

عنوان مقاله:

The effects of the natural coagulant *Moringa oleifera* and alum in wastewater treatment at the Bandar Abbas Oil Refinery

محل انتشار:

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خلاصه مقاله:

Background: The refining process generates large volumes of wastewater containing a variety of chemical contaminants. The use of natural substitutes in treating wastewater which have fewer harmful effects is considered an effective step towards protecting the environment and sustaining the development of these industries. This study focused on the use of *Moringa oleifera* and alum at the Wastewater Unit at Bandar Abbas Refinery. Methods: This study was performed in 2014 in a laboratory using jar apparatus. These experiments were conducted in batch system and effective parameters including pH, coagulant dose and contact time were investigated on the wastewater obtained from Bandar Abbas Oil Refinery. Results: The jar test experiment showed that *M. oleifera* at 70 mg/L, optimum temperature, pH, and mixing speed could remove 38.60% of chemical oxygen demand (COD), 63.70% of turbidity, and 62.05% of total suspended solids (TSS). Also, alum at 40 mg/L removed COD, turbidity, and TSS by 51.72%, 92.16%, and 85.26% respectively from the refinery wastewater. Moreover, when *M. oleifera* and alum was used together with a 2:1 dosage ratio (alum at 80 mg/L and *M. oleifera* at 70 mg/L), they will remove COD, turbidity, and TSS by up to 50.41%, 86.14%, and 81.52% respectively. Conclusion: The use of *M. oleifera* as a natural coagulant is important in treating refinery wastewater not only from an environmental but also an economic point of view

کلمات کلیدی:

Moringa oleifera, Alum, Bandar Abbas Refinery, Industrial wastewater

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