

## INVESTIGATION OF CONTENT OF PRIMARY AND SECONDARY OXIDATION PRODUCTS IN SUNFLOWER OILS WITH A DIFFERENT CONTENT OF OLEIC ACID

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### Abstract

Oxidative stability, *i.e.* shelf life of oil is related to the degree of the oxidative changes in the amount of the resulting primary and secondary oxidation products of unsaturated fatty acids. In order to improve oxidative stability, *i.e.* oil shelf life, sunflower hybrids with altered fatty acid composition have been created, *i.e.* significantly higher oleic acid (C18:1) content, even over 90% w/w, relative to the linoleic type with 25-30% w/w of oleic and 60-65% w/w of linoleic acid (C18:2). In order to examine the oxidative stability of the oil, three samples of sunflower seed oil NS hybrids (NS Oliva, NS Horizont and NS Romeo) of different fatty acid composition were analyzed. Samples were exposed to moderate temperatures ( $63\pm 2^\circ\text{C}$ ) over a period of 8 days. Changes in the content of primary and secondary oxidation products based on changes in peroxide (PV) and anisidine (*p*-AnV) values, as well as changes in the content of conjugated dienes and trienes, were observed. The highest oxidative stability was observed in the oleic type oil sample. In this sample the determined values of the tested parameters of oxidative stability, after 8 days, were PV=4.85 mmol/kg and *p*-AnV=0.65, compared to the initial sample (PV=0.36 mmol/kg and *p*-AnV=0.57). The greatest oxidative changes occurred in the oil sample with the lowest content of oleic and the highest content of linoleic acid, as indicated by the PV=73.22 mmol/kg and *p*-AnV=3.60, after 8 days, in relation to PV=2.16 mmol/kg and *p*-AnV=0.50 in the initial linoleic type oil sample.

**Keywords:** *Sunflower oil, primary and secondary oxidation products, oleic acid, peroxide value, conjugated dienes.*