

**EXTRACTION OF GAHARU OIL FROM KARAS (AQUILARIA MALACENSIS)**



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## Contents

1. Letter of Report Submission .....	iii
2. Letter of Offer (Research Grant) .....	iv
3. Acknowledgements .....	vi
4. Enhanced Research Title and Objectives .....	vii
5. Report .....	1
5.1    Proposed Executive Summary .....	1
5.2    Enhanced Executive Summary .....	2
5.3    Introduction .....	3
5.4    Brief Literature Review .....	5
5.5    Methodology .....	11
5.6    Results and Discussion .....	15
5.7    Conclusion and Recommendation .....	22
5.8    References/Bibliography .....	23
6. Research Outcomes .....	25
7. Appendix .....	26

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## 5.2 Enhanced Executive Summary

Gaharu (agarwood, aloeswood, eaglewood, jinkoh, chen-xiang and aquilaria) have previously been known as highly valuable wood and important source for medical and perfumes due its strong and unique scent. In Malaysia, gaharu may be classified into three species: *Aquilaria hirta*, *A. malaccensis* and *A. rostrata* and they often graded into three grades: Grade A, B and C, according to the physical properties, chemical properties, gaharu formation and unique scent. The lower grades such as Grade C are often distilled to obtain gaharu oils. Gaharu oil was extract from karas by using two different techniques; water distillation and Soxhlet extraction. Identification of the chemical components was analyzed by FTIR, <sup>1</sup>H-NMR, GC and GC-MS. Examination of the oils showed some variations and differences in terms of GC profiles, concentration and chemical components. The main component of the oil was 4-phenyl-2-butanone with 22.96%. 1,2-benzenedicarboxylic acid, was the second major compounds with 17.04%. Besides of these two chemical components, this oil also contains other compound such as 6-ethyl-5-methyl-3-pyridinecarbonitrile (8.79%), hexadecanoic acid (7.61%) and tritetracontane (6.04%).

**Keywords:** extraction, gaharu oil, karas

### 5.3 Introduction

Gaharu (agar wood) is the most expensive wood in the world. It is valued in many cultures for its distinctive fragrance, and used extensively in incense and perfumes. Gaharu is the occasional product of two to four genera in the family Thymelaeaceae, with *Aquilaria agallocha*, *Aquilaria crassna* and *Aquilaria malaccensis* being the three best known species. The name of the species is derived from the latin word "aquila" meaning eagle. Gaharu is known throughout many Asian countries and at least 15 species of *Aquilaria* trees are known to produce the much sought-after agar wood. The valuable wood has been traded for thousands of years throughout Asia.

*Aquilaria malaccensis* is a scientific name of Karas. It is in the genus *Aquilaria* sometimes producing resin-impregnated heartwood that is fragrant and highly valuable. Its fragrant wood, known as gaharu can produce an essential oil, which extracted from part of tree that is dying due to the disease. It's also the most expensive wood in the world. It is valued in many cultures for its distinctive fragrance, and used extensively in incense and perfumes. Now, the scientist had found the new formula to get the oil is easier. When we give an injection on the tree, in a few minute the Karas tree will expel the latex and the latex will freeze, finally the process to get the oil done. Once the resinous wood is used as incense, for medicinal purposes, and pure resin in distilled form is used as perfume and perfume component. It is the major source of agar wood, resinous heartwood, used for perfume and incense. The resin is produced by the tree in response to infection by a parasitic ascomycetous mould, *Phaeoacremonium parasitica*, a dematiaceous (dark-walled) fungus. *Aquilaria malaccensis* species is found in Bangladesh, Bhutan, India, Indonesia, Iran, Laos, Malaysia, Myanmar, the Philippines, Singapore, and Thailand. It is threatened by habitat loss (Barden and Angela, 2000).