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High irradiance effects on the turnover of photosystem II particle polypeptides in Chrysanthemum under conditions of salt and free radical (·OH)

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Objectives

To determine the high irradiance effects on the turnover of photosystem (PS) II polypeptides in Chrysanthemum under conditions of salt and free radical (·OH)

Materials and methods

1) Plant materials: Chrysanthemum (*Dendrothema grandiflourm*)
2) Methods: Chrysanthemum shoots were cultured in vitro on solid (1.1% agar) MS medium. Isolation, purification, SDS-urea-PAGE and Western blotting of PS II particle polypeptides were conducted under above salt and free radical (·OH))

Result and Discussion

High irradiance (HI) caused damage to PS II particle polypeptides, called photoinhibition. SDS/urea-PAGE of the isolated PS II particle polypeptides indicated the HI-induced turnover of PSII particle polypeptides. Also, salt (NaCl) and free radical (·OH) effects indicated the degradation of D1polypeptide and removal of oxygen evolving complexes among the polypeptides. SDS-PAGE profiles indicated that expression of some proteins (photosynthetic enzymes) decreased while other proteins (heat shock and/antioxidant proteins) were increased. Western blotting for these polypeptides is in progress The HI-induced changes in the contents of protein and photosynthetic pigments were discussed.

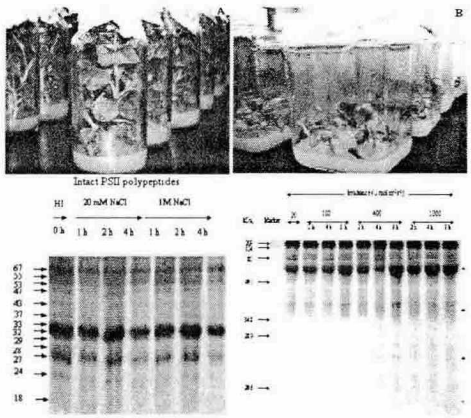

Fig. A) Chrysanthemum shoots that were cultured for 30 days under normal light (20 μmol m^{-2} s^{-1}) condition. B) Chrysanthemum shoots that were sub-cultured for 3 days, and after 30 days of culture under normal light these plantlets were used for photoinhibition experiment by illuminating with high irradiance (1000 μmol m^{-2} s^{-1}) C) SDS-urea-PAGE profile showing NaCl effects on the PSII polypeptides that were isolated from HI-illuminated leaves. D) SDS-PAGE profile showing HI effect of on the modulation of the soluble polypeptides.

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