

DEEP FRYING QUALITY OF HIGH-OLEIC SUNFLOWER OIL

Buket AŞKIN¹, Orhan Onur AŞKIN¹, Yalçın KAYA²

¹ *Kırklareli University, TURKEY*

² *Trakya University, TURKEY*

erbbuket@gmail.com

ABSTRACT

Sunflower has high content and high quality oil is an important oil plant in all over the World. Sunflower oil has some differences for storage, consumption and industrial quality depending on fatty acid composition. In Turkey, linoleic type sunflower is usually cultivated and also used for industrial purposes. High-linoleic (omega 6) acid content increases to the nutritional quality for sunflower oil. However, this adversely affects to the industrial quality of high-linoleic sunflower because of high oxidative stability. Besides, high-oleic sunflower oil allows higher industrial quality and wide range of uses. Therefore, recent studies deal with breeding the high-oleic sunflower varieties and give to the industry. Frying is a major industrial uses for plant oils. It has critical importance from higher temperature than direct consumption. While polyunsaturated fatty acids (PUFA) are desirable in salads, PUFA is not wanted in frying oils. Therefore, all of the frying oils are originated vegetable have reduced the amount of PUFA through hydrogenation and/or interesterification after refining and hence frying oils have enhanced oxidative stability. Especially high oleic sunflower oil obtained by plant breeding programs, all vegetable oils have reduced content of PUFA is suitable source for frying. This is so important for our country has a very crucial position in sunflower production. Frying is the most preferred method for food cooking and preparing for last 50 years. Deep frying process has 20-200 mm oil height, 5-10 minutes processing time and fried oil is reusable. Firstly, oil is preheated to 150-180 °C for frying process. When the food contact to the oil, surface temperature reaches to the oil temperature rapidly. However, the inner part of food remains between 80-100 °C. Degradation products with hundreds of dissimilar structures occurred with different reactions via varied mechanisms and under varied temperatures. However, all of the degradation products are polar character and deep frying process is often used in fast food restaurants. These oils are subject to chemical and physical changes after 10-12 hours frying. Fried food consumption frequently and continuously increases the risk of cancer and cardiovascular and gastrointestinal diseases. The properties of the oil used in frying process are the biggest factor in the emergence of these risks. If the frying oil contains high amounts of PUFA, the resulting risks are that much bigger. Therefore, the use of high oleic oils for frying are recently encouraged. Modified sunflower seeds have a reduced linoleic acid and increased oleic acid content. Thus high oleic sunflower oil has both higher oxidative stability and positive effects on health. Therefore the aim of our work, to determine the thermal stability of high oleic sunflower oil (omega 9) and to compare with the linoleic sunflower oil (omega 6) and refined olive oil which has also high oleic acid content.

Keywords: High oleic, linoleic, refined olive oil, thermal stability.