Extraction and Modelling of Oil from Eucalyptus camadulensis by Organic Solvent

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ABSTRACT

This work was conducted to study the extraction of eucalyptus oil from natural plants (Eucalyptus camadulensis leaves) by organic solvents. the effects of the main operating parameters were studied; type of solvent (n-hexane and ethanol), time to reach equilibrium, the temperature ($45°C$ to$65°C$) for n-hexane and ($45°C$ to $75°C$) for ethanol, solvent to solid ratio (5:1 to 8:1 (v/w)), agitation speed (0 to 900 rpm) and the particle size (0.5 to 2.5 cm) of fresh leaves to find the best processing conditions for the achieving maximum oil yield. The concentration of eucalyptus oil in solvent was measured by using UV-spectrophotometer. The results (for n-hexane) showed that the agitation speed of 900 rpm, temperature $65°C$ with solvent to solid ratio 7:1 (v/w) of particle size 0.5 cm for 210 minute give the highest value of oil (68.5 wt%). Similar conditions for ethanol with the exception of the temperature ($75°C$) give the highest yield of oil (65.07 wt%).