E206 Effect of Dehydration on Photochemical Efficiences in *P. tenera.*

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The photosynthetic apparatus in *P. tenera* is quite resistant to dehydration, even in the darkness. Light greatly enhanced the sensitive of photosynthetic apparatus to photoinhibition. In the experimental conditions, relative water content (RWC) decreased very fast during drying of thalluses in the air at room temperature. The Fv/Fm decreased differentially in light and dark dehydration by increasing Fo from 2 to 4 fold. The rise in Fo was observed from the first hour of dehydration. Concomitantly with a rise in Fo, the clear differences was found in the qN, electron transport rate and the xanthophyll zeaxanthin between light and dark dehydration. During dehydration in the darkness, neither the xanthophyll nor lutein changed compare with non-dehydrated thalluses (control). The recovery of photochemical efficiency after 3hr or 24hr of rapid dehydration occurs in the light and the darkness. But the light is necessary condition for completely recovery of photochemical efficiency. Kinetics of recovery include biphase. The dark recovery process was inhibited by phosphatase inhibitors (NaF, iodosobenzoate and iodoacetate). The fast phase of recovery following light dehydration and epoxidation of zeaxanthin via the xanthophyll cycle were inhibited by the presence of dithiothreitol which prevented formation of zeaxanthin relative to control. These results indicate that a zeaxanthin-associated mechanism of photoprotection exists in thalluses of *P.tenera* that may help to prevent photoinhibitory damage in the fully hydrated state and may play an additional role in protecting PS II against photodamage.

E207 Subcelluar Localization of 1-Aminocyclopropane-1-Carboxylate Oxidase in Mung bean Hypocotyls

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The subcellular localization of the ACC oixdase was studied in mung bean hypocotyls, by using cell fractionation technique, followed by marker enzyme test and immunoblot analysis with antibody raised against a recombinant mung bean ACC oxidase expressed in *E. coli.* Differential centrifugation indicated that ACC oxidase was mainly associated with the soluble fractions of the homogenate from mung bean hypocotyls. Significant *in vivo* ACC oxdase activity was also identified in the protoplast isolated from mungbean hypocotyls. Extracellular protein from the hypocotyls and vacuoles from the protoplast are now being prepared to confirm the exact localization of the ACC oxidase in mung bean hypocotyls. (This work was supported by a grant from KOSEF (HRC Project 96-03-01) to W.T. K.)