

Wilailak Kraisomsart 2014: Efficiency of Nitrogen Treatment by Grass Filtration System with Short Root Plant of The King's Royally Initiated Laem Phak Bia Environmental Research and Development Project. Master of Science (Environmental Science), Major Field: Environmental Science, Department of Environmental Science. Thesis Advisor: Associate Professor Nipon Tungkananuruk, Ph.D. 107 pages.

Discharge of wastewater containing nitrogen can cause eutrophication that can in turn result in deterioration of water quality and damage the balance of organisms present in aquatic ecosystems. Therefore, this research was to study of nitrogen treatment in wastewater by grass filtration system with short root plant of The King's Royally Initiated Laem Phak Bia Environmental Research and Development Project. The removal efficiency of ammonia-nitrogen ($\text{NH}_3\text{-N}$), nitrate-nitrogen ($\text{NO}_3^-\text{-N}$), total Kjeldahl nitrogen and organic nitrogen were determined. Affecting factors of the weather period (wet and dry period), type of short root plants (African Star grass, Kalla grass and Dixie grass) and the distance of wastewater which passed through the each plant plot (0, 25, 50, 75 and 100 m.) were determined to the nitrogen removal efficiency. It was found that for wet and dry period, African Star grass had the highest removal efficiency at 82.14 and 80.00 % ammonia-nitrogen 60.00 and 80.00 % nitrate-nitrogen 86.62 and 83.46 % total Kjeldahl nitrogen and 86.77 and 83.57 % organic nitrogen respectively followed by Kalla grass and Dixie grass. Treated water from three studied factors containing nitrogen met the effluent quality standards for nitrogen. It was concluded that grass filtration system had sufficient efficiency for removal of nitrogen containing in domestic wastewater.

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