiment, no clinical signs and mortality was observed. Result from weight analysis and food intake analysis showed continuous increase in average body weight and food intake between all group of BALB/c mice throughout the 28days.Histopathological examination of liver revealed mild histopathological changes with significant difference between the groups ($p<0.05$).The liver in group 2(50mg/kg), group 3(300mg/kg) and group 4(2000mg/kg) showed presence of activated kupffer cell, sinusoidal dilation and karyorrlysis and karyorrhexis. However, histopathological analysis of kidney revealed some abnormality but the abnormality was not significant between the groups. The presence of pyknotic cell were noticed in group 2(50mg/kg) and group 3(300mg/kg). In conclusion, administration of *Hibiscus rosa-sinensis* water extract had shown mild histopathological changes in liver tissues but no changes in kidney.

Keywords: *Hibiscus rosa-sinensis* water extract, Liver, Kidney, sub-acute toxicity, weight analysis, food intake analysis, histopathological analysis.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Plants are one of important source of drugs. It have been used medicinally for thousands of years and some of the most common practices involve the use of crude plant extracts, which may contain a broad diversity of molecules with often unknown biological effects. For these reasons, traditional medicines have become the focus of numerous studies in order to evaluate their safety, efficacy and validate traditional uses.

According to World Health Organization (WHO), traditional medicine is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, (Maridass & Britto, 2008) improvement or treatment of physical and mental illnesses. Although modern medicine may exist side-by-side with such traditional practice, herbal medicines have often maintained their popularity for historical and cultural reasons. Such products have become more widely available commercially, especially in developed countries like Malaysia.

Malaysian has a great abundance of tropical plants which served as an important repository of medicinal plants for millennia. Today, many medical practitioners trained in pharmacology and pharmacognosy is well aware of the number of modern therapeutic agents that have been derived from the tropical species of Malaysia. For the past 50 years or so, there has been a strong trend in seeking plants as sources of novel pharmaceutical agent (Robin *et al.*, 2007).