

Removal of ammonium and nitrate from wastewater by bacteria and natural zeolite

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Water pollution by ammonium and nitrate is a common and growing problem in the ecosystem. Although natural zeolites are well known for its ability to preferentially remove ammonium ions, it is not sufficiently removing ammonium and nitrate by adsorption. In order to overcome this problem, a method of biological removal with zeolite is used for simultaneous removal of ammonium and nitrate.

Process of biological removal consists of nitrification and denitrification by bacteria. Ammonium is oxidized generally to nitrate by nitrification and nitrate is reduced to dinitrogen gas in the subsequent denitrification process.

In this study, the removal of ammonium and nitrate from synthetic wastewater was achieved by zeolite and mixed bacteria. To obtain the best removal efficiency, we performed a series of experiments by naturally adsorbed bacteria onto zeolite.

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