



## Use of thermal coagulation, separation, and fermentation processes for dairy wastewater treatment

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### ABSTRACT

Based on its large water consumption, dairy industry is considered as one among the most polluting food industries. The present work is related to investigations about water management practices in one Tunisian dairy plant where two effluents' generators were identified as the most polluting following their COD assessment. The first was the generated water from DECREAMING (D) machines washings with COD value of 112 g L<sup>-1</sup>, and the second source is BACTOFUGATE (B) with COD value of 196 g L<sup>-1</sup>. Thermal coagulation was performed for (D) and (B) samples leading to media clear phase separation. After decantation, recuperated supernatants were filtrated. The recorded COD removal amount exceeded 90% for both samples filtrates. Additional biological treatment was performed with mediums based on the obtained filtrates. Isolated *Candida* strains, *Lactobacillus* and baker's yeast strains were inoculated in batch process fermentation. Different biological treatment effects were evaluated using musts COD assessment at the end of fermentation after biomass removal. The reduction in organic load was important with the appropriate inoculated strains.

*Keywords:* Dairy wastewater; Treatment; Thermal coagulation; Separation; Fermentation

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