

E202

Effect of Chilling Stress on Photosynthesis in Cucumber

전성수, 이진범

동의대학교 자연대학 생물학과

The effect of chilling stress on photosynthesis of cucumber was studied. After treating whole plants at 4°C for variable time, the photosynthetic activity was monitored, using leaf discs, by the simultaneous measurement of O₂ evolution and fluorescence. Photosynthesis was greatly reduced after chilling for 4 hr in light (50 μmol/m²/sec) or for 24 hr in the dark. To identify affected sites by chilling stress, isolated chloroplasts were obtained from chilled (4 hr in light or 24 hr in the dark) plants. Chloroplasts isolated from chilled plants had lower photosynthetic activity than those from control plants, when measured by CO₂ fixation or O₂ evolution, indicating that photosynthetic apparatus was harmed. Results with reconstituted chloroplasts showed that thylakoids isolated from light-chilled plants were damaged while thylakoids from dark-chilled plants were not. In addition, NADP reduction was decreased by more than 50% in thylakoids from light-chilled plants, indicating electron transport chain has been harmed by chilling treatment in the light. However, NADP reduction was not affected by dark-chilling.

E203The Levels of Taxol and Related Taxanes in the Korean Native Yews (*Taxus cuspidata*)최명석, 곽상수*, 고경수¹, 박용구², 유장렬KIST 유전공학연구소 생물자원연구그룹, ¹한국신약, ²경북대학교 임학과

The levels of taxol, the most promising chemotherapeutic agent for ovarian cancer, and related compounds in the bark and needle of *Taxus cuspidata* grown in Mt. Jiri (J), Mt. Soback (S) and Cheju Island (C), and *T. cuspidata* var. *latifolia* in Ullung Island (U) were determined by HPLC. The taxol in the needle was confirmed by electrospray MS. The taxane content significantly varied with the location and plant part. The average taxol content in the bark of J and S was comparable to that (0.02%) of Pacific yew (*T. brevifolia*) reported, whereas that of C and U was markedly at a lower level. Surprisingly, the needle of native yews in C and U contained a much higher level of taxol, 0.022% and 0.017% on the basis of dry wt, respectively than that of J and S. Particularly, the needle of trees grown in the coastal region contained much higher level of taxol than that in mountain locations even within C and U, indicating that the taxane level is affected by environmental factors. These results suggest that the needle of natural yew habitats in C and U may be used for a rich and renewable source of taxol.