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Supercritical CO2 Extraction of Cymbopogon martini Essential Oil and Comparison of Its Composition with Traditionally Extracted Oils

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Abstract : Essential oil was extracted from lemon grass (Cymbopogon martini) with supercritical carbondioxide (SC-CO2) at pressure of 140 bar and temperature of 55 °C and CO2 flow rate of 8 gmin-1, and its composition and yield were compared with other conventional extraction methods of oil, HD (Hydrodistillation), SE (Solvent Extraction), UAE (Ultrasound Assisted Extraction). SC-CO2 extraction is a green and sustainable extraction technique. Each oil was analysed by GC-MS, the major constituents were neral (44%), Z-citral (43%), geranial (27%), caryophyllene (4.6%) and linalool (1%). The essential oil of lemon grass is valued for its neral and citral concentration. The oil obtained by supercritical carbon-dioxide extraction contained maximum concentration of neral (55.05%) whereas ultrasonication extracted oil contained minimum content (5.24%) and it was absent in solvent extracted oil. The antioxidant properties have been assessed by DPPH and superoxide scavenging methods.

Keywords : cymbopogon martini, essential oil, FT-IR, GC-MS, HPTLC, SC-CO2
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