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Dairy Effluent Characterization And Efficient Treatment Coupling Physical And Biological Methods

Moomen Baroudi*, Rana Kabbout, Josiane Bitar, Mariam Hamzeh and Jalal Halwani

*Laboratory of Water and Environmental Sciences (L.S.E.E.), Lebanese University-Faculty of Public Health, Tripoli-**LEBANON**

Email: mbaroudi@ul.edu.lb

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ABSTRACT

Present study reports treatment of the sweet whey by coupling of a physic-chemical and a biological treatment. The physic-chemical treatment performed using aluminium sulphate shows a reduction of 98.63 for turbidity, 61.95% for SS (Suspended Solids), 27.52% for orthophosphate and 16.17% for COD (Chemical Oxygen Demand). The biological treatment by Pseudomonas fluorescens and Bacillus pumilus showed a 50% reduction of COD for 40 days. Coupling physico-chemical and biological treatments is efficient not only in terms of chemical oxygen demand but also in terms of hardness, total nitrogen and orthophosphate. When a physic-chemical treatment is followed by a biological one by Pseudomonas fluorescens, COD reduction was 57.35% for 20 days and 75.49% during 40 days. In addition, 84.1% of the total nitrogen was reduced, 62.7 for hardness and 53.8% for orthophosphate. The biological treatment by Bacillus pumilus resulted in a decrease of 80.1% for COD, 87.3% of kjeldahl nitrogen, 50.5% for hardness and 19.3% for orthophosphate.

Keywords: Sweet whey, Physico-chemical treatment, Biological treatment, *Pseudomonas fluorescens*, *Bacillus pumilus.*