Desalination and Water Treatment
www.deswater.com
doi: 10.1080/19443994.2013.850448

52 (2014) 2301–2308
February

Taylor & Francis
Taylor & Francis Group

Development of a process for the treatment of fish processing saline wastewater

Salma Mseddi[a,*], Ikram Chakchouk[a], Fathi Aloui[b], Sami Sayadi[b], Monem Kallel[a]

[a]*Laboratoire Eau, Energie et Environnement, Ecole Nationale d'Ingénieurs de Sfax, Université de Sfax-Tunisie, PB 1173, 3038 Sfax, Tunisia*
Tel. +216 28 638 155; Fax: +216 74 675 909; email: mseddi.salma@gmail.com
[b]*Laboratoire des Bioprocédés Environnementaux, Centre de Biotechnologie de Sfax, BP: « K », 3038 Sfax, Tunisia*

Received 25 December 2012; Accepted 4 September 2013

ABSTRACT

In recent years, there has been a great development of fish industries in coastal countries. The wastewaters generated from such industries have an important organic load which reaches 4,000 mg/L of chemical oxygen demand (COD) and high salt concentration with a TDS of about 60 g/L. In order to reduce the organic load of these effluents, a physico-chemical process by coagulation/flocculation was coupled with a biological process. The pretreatment by coagulation/flocculation showed great performance resulting in the removal of 60 and 84% of COD and turbidity, respectively. However, the combined treatment (physico-chemical and biological process) achieved high-performance degradation of the organic load corresponding to the removal of 85% of total organic carbon (TOC) for the first effluent E1 of high salinity (55 g/L) and the removal of 96% of TOC for the second effluent E2 of relatively high salinity (18 g/L).

Keywords: High salt concentration; Organic load; Coagulation/flocculation; Biological process

*Corresponding author.

Presented at the 6th International Conference on Water Resources in Mediterranean Basin (WATMED6), 10–12 October 2012, Sousse, Tunisia.