E229 Molecular characterization of LHCII components of Chlamydomonas reinhardtii

Kab-Cho Han and Jin_Sik Lee
Dept. of Life Science, UIDUK University

We isolated and sequenced a cDNA clone encoding a minor chlorophyll a/b-binding protein, CP26, which is associated with the light-harveting chomplex II of *Chlamydomonas reinhardtii*. Protein sequences of internal peptide fragments from purified CP26 were determined and used to identify a cDNA clone. THe 1.1 kb *lhcb5* gene codes for a polypeptide of 289 amino acids with a predicted molecular weight of 30713. The *lhcb5* gene product could reconstitute with chlorophylls and xanthophylls to form a green band on a gel. Although the expression of many *lhcb* genes are strictly regulated by light, the *lhcb5* gene was only loosely regulated. We propose that a plant acclimatize itself to the light environment by quantitatively modulating the light-harvesting complex. Characterization of the primary structure and the implications of its unique expression are discussed.

E230 Influence of Cadmium on Growth, and Photosynthetic Pigments and Enzyme in Tobacco

Hiw Seung Chin* and Kwang Soo Roh
Department of Biology, Keimyung University

Cadmium is one of the major pollutants emanating in natural and agricultural environments from industrial and municipal wastes, sewage sludge, and combustion of fossil fuels. Cd of high concentration is recognized as one of the most phytotoxic heavy-metal contaminants. Although not essential for plant growth, this metal is readily taken up by roots and translocated into aerial organs where it can accumulate to high levels. This investigation was performed to study the influence of Cd on growth and, photosynthetic pigments and enzyme in tobacco leaves. The objectives of this study were (i) to determin the effects of Cd on the growth; (ii) to determine the effects of Cd on chlorophyll; and (iii) to determine the effect of Cd on rubisco by analyzing the peptides profiles using SDS-PAGE, by measuring its activity using an ATP dependent hydrolysis assay, and by determining the content of rubisco by spectrophotometric assay.

E231 Isolation and Characterization of cDNAs encoding -Carotene Hydroxylase in Citrus

In-Jung Kim[1]*, Kyong-Cheol Ko[2], Chan-Shick Kim[2] and Won-Il Chung[1]
[1]Department of Biological Sciences, Korea Advanced Institute of Science and Technology; [2]Faculty of Horticultural Life Science, Cheju National University

Citrus (*Citrus unshiu*Marc.) contains high contents (0.45-5.26 mg%) of -cryptoxanthin. cDNA clones (CHX1 and CHX2) encoding b-carotene hydroxylase (Chx) were isolated from Citrus fruit and leaf cDNA libraries. Sequence analyses indicated that the clones show polymorphism and that cDNA contains an open reading frame encoding 311 amino acids (34 kDa). Phylogenetic dendrogram suggested the evolutionary link among the fruit-producing plants. RNA blot analysis showed that its expression is ubiquitous in three tissues examined-fruits, leaves, and flowers-and that it is detected as a single band. Also, during the development of fruits and leaves, the expression of CHX1 and CHX2 transcripts was consistent in all stages, which indicated that CHX1 and CHX2 genes is not regulated during fruit ripening at the transcriptional level and revealed that its expression vary with plant species, even having same type of fruit. Our results suggest that the expression of Chx at the transcriptional level does not contribute to the changes of carotenoids biosynthesis in ripening fruit of citrus.