

Optimization, Yield and Chemical Composition of Essential Oil from Cymbopogon citratus: Comparative Study with Microwave Assisted Extraction and Hydrodistillation

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Abstract : Cymbopogon citratus is generally known as Indian Lemongrass and is widely applicable in the cosmetic, pharmaceutical, dairy puddings, and food industries. To enhance the quality of extraction, microwave-oven-aided hydro distillation processes were implemented. The basic parameter which influences the rate of extraction is considered, such as the temperature of extraction, the time required for extraction, and microwave-oven power applied. Locally available CKP 25 Cymbopogon citratus was used for the extraction of essential oil. Optimization of Extractions Parameters and full factorial Box-Behnken design (BBD) evaluated by using Design expert 13 software. The regression model revealed that the optimum parameters required for extractions are a temperature of 35°C, a time of extraction of 130 minutes, and microwave-oven power of 700 W. The extraction efficiency of yield is 4.76%. Gas Chromatography-Mass Spectroscopy (GC-MS) analysis confirmed the significant components present in the extraction of lemongrass oil.

Keywords : Box-Behnken design, Cymbopogon citratus, hydro distillation, microwave-oven, response surface methodology

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