

CHEMICAL COMPOSITION AND ANTIOXIDANT ACTIVITY OF AQUILARIA MALACCENSIS LEAF EXTRACT

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ABSTRACT - In this study, water extraction (WE) and methanol extraction (ME) of *A. malaccensis* dried leaves (DL) and fresh leaves (FL) were investigated for its in vitro antioxidant activity that may contribute to their pharmacological effects. Total phenolic content (TPC) of this plants were determined by Folin-Ciocalteu assay while antioxidant potential were evaluated by CUPRAC and DPPH method. WEDL showed the highest inhibition of the DPPH radical (48.07 ± 0.68 %) at concentration 1000 $\mu\text{g/ml}$ and IC_{50} value was found to be 1.091mg/ml, relative to ascorbic acid, having an IC_{50} of 0.219 mg/ml. It also showed the highest CUPRAC value ($3.32 \pm 0.01\mu\text{g/ml}$) as well as the highest TPC (181.11 ± 0.61 gallic acid equivalent (GAE) mg/g) at a concentration of 1000 $\mu\text{g/ml}$) as compared to the other studied extracts. In conclusion, the results of this study clearly indicated that the extracts of *A. malaccensis* possess significant antioxidant activities and could be used as a potential source of natural antioxidant agents that may be due to the presence of phytochemicals.

Keywords: *Aquilaria malaccensis*, antioxidant activity, phytochemicals

INTRODUCTION

Aquilaria spp. are the most valuable and highly fragrant forest products locally known as agarwood, aloeswood, eaglewood, gaharu, kalamabak or oudh depending on the region^[1]. Several genera that might be source of agarwood production from the family Thymelaeaceae might be endangered due to the deterioration of their natural resources include *Aquilaria*, *Gonystulus*, and *Gyrinops* having been listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora^[2]. The most countries producing agarwood are Australia, India, China, Indonesia, Myanmar, Singapore, Laos, Thailand, Vietnam and Malaysia^[3]. The main markets for these products are in South and East Asia and the Middle East. The identification of the botanical and ecological aspects of this species has been widely identified from a chemical constituent point of view that can be explain its uses as an important and excellent source of pharmaceutical products^[4]. Many parts of this plants including the leaves, skin, seeds, wood and roots are valuable in medicinal properties. It is highly sought after for its resin and essential oils while less has been focused on the health beneficial effects of other parts of the plant despite the various ethnopharmacological evidences. These include antioxidant activities, analgesic, antipyretic, anti-inflammatory^[5,6], antihyperglycemic^[7], and antimicrobial^[8] for various medicinal purposes.

