

INVESTIGATION OF STRESS FACTORS INFLUENCE ON PHOTOSYNTHESIS PROCESS OF MISCANTHUS X GIGANTEUS PLANTS

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Miscanthus x giganteus is the second-generation biofuel crop, which can be used for phytostabilization of the military contaminated lands and biomass production on the former military sites. To monitor the state of plants was used biophysical method of chlorophyll fluorescence induction by measuring of the photochemical activity of Miscanthus x giganteus leaves.

The features of the chlorophyll fluorescence induction depend on the state of the whole photosynthesis system and reflect the kinetics of passing of all links in the biochemical chain of photosynthesis. The time dependence of the chlorophyll fluorescence intensity has a characteristic appearance that graphically reflects the Kautsky effect (Fig. 1).

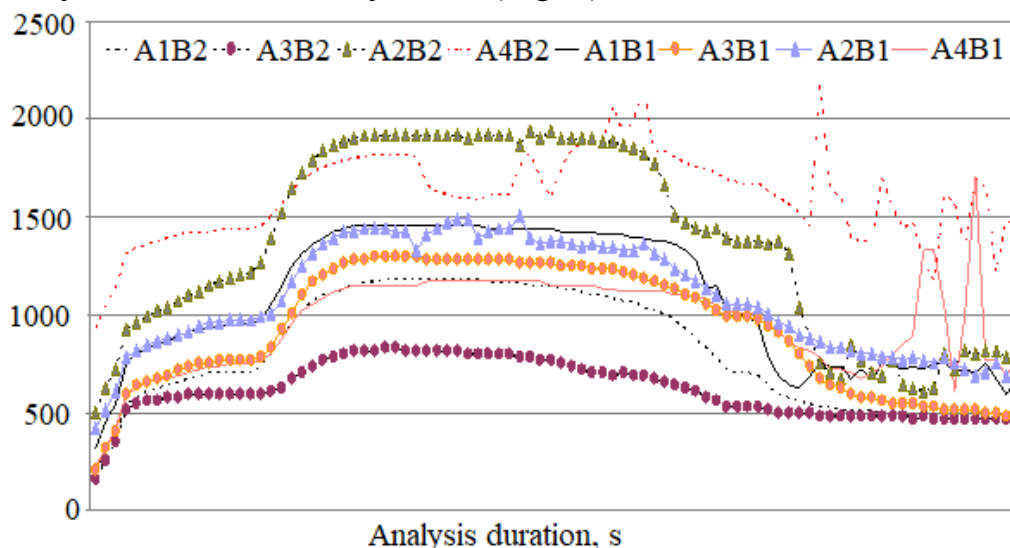


Fig. 1. The time dependencies of the chlorophyll fluorescence intensity under different stress factors.

Changes in any link causes a change in the shape of the curve, which makes it possible to diagnose the status of the photosynthetic apparatus of plants for the influence of stress factors. Since the main abiotic factors in the experiment – temperature, humidity, lighting, mineral nutrition was the same for all variants, the contamination of the lower part by heavy metals remained the main one, which could change a traditional chlorophyll fluorescence for different phases of development of Miscanthus x giganteus plants.

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