F.5. THE IMPACT OF HAWTHORN (CRATAEGUS) LIPOPHILIC EXTRACT ON THE OXIDATIVE STABILITY OF VEGETABLE OILS

VIOLINA POPOVICI, RODICA STURZA, ALIONA GHENDOV-MOSANU

Technical University of Moldova, Department of Oenology and Chemistry, 168, Stefan cel Mare Str. Chisinau MD-2004, Republic of Moldova,

Abstract. A permanent concern of the modern food industry is to ensure an optimal self-life for food products. Vegetable oil has an important place in human nutrition, consumed as salads dressing, in cooking or frying. Lipid peroxidation leads to the formation of lipid peroxidation products that leads to undesirable changes in sensory, chemical and nutritional characteristics of oils. Oxidative stability of oils is the resistance to oxidation during processing and storage and is an important indicator to determine oil quality. One of the easiest way to reduce lipid peroxidation is to use antioxidants. Local berries, herbs and spices are among the numerous sources of natural antioxidants. In this study were analyzed the antioxidant capacity of hawthorn berries which are rich in polyphenols, bioflavonoids, antioxidants, vitamins, tannins and organic acids etc. Hawthorn fruits were dried and ground into a thin powder before extraction. Powdered samples were extracted by shaking using deodorized sunflower oil and they were filtered. The high antioxidant capacity of the hawthorn lipophilic extracts was confirmed by the evaluation of the amount of bioactive compounds namely: lycopene 9.47 mg/L; Zeaxanthin 8.24 mg/L; β-carotene 10.55 mg/L. In order to evaluate the oxidative stability, samples of vegetable oils were enriched with hawthorn lipophilic extracts and the main quality parameters were measured weekly for a period of 3 months. The acid value for enriched samples varied in time between 0.02…0.5 mg KOH/g, the results being lower compared to the blank samples (0.04…0.7 mg KOH/g) which indicate the decrease of the oxidative degradation. The peroxide value results for the enriched samples varied in time between 3.3…6.0 mechiv O_2/kg. In comparison with the

peroxide values of blank samples (3.7…7.0 mechiv O_2/kg) it is demonstrated the antioxidant capacity of the hawthorn lipophilic extracts which slow down the peroxidation process of vegetable oils. This research demonstrates the possibility to use hawthorn lipophilic extracts in the high lipid content food products production. An important fact is the possibility to use natural antioxidants obtained from local berries in order to substitute the synthetic additives. Food products enriched with natural additives will ensure consumption of safe and healthy products with longer shelf life.

Keywords: hawthorn, antioxidants, oxidative stability, oxidation