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Acta Medica Iranica
2009;47(4) : 41-46

Original Article

PERFORMANCE EVALUATION OF WASTEWATER STABILIZATION PONDS IN ARAK-IRAN

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Received: August 4,2008
Accept : December 15,2008
Available online: February 4,2009

Abstract:

Arak waste stabilization pond facilities consist of two stabilization pond systems, module 1 and module 2. The existing facilities have had several problems in their operation. The objectives of this research were to evaluate the performance of stabilization ponds in wastewater treatment of the city of Arak, because of several problems in their operation, and to prepare a scheme of its upgrading, if necessary. Within the period of May to September 2007, analyses were carried out for both raw and treated wastewaters. Results of these investigations showed that the average effluent concentrations of BOD5, COD and SS taken from primary and secondary facultative ponds of module 1 were 91.5, 169, 114; and 70, 160, 123 mg/L, respectively. These results indicated that the effluent of the primary facultative ponds of module 1 were complied with the Iranian treated wastewater standards for agricultural reuse in terms of BOD5 and COD concentrations; hence the secondary facultative ponds could be changed to other primary facultative ponds in order to increase the capacity of wastewater treatment plant. For module 2, BOD5, COD, and SS average concentrations of treated wastewater for the secondary and tertiary facultative ponds were obtained as 69, 101, 77; and 76, 127, 78 mg/L, respectively. Thus the effluent of the secondary facultative pond was complied with the considered standards in terms of all studied parameters. Consequently, the tertiary facultative pond could be changed to other secondary facultative pond to upgrade both the quality and the quantity of treated wastewater.

Keywords:

Biological wastewater treatment ، stabilization pond ، upgrading

TUMS ID: 12615

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