# CINNAMON BARK (*Cinnamomum cassia*) VOLATILE OIL EXTRACTION USING PRESSURISED LIQUID EXTRACTION IN COMPARISSON TO CONVENTIONAL METHODS

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## ABSTRACT

## CINNAMON BARK (*Cinnamomum cassia*) VOLATILE OIL EXTRACTION USING PRESSURISED LIQUID EXTRACTION IN COMPARISON TO CONVENTIONAL METHODS

*Cinnamomun cassia* is one of the cinnamon bark species was chosen to prepare essential oils by the new method of extraction which is Pressurised Liquid Extraction (PLE) in comparison to the conventional method which is Soxhlet extraction and hydrodistillation to identify and quantify their volatile compound compositions. Cinnamaldehyde was determined to be the highest volatile compound present in the *Cinnamomun cassia*. Between these three methods, PLE was determined to have the highest yield of cinnamaldehyde (27.58%), followed by Soxhlet (22.43%) and hydrodistillation (0.4%). Gas Chromatography/Mass Spectrometry (GCMS) was used to identify and quantify the volatile compound composition. The result indicated the apparent difference in the volatile compound compositions of essential oil between methods. The total number of volatile compounds identified from the GCMS analysis is 35 compounds. Beside cinnamaldehyde, coumarin was also the main substance found in *Cinnamon cassia.* In term of concentration, PLE also were determined to have the highest concentration of oil (1390.95 mg/100ml), followed by Soxhlet (1003.95 mg/100ml) and hydrodistillation (905.6 mg/100ml).

# ABSTRAK

## PENGESKTRAKKAN MINYAK MERUAP DARI KULIT KAYU MANIS (*Cinnamomum cassia*) DENGAN MENGGUNAKAN PENGEKSTRAKAN CECAIR TEKANAN TINGGI DIPERBANDINGANKAN DENGAN KAEDAH PENGEKSTRAKAN LAMA

*Cinnamomum cassia* adalah salah satu daripada spesis kayu manis yang dipilih untuk pengekstrakkan minyak oleh kaedah pengekstrakkan yang baru iaitu Pengekstrakkan Cecair Tekanan Tinggi diperbandingkan dengan kaedah pengekstrakan lama iaitu kaedah Soxhlet dan juga kaedah *hydrodistillation* untuk mengenalpasti dan mengira jumlah komposisi kompoun di dalam minyak tersebut. Diantara ketiga-tiga kaedah ini, kaedah Pengekstrakan Cecair Tekanan Tinggi memberi jumlah peratus hasil yang tinggi untuk cinnamaldehyde (27.58%), diikuti dengan kaedah Soxhlet (22.43%) dan akhir sekali kaedah *hydrodistillation* (0.40%). Kromatografi Cecair Tekanan Tinggi digunakan untuk mengenalpasti dan mengira jumlah komposisi didalam *Cinnamomum cassia.* Keputusan yang diperolehi menunjukkan perbezaan kualiti minyak diantara ketiga-tiga kaedah ini. Jumlah komposisi yang dijumpai dari analisis Kromatografi Cecair Tekanan Tinggi ialah tiga puluh lima jenis. Selain cinnamaldehyde, coumarin juga merupakan komposisi utama di dalam *Cinnamomun cassia.* Dari segi kepekatan minyak, Pengekstrakan Cecair Tekanan Tinggi memberi kepekatan minyak yang paling tinggi, diikuti dengan kaedah Soxhlet dan akhir sekali kaedah *hydrodistillation.*