

## عنوان مقاله:

A comparison between different biological methods of nitrogen removal from wastewater

## محل انتشار:

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## خلاصه مقاله:

The conventional nitrogen removal process comprised of autotrophic nitrification and heterotrophic denitrification are often used for treating nitrogen in wastewater. Since the process requires significant energy and carbon source, more research has been directed toward development and application of a more economical process especially for wastewaters containing high nitrogen concentration such as anaerobic digestion sludge liquor. Several novel processes have been developed, among them the ANAMMOX (anaerobic ammonium oxidation) provide great promise for removal of nitrogen from high ammonium content wastewaters. The discovery of the versatility of aerobic ammonium oxidizer in denitrification also led to the development of new processes such as CANON (completely autotrophic nitrogen removal over nitrite), SHARON (single reactor system for high ammonia removal over nitrite process), OLAND (oxygen-limited autotrophic nitrification and denitrification) and NOX process. The combination of the different groups of nitrogen elimination microorganisms and the process optimization will provide better performance in nitrogen removal. These novel technologies currently meet a few challenges for the introduction and application in full-scale plant, but they have high promising future. In this paper, these different nitrogen removal methods have been reviewed and compared in many points of view such as production of undesirable by-products like  $N_2O$ , alkalinity and oxygen demand, organic carbon requirements, sludge production, performance and economical conditions.

## کلمات کلیدی:

Wastewater, Biological treatment, Nitrification, Denitrification, Nitrogen removal

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