

Aqueous enzymatic extraction of coconut oil

ABSTRACT

Aqueous extraction of coconut oil with various enzymes was investigated. Several enzyme preparations (cellulase, polygalacturonase, protease, and α -amylase) were used at different concentrations, pH, and temperature values to enhance oil extraction. After the oil had been released by the enzyme reaction, it was separated by centrifugation. The results showed that an enzyme mixture at 1% (w/w) each of cellulase, α -amylase, polygalacturonase, and protease at pH 7.0 and an extraction temperature of 60°C represented the most effective extraction conditions with an oil yield of 73.8%. Quality characteristics of the oil were as follows: moisture content, 0.11%; free fatty acid, 0.051%; peroxide value, 0.016 meq oxygen/kg; anisidine value, 0.026; iodine value, 8.3; saponification value, 260; and color, 0.6 (Y+5R). This technique for recovering oil from fresh coconut meat with enzymes is a significant improvement in both oil yield and quality over the traditional wet process.

Keyword: Aqueous coconut oil extraction; Oil yield; Quality characteristics