Short Communication

Journal of Industrial and Environmental Chemistry

2021

Vol.5 No.1

Biological nutrient removal: the effect of organic load- Tea Širac - University of Zagreb

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Abstract

Biological nutrient removal (BNR) of nitrogen and phosphorus has been widely used in wastewater treatment practice to control eutrophication in receiving water bodies.

The most widely used nitrogen removal methods are biological nitrification (aerobic transformation of NH4-N to NO2-N and NO3-N), and denitrification methods (anoxic reduction of NO3-N to N2).

Simultaneous nitrification-denitrification process (SND), in compare to conventional biological nitrogen removal process, can offer several advantages including reducing carbon source and alkalinity consumption, low energy consumption, high nutrients removal efficiencies, and simplifying the treatment system.

P removal is achieved through enhanced biological phosphorus removal (EBPR) under alternating anaerobic–aerobic conditions.

Biological nutrient removal (N and P) in batch anoxic experiments was investigated. The initial concentration of P and N were 10-18 mg PO43—P/L and 48±2 mg NH4+-N/L. Sodium acetate was used as carbon source, at C/N 1 to C/N 7.

Results indicated that the increase of C/N ratio improved efficiency of N removal in a range from 14.3 % at C/N 1 to 89,7 % at C/N 7. And also, the highest P removal of 61% was achieved at C/N 4. Supplement expulsion was accomplished by synchronous nitrification and denitrification, and phosphorus evacuation.

Supplements are substances fundamental for development of people, plants, and creatures. Supplements are taken in by living beings and advance development. Carbon, nitrogen and phosphorous are fundamental supplements to most sea-going life forms.

Nitrogen and Phosphorous are the principle supplements of concern. A few offices have gotten a fixation or Mars limit for supplements and other will later on. The MPCA is creating water quality based effluents limits for water squander treatment plants that release upstream of healthy water. This will bring about more offices accepting severe profluent limits for supplements as new water bodies are examined and resolved to be debilitated. The MPCA is likewise growing new water quality measures as a feature of the triangle water quality guideline amendments. These modifications will incorporate eutrophication principles for stream frameworks that may require future nitrogen and phosphorus limits for point source releases. Evacuating extra nitrogen and phosphorus will be a reality for much wastewater treatment offices. Phosphorus and nitrogen can be expelled naturally by modifying conditions inside the wastewater treatment office; be that as it may, the procedures to evacuate both are not basic.

Phosphorous:

Ordinarily impact wastewater has an all-out prosperous focus from 5-9mg/L and is required in the waste stream for organic development and treatment. Wellsprings of Phosphorus incorporate human waste, overflow, manures, cleansers, food industry water conditioners and phosphoric corrosive.

Phosphorus is a component in every single living thing; anyway it is never found in essential structure and is entirely shaky. There are various kinds of phosphorus in wastewater that incorporate orthophosphate, polyphosphate and naturally conceived phosphates. Commonly in National contamination release end framework license subtleties with all out phosphorus a mix of various types.

Biography:

Tea has graduated from Faculty of Food Technology and Biotechnology at the University of Zagreb in 2016. She is a Master of Molecular Biotechnology. From 2017. she has been working at Faculty of Food Technology and Biotechnology as a Scientific Assistant in a Laboratory for the Biological Wastewater Treatment.