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The Effect of Glycinebetaine on the Heat Stability of Photosynthetic Reactions in Thylakoid Membranes

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Abstract: Heat inactivation of various photosynthetic electron transport reactions were investigated in the presence/absence of glycinebetaine (betaine) in unstacked thylakoid membranes from spinach. The activity of Photosystem II (PS II) is more sensitive to heat than that of Cytochrome bf (cyt.bf) and Photosytem I (PS I) complexes. The data obtained clearly demonstrated the protection of PS II and PS I electron transfer by betaine under high temperatures. The phenomena observed are probably related to the stabilization of the higher-order structures of PS II and PS I by betaine.

Key Words: Electron transport, heat stress, glycinebetaine.

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