

## Evaluation of Mango Seed Extract as Surfactant for Enhanced Oil Recovery

**Authors :** Ezzaddin Rashid Hussein

**Abstract :** This research investigates the viability of mango seed extract (MSE) using a surfactant to improve oil recovery (EOR). This research examines MSE-based surfactant solutions and compares them to more traditional synthetic surfactants in terms of phase behaviour and interfacial tension. The phase behaviour and interfacial tension of five samples of surfactant solutions with different concentrations were measured. Samples 1 (2.0 g) and 1 (1.5 g) performed closest to the critical micelle concentration (CMC) and displayed the greatest decrease in surface tension, according to the results. In addition, the measurement of IFT, contact angle, and pH, as well as comparison with prior research, highlights the potential environmental benefits of MSMEs as an eco-friendly alternative. It is recommended that additional research be conducted to assess their stability and behaviour under reservoir conditions. Overall, mango seed extract demonstrates promise as a natural and sustainable surfactant for enhancing oil recovery, paving the way for eco-friendly enhanced oil recovery techniques.

**Keywords :** oil and gas, mango seed powder, surfactants, enhanced oil recovery, interfacial tension IFT, wettability, contacts angle, phase behavior, pH

**Conference Title :** ICOGPCF 2023 : International Conference on Oil and Gas Projects in Common Fields

**Conference Location :** Kuala Lumpur, Malaysia

**Conference Dates :** August 17-18, 2023