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Oil Extraction and Refining

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ABSTRACT

Oils have many unique properties that the other two major food components, proteins and carbohydrates, do not have. Oils are hydropobic and immiscible with water. They also have twice as high caloric value as proteins and carbohydrates. They serve conveniently as heating medium and are frequently used to cook and preserve foods. Their solid-to-liquid phase transition properties allow them to function as pastry fats, frying shortenings and confectionary applications. Their ability to dissolve color and flavor and to provide lubricity plays as important role in making food palatable and desirable. In most applications, oils must be extracted from the seeds and refined before they ate processed into useful products. There are as many different oil extraction and refining conditions as there are numorous oil-bearing seeds. However, there ate two basic principles that apply to all-extract as much oil with minimum loss and refine it to remove as much undesirable components from it while keeping desirable characteristics as much as possible. In this lecture, various unit operations involved in extracting, refining and prodessing oils will be discussed using soybean oil as an example, and important deviations that are unique to other oilseeds will then be pointed out. As appropriate, the possible effects of oil extraction, refining and processing on nutrition and health concerns will be highlighted.