Green Chemistry Approach to Herbal Oil Production from Thai Medicinal Plants: Physicochemical and Fatty Acid Analysis

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Abstract

The increasing consumer demand for non-toxic methods of extraction, sustainable approaches to the production of herbal products and essential oils have been developed. Plants were well identified as clove, turmeric, licorice, *Clinacanthus nutans*, safflower and *Thunbergia laurifolia* were selected as samples for herbals namely oil production study will consist of simple distillation and steam distillations. The extracted oil was a yellow transparent liquid with others characteristic smell. Thin-layer chromatography was used to confirm triglycerides, diglycerides, monoglycerides and free fatty acids in the preparation whereas gas chromatography showed that palmitic acid, oleic acid, linoleic acid and linolenic acid were the major fatty acids. These results demonstrate that this method is efficient in obtaining an herbal oil with desirable physicochemical characteristics and highlights its usefulness in value-added applications for the pharmaceutical, cosmetic and health-related industries.

Keyword: distillation, fatty acid profiles, herbal oil; physicochemical properties