Thus, according to 4 years research results, we assume that the presence of micro-infection on oil flax seeds reduces their biological properties.

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LIPID COMPOSITION OF *ZEA MAYS* L. ROOT PLASMALEMMA IS INFLUENCED BY WATER DEFICIT

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Drought leading to water stress in plants is a major problem in reducing agricultural productivity especially in tropical, semi-arid and arid regions of the world. In order to cope with drought, plants have developed different protective mechanisms, in particular, morphological and cell structure changes as well as regulation of membrane permeability. Functioning of membrane proteins are influenced by the lipid bilayer, in which they are either embedded or bound at the surface. For this reason, a knowledge of the lipid composition of membranes in plant cells is important. The aim of the present study was to examine lipid content in plasma membrane fractions isolated from roots of two *Z. mays* varieties: drought-resistant “Dostatok” and non-resistant “Pereyaslavskiy” and to determine lipid changes under dehydration.

Experimental plants were grown in containers on a sand substrate for 21-22 days under 70% relative field capacity for plants (control) and 30% (experimental water deficit). The microsomal fractions enriched by plasmalemma were obtained from maize roots by two-phase aqueous polymer technique. Lipids were extracted from plasmalemma and their composition analyzed by reversed-phase high performance liquid chromatography.

Maize membrane lipids are mainly phosphor-, glycolipids and sterols, the ratio of them is different in two varieties. Water deficit causes the increase of sterol proportion in plasmalemma fractions:for 32.6% of total lipids for “Dostatok” and for 27.5% of total lipids for “Pereyaslavskiy”. This indicates to stabilization of the membrane under water deficit via decreasing its fluidity that is resulted from limitations of ion transport. In both varieties, water deficit led to decrease of total amount of glycolipids. This phenomenon occurs due to the inhibition of cell signaling function. The major phospholipids are presented by phosphatidylcholine (PC), phosphatidylethanolamine (PE), phosphatidylinositol (PI) and phosphatidylglycerol (PG). Dehydration caused a sharp decrease in major phospholipids.

The predominant saturated fatty acid lipids of both varieties were palmitic (C16: 0) acid. In drought-resistant varieties “Dostatok” its amount was higher. One can also note the low content of stearic acid (C18: 0) in two varieties. Unsaturated fatty acids were represented by oleic (C18: 1), linoleic (C18: 2) and linoleic (C18: 3) acids. Linoleic acid content was almost identical in both varietes and did not undergo changes under water deficit. The preferred unsaturated fatty acid was linoleic acid. In both varieties significant changes in composition of unsaturated and fatty acids we were found under water shortage. Under water deficit total proportion of unsaturated fatty acids in “Pereyaslavskiy” variety increases and the variety“Dostatok” is reduces.

Referring to our results, “Dostatok” variety is proved to be more adaptive to water deficit. Changes in the lipid composition are important for plant adaptation the drought. Adaptive mechanisms depended on stress intensity and stabilization of membrane composition is aimed to protect cells against harsh environment.