

Establishment of an effective refining process for *Moringa oleifera* kernel oil

ABSTRACT

This study systematically established the most effective refining process for *Moringa oleifera* (MO) kernel oil. Acid degumming (20.33 ± 1.37 ppm) removed significantly greater phosphorus than water degumming (31.18 ± 0.90 ppm). Neutralization was more effective than deodorization in decreasing the acid (0.06 mg KOH/g) and p-Anisidine (p-AV, 0.36 ± 0.03) values of the oil. Besides improving its color properties, acid-activated bleaching earth Type B was better than Types A and C in decreasing the oil's p-AV (0.43 ± 0.02), acid value (3.96 ± 0.02 mg KOH/g), and moisture content ($0.01 \pm 0.00\%$ w/w). The selected refining stages successfully produced MO kernel oil with acceptable peroxide value (PV, 1.66–3.33 meq/kg), p-AV (1.05–1.49), total oxidation value (TOTOX, 4.38–8.15), acid value (0.03 mg KOH/g), moisture content (0.01% w/w), phosphorus content (1.28–1.94 ppm), iodine value (80.79–81.03), oleic acid (79.52–79.65%), and tocopherol content (65.26–87.00 mg/kg).

Keyword: Fats and oils; Oilseeds; oxidative stability; Lipids; Lipid chemistry/lipid analysis; Processing technology; Refining