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Cyanobacterium *Synechocystis* 6803 Photosystem I Mutants

김수현*, 정영호, 최종순, 박영록, Lawrence Bogorad[1]
기초과학지원센터 생체고분자분석그룹,
Dept. Cell and Developmental Biology, Harvard Univ.[1] U.S.A.

To study structure of photosystem I (PSI), *Synechocystis* 6803 (S.6803) *psaB* gene was cartrige-mutagenized by transforming wild type S.6803 with *Synechococcus* 7002 *psaB* gene interrupted by inserting chloramphenicol (Cm) acetyl transferase gene. Several Cm resistant mutants without photosynthetic activity were isolated. All of the mutants showed PSI$^-$ activity by low temperature fluorescence spectroscopy analysis and electron transport assay. Interestingly, some of the mutants showed colors different from wild type blue-green color. Analysis of these mutants indicates they have less amount of chlorophyll, while carotenoids are approximately same as wild type. In order to find out the location of mutantion site(s), western blot hybridization was performed. Western blot analyses showed that at least one subunit of PSI reaction center was altered in these mutant strains. Further investigation to locate the site(s) of the mutations and the causes of the altered photosynthetic activity in these mutants are currently in progress.

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Biochemical Characteristics of *Ustilago maydis* SH-14 Virus Isolated in Korea.

황선희, 정청환*, 이세원
강원대학교 자연대학 미생물학과

A novel killer strain of *Ustilago maydis* was isolated in Korea, designated SH-14. It has been reported that the toxin specificity and double-stranded RNA pattern of SH-14 strain were different from other laboratory strains (P1, P4 and P6). In this report, we analyzed the biochemical characteristics of *U. maydis* SH-14 virus (UmV). Three distinctive peaks from CsCl density gradient was designated top(T), intermediate(I) and bottom(B) components and the density of each components was 1.285, 1.378 and 1.408 g/ml, respectively. The analysis of dsRNA in each component showed that dsRNA segments are separately encapsidated. Capsid protein of SH-14 virus consists of two proteins with molecular weight of about 70 Kd. Electron microscopic examination of the virus particles revealed that UmV particles about 40 nm in diameter, which are very similar in the size and morphorlogy to all isolates as well as laboratory strains. All capsid protein showed positive reaction against A8 antibody which may indicate that UmV is immunologically cross-reactive. The results presented in this report may indicate that UmV isolated from SH-14 strain has very similar biochemical characteristics to those of other UmV.