



Natural background and the stress reaction of natural biosystems

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The experiment was carried out to get information about the changes in the O₂ production during the vegetative period from meadow grasses, water plants, conifers trees, leaf-bearing trees and agricultural plants (*Betula pendula* Roth., *Tilia platyphyllos* Scop., *Solidago Canadensis*, *Galium palustre* L., *Pinus sylvestris* L., *Secale cereale* L.). The work was lead in 2006 (May - November), in the area of Berlin -Strausberg, Germany (latitude 52⁰34 N, longitude 13⁰ 53E).

The following requirements were realizing: the constant object and area of supervision. The reaction of plants, meteorological information were changing. The parameters of measurement were kept constant – light, quantity of material under investigation. To collect data the measurement system “Plant Vital 5000” was used. The O₂ sensor of electrochemical a Clark type. The oxygen concentration in the target (small disc of leaf) in the dark and under illumination is recorded and can be described by 10 parameters.

In a course of the works the cases of a fire from the northern part of the birch and the reaction to a damage of *Cercospora microsora* to the linden were fixed. The works allowed to create models of changes in oxygen production plants, which are determined by natural and stress factors.

The results of this research can be adopted in the modelling of process of oxygen dynamics and stress reactions of plants. Oxygen is very important element for life on the Earth, it has photosynthetic origin. Photosynthesis keeps the O₂ concentration

constant in the atmosphere, in the ocean. Oxygen takes part in the forming of ozone layer of molecules of water and carbon dioxide participating in the hothouse effect.