

Frying with Canola Oil Products

Desirable properties in a frying oil include a high smoke point, light color and bland flavor. Canola oil meets these criteria. For example, retail canola oils have high smoke points (>220°C). This means that normal frying temperatures (180-190°C) can be maintained without the oil degrading to acrolein, a black and irritating smoke.

The performance of laboratory-refined oils in deep-frying has been evaluated experimentally by comparing the flavor of bread cubes fried in oils at 180-190°C. No differences were noted among breads fried in canola, soybean, cottonseed or sunflower oils provided that the oils were of good quality to start with. However, fried bread cubes stored at 60° C for seven days showed different degrees of flavor deterioration among frying oils.

In continuous deep-frying, commercial operators may use partially or fully hydrogenated “heavy duty” frying shortenings rather than liquid oils. Melton et al. compared the quality of potato chips fried in partially hydrogenated canola oil (iodine value=90) with those fried in cottonseed oil, or in blends of the two fats. Their sensory panel, composed of 119 people from Tennessee, liked chips fried in all fats equally well even though cottonseed oil is customarily used for frying potato chips in the southern United States.

Partially hydrogenated liquid shortenings from canola and soybean oils have also been found to produce comparable products in extended frying experiments. Good quality french fries resulted from deep frying successive lots of frozen cut potatoes continuously for seven hours daily for ten days (75 hours), with fresh shortening added twice a day to restore the fryer volume. Sensory scores for fries showed few significant differences whether they were fried in fresh shortening or in fats which had been used for ten days. In comparing the fries from the two shortenings independent of the effect of days of fat use, panelists judged the overall quality of canola fries as good or better than soybean fries. Subsequently, Hawrysh has shown that French fries of reasonably comparable quality were produced from partially hydrogenated canola and soybean oils, hydrogenated canola and soybean oils, and tallow.

Storage Stability of Fried Foods

The shelf life of fried snack foods depends, to a large extent, on the quality of the frying medium because significant amounts of the frying medium are absorbed by the food. Potato chips, for example, increase from less than one per cent fat to over 30 per cent during deep-frying. This is why fried snack foods keep best in light proof, airtight packages held at cool temperatures. Hawrysh tested the stability of potato chips which had been fried in four different oils: canola; partially hydrogenated canola; soybean; and cottonseed, under two storage conditions: heat accelerated (60°C) for 12 days, and room temperature (23°C) for 18 weeks. During accelerated storage, the amounts and types of off odor/flavor in the chips varied with the frying oil. However, after 18 weeks at room temperature, chips which had been fried in canola oils had higher typical potato chip odor/flavor and lower off odor/flavor than chips fried in the other oils.