

## Inactivation of Algae Blooms in Eutrophic Water of Drinking Water Supplies with the Photocatalysis of TiO<sub>2</sub> Thin Film on Hollow Glass Beads

김성진<sup>1</sup>, 김태한<sup>1</sup>, 김돌선<sup>1,2</sup>, 이동근<sup>1,2,\*</sup>

<sup>1</sup>경상대학교 생명화학공학과;

<sup>2</sup>BK21 핵심환경기술전문인력양성사업팀

(d-kllee@gsnu.ac.kr\*)

Photocatalytic inactivation of algae, *Anabaena*, *Microcystis*, and *Melosira*, was carried out with the TiO<sub>2</sub>-coated pyrex hollow glass beads under the illumination of UV light (370nm wavelength). After being irradiated with UV light in the presence of the TiO<sub>2</sub>-coated pyrex glass beads, *Anabaena* and *Microcystis*, known as typical cyanobacteria, lost their photosynthetic activity, and the string of *Anabaena* cells and the colonies of *Microcystis* cells were completely separated into individual spherical one. In the case of *Melosira* which is a typical diatom, however, somewhat lower photocatalytic inactivation efficiency was obtained, which was believed to be due to the presence of the inorganic siliceous wall surrounding the cells of *Melosira*. The TiO<sub>2</sub>-coated hollow glass beads could successfully be employed for the practical application at the eutrophicated river under sunlight. More than 50% of the chlorophyll-a concentration could be reduced by the action of TiO<sub>2</sub> photocatalysis.