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TITLE: Intensification of oil yield from Kokum seeds: An Energy-efficient extraction using Ultrasonication Technique.

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ABSTRACT:

Intensification of oil yield from Kokum seeds: An Energy-efficient extraction using Ultrasonication technique.

The titled invention Intensification of oil yield from Kokum seeds: An Energy-efficient extraction using Ultrasonication Technique discloses the intensification of oil yield from kokum seeds through an energy-efficient oil extraction method using ultrasonication. To maximize the kokum oil recovery, the extraction (i.e., ultrasonication) process parameters were optimized. The effects of sonication time (S_t; 10—30 min), extraction temperature (E_T; 35—45°C), ultrasonic power (U_p; 80—120 W),and solvent-kokum seed powder (sksp) ratio (30—50 mL/ g) on the yield of kokum oil were examined. The optimal extraction conditions were S_t=20 min; E_T= 40° C; U_p=100 W; and sksp ratio=40 mL/g yielding kokum oil of 62.43%. When compared to Soxhlet extraction, ultrasonic extraction achieved a significant gain in kokum oil yield of 16.43% and reduced sonication time and temperature. After 6 hours, the Soxhlet extraction gives a 46% conversion yield at 60°C. However, the Soxhlet extraction needed 5.6 times the energy (3000 Wh) as contrasted to the ultrasonic extraction's 20 min of extraction at 40 °C (532.8 Wh) for the improved kokum oil output of 62.43%.

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