عنوان مقاله:

The effect of high frequency ultrasonic waves in decolorization of acid blue 193 dye using polyaniline nanoparticles:Response surface methodology application

محل انتشار:

پانزدهمین کنگره ملی مهندسی شیمی ایران (سال: 1393)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

The capability of polyaniline nano-particles (PAn) for removal of acid blue 193 dye molecules from aqueous solution was investigated in batch system using response surface methodology (RSM). The various effective parameters on adsorption efficiency such as initial pH, temperature, and the initial dye concentration was selected at two levels to evaluate dye adsorption capacity and to find the optimum conditions.To investigate the effect of types of mixing on adsorption capacity, the experimental design was conducted in two types of with ultrasounic and shaker. The results confirmed that high frequency ultrasound waves (1.7MHz) could increase the adsorption efficiency of dye using PAn. The maximun adsorption capacity was obtained in optimum conditions (pH=2, C0=200 mg/L, and T=15ºC) for mixing with ultrasounic waves and without ultrasounic (shaker) 640.878 mg/g and 459.315 mg/g, respectively.This paper suggests the kind of mixing as an effective parameter in increasing of adsorption capacity in beside other effective parameters.

کلمات کلیدی:

Response surface methodology, Acid Blue193, Adsorption, Ultrasonic, Polyaniline