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SPECIFIC FEATURES OF THE ULTRASTRUCTURE AND BIOCHEMICAL COMPOSITION
OF LEAF MESOPHYLL CELLS OF *TRITICUM SPELTA* L.
IN THE INITIAL PERIOD OF STRESS TEMPERATURE ACTION

L. M. Babenko,^{1,*} M. V. Vodka,¹ Yu. N. Akimov,¹ A. E. Smirnov,² A. V. Babenko,¹ I. V. Kosakovskaya¹

¹ M. G. Kholodny Institute of Botany of the National Academy of Sciences of Ukraine, Kiev, and

² Educational and Scientific Center «Institute of Biology and Medicine»
of Taras Shevchenko National University of Kiev, Kiev, Ukraine;

* e-mail: lilia.babenko@gmail.com

Effects of high (40 °C, 2 h) and positive low (4 °C, 2 ч) temperatures on the ultrastructure of leaf mesophyll cells, content of photosynthetic pigments, phenols and flavonoids were studied under controlled conditions in two-week-old plants of *Triticum spelta*. The ultrastructure of leaf mesophyll cells in the control sample was typical: in chloroplasts of a regular lens shape there was clearly observed a well-developed thylakoid system submerged in a fine-grained stroma. A short-term hyperthermia caused a partial destruction of thylakoid membranes. Wave-like packing of gran thylakoids, considerable expansion of luminal gaps, disturbance of structural connections between gran and stroma thylakoids were observed. Under hyperthermia conditions mitochondria noticeably «swelled up» while crista membranes became not more contrast. The number of lipid drops in cell cytoplasm increased. The leaf content of chlorophyll, carotenoids decreased but the total content of phenols and flavonoids increased. A short-term hypothermia resulted in an intensive plastoglobule production, increase in the number and size of starch grains. No thylakoid membrane destruction occurred. Some of the mitochondria was rounded (40 %), their size was close to the control ones, organelles were lens-shape, «dumbbell» and «cup-like». Under conditions of hyper- and hypothermia, mesophyll cells of *T. Spelta* leaves were characterized by some increase in the degree of chromatin condensation in the nucleus. Under hypothermia, the content and ratio of chlorophylls and carotenoids in leaves did not practically differ from those of controls, no significant quantitative changes in the total phenol and flavonoid content occurred.

Key words: *Triticum spelta*, temperature stress, chloroplasts, mitochondria, plastoglobulins, lipid droplets, phenols, pigments