

## **Study on the content of active principles of some native plants with effect in making the stability and thermal resitance to fried sunflower oil**

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### **Abstract.**

In this paper, there have been studied some species of plants through phytochemical analysis (flavonoids,  $\beta$ -carotene, chlorophyll), for testing the antioxidant effect with usage in the food industry. The analyzed plants were harvested from the spontaneous flora of the Macin mountains (Luncavita forest) at a height 150 - 200m and from the Botanical Garden of Galati.(42 m height, landmark to The Black Sea).

There were analysed the flavonoids and polyphenolic compounds from some natural herbs of families: Alliaceae (*Allium ursinum*), Brassicaceae (*Alliaria petiolata*) and Urticaceae (*Urtica dioica*) as crude hydroalcoholic extracts. The content of phenolic compounds was determined colorimetrically with the Folin–Ciocalteu (FC) reagent and was expressed in gallic acid equivalents (GAE). The flavonoid contents was determined using a method based on the formation of complex flavonoid-aluminium and was expressed in quercetin equivalents (QE). Also there was analyzed the  $\beta$ -carotene and chlorophyll contents by spectrophotometric method. Finally we tested the thermal resistance of sunflower oil after the incorporation of three species of natural herbs (the aerial part of plants). By this treatment, we seek to preserve almost unchanged the oil quality during thermal treatment, by increasing the level of antioxidants from oil. For this study, four different frying temperatures i.e. 110, 150, 180 and 200°C were applied for 30 minutes to sunflower oil before and after addition of plants. We have also realized a kinetic study of samples stability in time at 110 °C.

**Key words:** heat treatment; PV; FFA ,polyphenols, flavonoids, carotenoids, chlorophyll,

### **Introduction**

In the last years much attention has been devoted to natural antioxidant and their association with health benefits (Arnous et al., 2001). Plants are potential sources of natural antioxidants. They are sources of various antioxidative compounds to counteract reactive oxygen species (ROS) in order to survive (Huda-Faujan et al. 2009). Phenolic compounds are responsible for major organoleptic characteristics of plant, particularly color and taste properties. They are also known as to contribute to the health benefits associated with consumption of diets high in fruits and vegetables or plant-derived beverages. Innumerable studies have been