COMPARISON OF PERCENT CHEMICAL COMPOSITION IN *Pogostemon cablin* USING HYDRODISTILLATION, SOLVENT EXTRACTION AND SOXHLET EXTRACTION

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Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Chemistry
In the Faculty of Applied Sciences
Universiti Teknologi MARA

MAY 2010

ACKNOWLEDGEMENTS

In the name of Allah, the most gracious and the most merciful, I would like to express sincere gratitude to Allah S.W.T for his abundant generosity, guidance and strength to me during the process of completing my final year project report. Firstly, I would like to express my sincere thanks to the person who involved in this final year project report and gratitude, the coordinator of CHM 679, Dr. Chan Chin Han who had kindly given me useful information about the preparation of this report and for my deepest gratitude to my supervisor, Dr. Sharipah Ruzaina Syed Aris for her advices, comments, helps, guide me in finding information and how to write this final year project report. Finally yet importantly, I am deeply grateful to my family especially my sister Hayati Irman for their helps regarding moral and financial support in order to complete my project report. Not forgotten, my special thanks goes to my friends Nik Norziehana and Nurismawatiaizan who had gave moral support, co-operation, suggestions and brilliant ideas in completing my final year project report. Thanks again for another persons who had involved whether direct and indirect by giving me excellent respond and cooperation throughout the periods. May Allah S.W.T bless you. Thank you.

Husni Fithri bt Irman

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ABSTRACT

COMPARISON OF PERCENT CHEMICAL COMPOSITION IN *Pogostemon cablin* USING HYDRODISTILLATION, SOLVENT EXTRACTION AND SOXHLET EXTRACTION

The aim of this study to compare percent chemical composition of essential oil contained in *Pogostemon cablin* using different methods. Essential oil of *Pogostemon cablin*, cultivated in Biotechnology, Malacca, was obtained by hydrodistillation, solvent extraction and soxhlet extraction methods. The oils were analysed by capillary gas chromatography using flame ionization and mass spectrometric detections. The compounds were identified according to their retention indices and mass spectra (EI, 70 eV). This experiment showed the best method to extract the essential oil from *Pogostemon cablin* is hydrodistillation.Two major compounds were identified from the extraction of *Pogostemon cablin*. The first major components of *Pogestemon cablin* is patchoulli oil followed by azulene. The results found that extraction of essential oil was highest by hydrodistillation where patchoulli oil (44.70%) followed by azulene (9.58% and 9.68%). Meanwhile soxhlet extraction method gave the lowest composition of essential oil where only (26.66%) patchoulli oil obtained followed by azulene (5.73% and 6.11%) .

CHAPTER 1

INTRODUCTION

1.1 Background

Patchouli (*Pogostemon cablin* (Blanco) Benth) is a species from the genus *Pogostemon* and a bushy herb of the mint family, with erect stems, reaching two or three feets (about 0.75 metre) in height and bearing small pale pink-white flowers. The plant is native to tropical regions of Asia and is now extensively cultivated in Caribbean countries, China, India, Indonesia, Malaysia, Mauritius, Philippines, West Africa and Vietnam. The scent of patchouli is heavy and strong. It has been used for centuries in perfumes and continues to be so today. *Pogostemon cablin*, like many plants within the Lamiaceae, accumulates large amounts of essential oil. Patchouli oil is unique because it consists of over 24 different sesquiterpenes, rather than a blend of different mono-, sesqui- and di-terpene compounds. Patchouli oils are widely appreciated for its characteristic pleasant and long lasting woody, earthy, camphoraceous odor. Patchouli oil is hence an important ingredient in many fine fragrance products like perfumes, as well as in soaps and cosmetic products. The composition of the patchouli oil is complex like many essential oils, but distinct because it consists largely of sesquiterpenes (Singh *et al.,* 2009).