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MALAYSIAN TRADITIONAL HERBS: *IN –VITRO* CYP - HERB INTERACTION ON CYTOCHROME P2C9 ENZYME

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ABSTRACT

There are basically a vast quantity of plants which the Malaysians subsequently used as food additives, and herbal preparations. The herbal products are using the same metabolism pathway as the conventional drugs which are the metabolism pathway of Cytochrome P450 (CYP 450) enzymes, particularly the Cytochrome P2C9 enzyme. Concurrent use of drugs and herbs that are metabolized by the same Cytochrome may produce adverse effects such as increased toxic effect or decreased efficiency of the drug. An enzyme inhibition study is conducted using a fluorescence-based CYP450 Screening Kit to study the inhibition activity of 56 Malaysian traditional herbs. Results showed that all of the herbs produce negative inhibition on CYP 2C9 enzyme, except for Senduduk, Kayu Serapat and Tenggek Burung. In conclusion, the scientific finding on the CYP2C9 inhibition by Tenggek Burung, Kayu Serapat and Senduduk is a "one-step ahead" prevention of drug-herb adverse effects. With this knowledge, further investigations could be initiated and education of the local people on the drug-herb interactions would be on a more solid ground.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Natural products are unlike conventional drugs. These natural products usually present a complex mixture of bioactive entities, which may or may not provide therapeutic activity (Chavez et al., 2006). Herbal products contain structurally varied chemicals and several of them possess intrinsic pharmacological activity and some may even be toxic. Additionally, chemical makeup of a natural product may vary depending on the part of the plant processed (stems, leaves, roots), seasonality and growing conditions. Most importantly, as components of herbal products consumed must also be eliminated from the body by the same mechanism that removes drugs, there is a potential for interaction between herbal components and drugs. (Venkataramanan et al., 2005). However, there is a general belief among the general public that herbal preparations are "good for humans" as they are "all natural" (Kaufman et al., 2002). This shows that the public lacks understanding or appreciation of what all these "all natural" extracts are.