The effective hydrogen production by light intensity control using green alga *Chlamydomonas reinhardtii* under the sulfur deprived system

김준표, 심상준*, 김미선[1], 박태현[2]
성균관대학교; [1]한국에너지기술연구소; [2]서울대학교
(simsj@skku.edu*)

The green algal *Chlamydomonas reinhardtii* under the sulfur deprived condition is to stop water splitting, which is mediated by photosystem Ⅱ (PSⅡ) breakdown in the light. The rate of oxygen evolution drops below the rate of respiratory oxygen uptake, and the environment of algal culture is converted from aerobic to anaerobic condition. The prompt conversion to anaerobic condition causes activation of the hydrogenase and hydrogen production by the activated hydrogenase subsequently. We assumed that the photosynthetic capacity for hydrogen production would differ according to light intensity. Accordingly, we investigated the relationships between hydrogen production, induction time of sulfur deprivation, the uptake rate of residual sulfate and residual PSⅡ activity depending on light intensity.