

PREPARATION OF DIFFERENT OIL BLENDS FOR FRYING

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ABSTRACT:

Due to inadequate production of edible oils in Egypt, importation is necessary to meet the demand. Cottonseed oil (CSO), Soybean oil (SBO), Sunflower oil (SFO), and palm olein (PO) are consumed in the refined form and used for some culinary practices including deep-frying and cooking. Blending of oils has many distinctive economic and technological advantages. It avoids the problems of high price, availability and stability. The main purpose of this study was to evaluate the quality of four vegetable oils: CSO, SBO, SFO and PO and their blends. The quality attributes including moisture content, refractive index, free fatty acid, peroxide number, anisidine, totox number and induction period measured by rancimat. The fatty acid profile obtained for investigated oils and their blends showed that (PO) was characterized by lowest content of unsaturated fatty acids compared to CSO, SBO and SFO. The most prominent saturated fatty acid in oils and their blends was palmitic acid where as the corresponding unsaturated fatty acid was oleic acid. However, Blend 2F (50% PO + 35% CSO + 15% SBO) had the highest total saturated fatty acids followed by blend 1F (50% PO + 35% CSO + 15% SFO). Rancimat results for PO (24 hr) at 110°C was much higher than CSO (11.3 hr) indicating that the stability of PO is about two times the stability of CSO. Using 50% PO increasing the induction period from 11 hrs to 17 hrs (blend 1F), from 11 hrs to 19 hrs (blend 2F), from 11 hrs to 16 hrs (blend 3F), from 11 hrs to 17 hrs (blend 4F). Prolonged heating up to 60 hr. at 180°C induced regular increments till the end of heating in refractive index, while the acid number were almost tripled the initial values. Peroxide numbers reached their maximum after 40 hrs heating. The results of acid number and peroxide number revealed that all blends (except blend 4F) could be considered good frying media for potato chips. As such, upon using blend 2F as frying oil, the product was given the highest scores for sensory properties. These advantages will be considered by health-conscious consumers.

Key words: Deep-frying, Unsaturated fatty acids, Stability, Physicochemical properties, potato chips.