A b s t r a c t

T i t l e	Microorganisms responsible for the production of 2,4,6-trichloroanisole (an odorous compound) in activated sludge
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〔summary〕

Musty and earthy odor of biologically treated wastewater is one of the barriers for wastewater reclamation and reuse. The production of 2,4,6-trichloroanisole (2,4,6-TCA) in wastewater treatment processes is still unknown, although the importance of the compound is widely known in food production industries as a causative compound for musty odor. This study focusses on the microorganisms responsible for the production of 2,4,6-TCA.

Effect of pH on the production of 2,4,6-TCA by the addition of 2,4,6-trichlorophenol (2,4,6-TCP) to treated wastewater at a concentration of 1 μg/L was investigated. The concentrations of 2,4,6-TCA and 2,4,6-TCP were measured by a headspace-SPME method followed by instrumental analysis by GC/MS. A higher production of 2,4,6-TCA in an acidic condition suggested that fungi rather than bacteria played an important role in the production of 2,4,6-TCA in the activated sludge.

Fungal strains were isolated from wastewater samples by CP-agar plates. The consumption of 2,4,6-TCP, the production of 2,4,6-TCA and microscopic observation were carried out for the isolated strains. The isolated strains were categorized into 2,4,6-TCA producing strains (21 strains), 2,4,6-TCP degrading (without producing 2,4,6-TCA) strains (4 strains) and 2,4,6-TCP non-degraders (30 strains). Most 2,4,6-TCA producers had a structures of conidium or filamentous shape.

The result of sequencing ITS region of the fungal rRNA genes showed that the 2,4,6-TCA producers included *Trichoderma sp*., which had been focused as a causative microorganism for musty odor in wine production industries, *Apiotrichum sp*., *Exophiala sp*., *Coniochaeta sp*., although 2,4,6-TCP degrader (with no 2,4,6-TCA production) included *Fusarium sp*. in their community. One strain (2,4,6-TCP non degrader) was identified as *Coniochaeta sp*.

注１：英語要旨―３００ワード程度。