SOME TECHNOLOGICAL TREATMENTS TO IMPROVE SHELF LIFE OF FRYING OILS

BY

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ABSTRACT

Shelf life of sunflower oil (SFO) for frying propose was improved by several technological treatments; blending with 30% rice bran oil (RBO), adding 2500 ppm oryzanol extracted from rice bran as natural antioxidant compared with 200 ppm tertiary butyl hydroquinone (TBHQ) as synthetic antioxidant and using different coating materials; 1% carboxymethyl cellulose (CMC), 1% xanthan gum (XG) and 5% soya protein isolate (SPI). Results revealed that blending with different percentages of RBO; 10, 20 and 30% w/w improved SFO oxidative stability from 7.70 to 8.94, 9.80 and 12.10 hr at 100 °C, respectively. Consequently using 30% RBO improved the frying stability of SFO through 24 hr of frying potato chips at 180±5°C. Adding 2500 ppm of oryzanol extract improved the oxidative stability of SFO from 7.70 to 13.69 hr compared with 200 ppm TBHQ that increased it (from 7.70 to 12.70 hr) at 100 °C and when applied in frying process, 2500 ppm oryzanol improved the physical and chemical properties of SFO. Using coating materials as a mean for reducing oil uptake% improved the frying stability of SFO and that was more pronouns when using 1% CMC followed by 1% XG as coating materials. After 24 hr of frying using SFO, oil was treated with 5% silica rice hulls in order to adsorb the oxidative degraded compounds formed during frying process, this treatment improved and regenerated the use of SFO.

Key words: Sunflower oil, rice bran oil, oryzanol extract, coating materials, frying process, CMC and XG.

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