

UNIVERSITI TEKNOLOGI MARA

**THE EXTRACTION OF STERCULIACEAE
SPECIES**

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ABSTRACT

This study introduces the Sterculiaceae family, which consists of seventy genera, including *Scaphium* and *Sterculia* species. They are called as malva nuts that are used as remedy against pharyngitis, tussis and constipation. Malva nuts are utilized in Thai traditional medicine as a cooling agent to treat fever, coughing and sore throats. From the review, Sterculiaceae species are reported as antioxidative, antiulcer and can help to reduce the body weight. Nevertheless, only few studies were done on the extracts and compounds. Researchers are more likely to focus on the root, bark and leaf extracts, since those plant parts exhibit a broad range of medicinal properties. Thus, there is not much research on the seed extraction. In addition, *Scaphium* seeds contain large amount of mucilaginous substances. Many journals discuss on the extraction of the major monosaccharide from the species. However, other chemical constituents and biological uses of the seeds are still unknown. In contrast, *Sterculia lychnophora* was extensively investigated in terms of the phytochemistry and pharmacology. Hence, there is a need for comparing the Sterculiaceae seeds, based on the literature search. Therefore, the aim of this study is to investigate the phytochemical constituents in the malva nuts' seeds extracts. Thin Layer Chromatography (TLC) analysis was performed and the ideal TLC solvent system for chloroform extract was hexane and ethyl acetate (7:1). Phytochemical analysis of the extracts revealed the presence of secondary metabolites such as alkaloid, phenols and saponins. The presence of alkaloid could support a study that previously isolated such constituents. The chloroform extract was purified by preparative thin layer chromatography (PTLC). The compound was further elucidated by Nuclear Magnetic Resonance (NMR). The NMR spectrum analysis suggested the isolated substance was a mixture of both an aromatic aldehyde (δ_H 7 - 10 ppm) and a fatty acid methyl ester (FAME) (δ_H 0 - 5.5 ppm). Future work is encouraged to reinvestigate the extract in order to increase the amount of purified compounds. Finally, it is hoped that this study could increase the knowledge on the phytochemistry of the Sterculiaceae family, which then could be added as the line of today's drug.

CHAPTER ONE

INTRODUCTION

Medicinal plants are referred to natural products that can provide health benefit for most of the world's population. Scientists over the decades have discovered the importance of these plants as the sources of new therapeutic agents. About 3.4 billion people in the growing countries still rely on the plants as their source of medicines (Hamuel, 2012).

According to the World Health Organization (WHO), one or more parts of the medicinal plant such as the roots, rhizomes, stems, barks, flowers, fruits or seeds contain substances that can be used for therapeutic purposes. All the phytochemicals that could be found from those parts of the plant have important properties to prevent or fight some common diseases (Saxena *et al.*, 2013).

There are many studies have been done on the distribution of medicinal plants in a specific area of country. For example, a total of 98 plants species with 140 different uses were recorded from a study on the use of medicinal plant species by the indigenous people from the Temuan tribe at Ayer Hitam Forest, Selangor, Peninsular Malaysia. The use of the plants were recorded and they were classified into seven methods of applications such as drink, eat, chew, poultice, rub, bath and shampoo (Ibrahim & Hamzah, 1999).

Basically, the scientific knowledge about the medicinal plants helps researchers to conduct a study in order to explore the benefits, efficacy and quality controls of the plants.