NANOSTRUCTURES FOR DYES REMOVAL FROM WASTEWATER TREATMENT PLANTS

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Abstract - This paper presents a nanotechnology for dyes removal from wastewater treatment plants. This technology is fast, efficient and cost effective, based on the extraction and concentration of dyes followed by their degradation with advanced oxidation processes or recovery as materials with functional properties [1], [2]. The studied samples (influent and effluent) were collected by the industrial partner (EDAS EXIM) from a wastewater treatment plant of a processing food supplements company. The samples were first filtrated, then subjected to the extraction in microemulsion in the system Brij30/butyl acetate/ethyl acetate/polluted water for the removal of the dyes. Finally, were treated by different physico-chemical processes for the removal of the residual organic compounds like, filtration on activated granular carbon (CGA), filtration on resins or evaporation by rotary evaporator (ROTAVAP). Comparing the combined methods, the best methods for removing the traces of butyl acetate and ethyl acetate were distillation and/or filtration on activated granular carbon.

Index Terms - Dye removal, microemulsion, nanostructures, wastewater.

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