

An Investigation of Extraction and Specification of Lecithin from Different Soybean Varieties

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Vegetable oils contain a little amount of phospholipids or phosphatides and in soybean oil compared with other oils usually more phosphatides exists. In the oil refining process , phosphatides exert adverse effects on the quantity and quality of the oil and their presence in the oil distributed in supermarkets could also create undesirable effects during consumption. If, however, phosphatides are extracted properly from the oil, they could have valuable applications such as emulsification in many food systems. Five varieties of soybean cultivated in Iran (Sahar, Williams, Gorgan, Simes and Hill) were selected for this investigation. Hexane could be used to extract oil and phosphatides but the output of the extracted phosphatides is low. This is due to the polar nature of phosphatides which does not allow these compounds to be completely dissolved in a non-polar solvent like hexane. In fact, the proper solvent for this purpose is a mixture of chloroform and methanol, but such a solvent is expensive and its recovery is costly as well. Thus, a kind of hexane, containing some polar compounds and manufactured in Iran was used for the extraction of oil. With this solvent and relatively severe conditions for the extraction, the amount of the extracted phosphatides increased to 1.72% . Considering that the phosphatides' constituents could affect the process of their separation from the oil and also their functional characteristics, the amounts of individual phosphatides from each varieties were determined. The results indicated statistical significant difference among different varieties ($P < 0.05$). Although, for fatty acid composition, relatively considerable difference was observed among oils from different varieties, this difference was less on the fatty acid composition of their phosphatides.

Key words: Soybean variety, Oil, Phosphatides, Extraction, Lecithin

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