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Removal of Acid Yellow 36 and Rhodamine B from single and binary systems by reverse micelles

Anindita Saha[1*], Prabhat Pandit[1]

[1]Department of Chemical Engineering, Malaviya National Institute of Technology, Jaipur 302017, India

Abstract: In the present study reverse micelles are employed to encapsulate ionic dyes such as, azo dye Acid Yellow 36 (AY36) also known as Metanil Yellow and cationic dye Rhodamine B (RhB). This method proved to be highly efficient in the removal of high concentrations of dyes as much as 40mg/100ml from aqueous solutions of single and binary systems. The effect of different parameters like initial dye concentration, surfactant concentration, pH and salt (KCl) concentration on the percentage removal of the dyes were studied. It was observed that the percentage removal for both anionic and cationic dye decreased with the increase in the initial dye concentration and increased with the increase in the surfactant concentration in case of both the dyes in single and binary systems. Further, it was noticed that for anionic dye the percentage removal increased with the increase of both pH and KCl concentration while the results were exactly the reverse in case of RhB dye which exists in both cationic and zwitterionic forms at pH above 4. In binary systems, it was found that the removal of RhB increased compared to its removal from single system, while the removal of AY36 decreased in binary system.

Keywords : azo dye, Rhodamine B, dye removal, binary system, zwitterionic, reverse micelle.

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