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**Subject:** Application of CANON process for nitrogen removal from the old municipal landfill leachate

**Abstract:**

CANON (Completely Autotrophic Nitrogen Removal Over Nitrite) process is combination of partial nitrification and Anammox process in the same reactor. In the CANON reactor, two groups of autotrophic bacteria including Ammonia Oxidizing Bacteria (AOB) and Anammox bacteria grow simultaneously. Almost of the previous studies on CANON reactor utilized sequencing batch mode, this study will aim to use continuous flow mode with air pulsing mode for the CANON reactor to remove nitrogen in leachate from the municipal landfill with high ammonium concentration up to 3500 - 4000 mg/L.

The experiment will be divided into two phases, AOB and Anammox biomass enrichment in the CANON reactor with the low ammonium concentration leachate (Phase 1) and operating the CANON reactor at different nitrogen loading rates (NLR) by step increasing of influent ammonium concentrations of 500, 1000, 2000 and by 4000 mgN/L.

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