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[\[PDF \(587K\)\]](#) [\[References\]](#)**Effect of porous photocatalyst reactor on decomposition of organic matter and nitrification of ammonia in sewage**[Satoshi INAGAKI](#)¹⁾, [Taro HIRASAWA](#)²⁾, [Yoshihisa ITO](#)³⁾ and [Hisayoshi TERAI](#)⁴⁾

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Abstract

A system for sewage water treatment in a primary sedimentation pond was investigated using a reactor tank equipped with cylindrical reactors which had porous photocatalyst coated with TiO₂ around an ultraviolet lamp. Nitrifying bacteria were inoculated into the reaction tank, and then the time course of POC, DOC, ammonium (NH₄⁺), nitrite (NO₂⁻), and nitrate (NO₃⁻) concentrations in the sewage were observed. The results indicated that the porous photocatalyst exerted the effects on the capture of POC and the absorption and decomposition of DOC. In the reactor tank NH₄⁺ is nitrified to NO₃⁻, which revealed that nitrifying bacteria were active at the inside and/or outside of the cylindrical photocatalyst reactor in spite of ultraviolet radiation. It was also revealed that the porous photocatalyst stimulated ammonium nitrification. By doubling the number of cylindrical photocatalyst reactors in the reaction tank, the nitrification rate was increased, although the POC and DOC were not very affected by the number of reactors.

Key Words: [porous photocatalyst](#), [sewage processing](#), [organic matter decomposition](#), [ammonium nitrification](#), [nitrifying bacteria](#)

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