

Baking with Canola Oil Products

North Americans have traditionally used shortenings for baked products like pastry, cookies, and conventional cakes. Shortenings are 100 percent fat products that vary in consistency according to their temperature and the proportion of solid fat crystals to liquid oil. Canola oil is converted successfully to shortenings of predetermined consistency through hydrogenation, blending, and aeration. Usually five to ten percent of another oil, such as palm, is added to assure a stable structure of small fat crystals.

The current trend in commercial cake baking is to replace plastic fats entirely with liquid oil in combination with appropriate surfactants and increased water levels. Canola oil has been shown to replace successfully hydrogenated shortening in white layer cakes when used with an emulsifier system, oil cakes were dense and tough with a harsh crumb. Including the emulsifier system as 9.5 percent of the flour weight, along with 169 percent water, corrected these defects. In fact, the emulsified cakes were more tender than the shortening prototype even when the oil was reduced from 52.5 percent to 10.5 percent of the flour weight, providing an attractive market opportunity for "light" cakes. Oil-surfactant systems are also forecast to replace solid fat in commercial bread production. Oil has the advantage that it can be pumped and metered, features which are important in continuous factory processes.

Margarine

In the United States and Canada, margarine is marketed as a butter alternate and must contain 80 percent fat. However, in parts of Europe, the term margarine is used generically to describe any hydrogenated vegetable oil, and colored, 100 percent fat margarine may be sold for baking and frying.

A buttery flavor, smooth texture, spreadability and rapid mouth-melt are important features of tablespreads. The use of skim milk in margarines along with appropriate starter cultures and ripening conditions produce lactic acid, diacetyl, and other chemicals which are part of a natural butter flavor. However, margarine does not quite match butter in flavor. A 1986 comparison of commercial blends of butter and canola brick margarine showed that the buttery flavor intensity of 50:50 blend was comparable to that of butter while that of 100 percent margarine was not. The fact that butter is still prized for special baking may be because the flavor compounds produced when butter is heated are among the most difficult to duplicate.

The advantage of margarine over butter is its spreadability. Consumers may choose to buy soft tub-type margarines which spread easily straight from the refrigerator or stick/brick forms which vary in the rate of softening but are seldom as firm as cold butter. Soft margarines are more spreadable because they will contain up to 70 percent liquid oil, whereas brick margarines are usually combinations of oils hydrogenated to different degrees of firmness.

Summary

Canola oil serves customers well in a variety of food applications: salad oils, frying fats, baking shortenings, and tablespreads. The technical novelties of canola oil have been addressed through research and development and achieved through creative partnership between producers, processors, and academics. The current trend toward great use of oil in foods rather than hydrogenated products benefits a canola oil industry well placed to meet the increased demand. The canola industry's response to current trends will be augmented by the introduction of new low linolenic acid cultivars. These cultivars will retain the nutritional advantages of canola oil while assuring great oxidative stability.