



EFFECT OF COD/N RATIO AND pH ON NITRIFICATION IN A LABORATORY-SCALE CONSTRUCTED WETLANDS TREATING SEPTIC TANK WASTEWATER

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Abstract

The constructed wetlands (CWs) were operated to investigate the effect of influent COD/N ratio and the pH value on nitrification. With an influent concentration of $100 \text{ mg L}^{-1} \text{ NH}_4^+\text{-N}$, four COD/N ratios (i.e., 2, 4, 6 and 10) and six pH (i.e.: 7.5, 8.0 8.5 9.0 9.5 and 10) were tested. The results showed that the removal rate of ammonium-N decreased from 35.78% to 0.39% as COD/N ratio increased from 2 to 10. The removal rate of ammonium-N increased from 16.5% to 35.2% as the pH value increased from 7.5 to 9.5, while it dropped to 18.17% as the pH value reached 10.0. The optimal COD/N ratio of 2 and pH value of 8.5-9.0 were obtained for the removal of organic matter and ammonium-N in CWs.

Key words: COD/N ratio, constructed wetlands, nitrification, pH, septic tank, wastewater

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