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Photoinhibition of Photosystem II In Vivo During Greening of the Wheat Seedlings

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Abstract: The photoinhibition of photosystem II in vivo by analysis of diverse components -initial rate, steady state rate and lag phase-of photosynthetic O₂ evolution curves on greening wheat seedlings after illumination by excess white light (320 W/m²) was investigated. A sharp reduction in the initial and steady state rates and a simultaneous intense rise in the lag phase of O₂ evolution were observed under the illumination of seedlings by excess light on the lag phase of chlorophyll a biosynthesis (less than 6 h of seedling greening) in comparison with the illumination of seedlings by excess light at the stage of substantial pigment synthesis (> 6 h of seedling greening). It is assumed that photosystem II proteins not completely integrated in thylakoid membranes as chlorophyll-protein complexes of reaction centres at the early stage of wheat seedling greening were more susceptible to excess light.

Key Words: Wheat seedlings, O₂ evolution, photoinhibition, photosystem II

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