

Effect of Refining Process on the Quality Characteristics of Soybean and Cotton seed Oils.

Abstract

The objective of this research was to examine changes in physiochemical properties, oxidation indices, phenolic compounds and fatty acid composition during refining of cottonseed oil and soybean oil. 2,2-diphenyl-1-picrylhydrazyl (DPPH) and Rancimat method were used for determination of antioxidant capacities. The results obtained showed that specific gravity have decreased after refining, while refining process does not have a significant effect on the refractive index. Correspondingly, there was reduction in the chemical properties such as acid value, peroxide value, thiobarbituric acid, saponification value and unsaponifiable matter. The refining had a positive effect on the oxidative stability of the oil. Refined cottonseed oil showed relatively higher antioxidant activity by both DPPH and Rancimat methods than refined soybean oil. This study also revealed that the refining process caused approximately 48.8% and 50% decrease of total phenolic contents in soybean and cottonseed oils, respectively. There was an increase in the total monounsaturated fatty acids coupled with a significant decrease in the saturated fatty acids in the oil samples after refining process. The loss of bioactive compounds from crude oils is inevitable during the conventional refining processes. Therefore innovations in these oils processing are necessary to produce commercial oil with high antioxidant content.