

عنوان مقاله:

(Removal of Anionic and Cationic Dyes from Aqueous Solutions by Biosorption Pineapple Leaf Powder as an Activated Carbon (PLAC

محل انتشار:

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نویسندگان:

Aseel M. Aljeboree - Department of Chemistry, College of Science for Women, University of Babylon, Hillah, Iraq

Zainab H. Kareem - Department of Biology, College of Sciences, University of Babylon, Hillah, Iraq

Iman Alalaq - Department of Dentistry, Al-Manara College for Medical Sciences, Maysan, Iraq

Sanarya Naser - Department of Pharmaceutics, Faculty of Pharmacy, Al-Turath University, Baghdad, Iraq

Talib Kh. Hussein - Department of Pharmacy, Al-Hadi University College, Baghdad, Iraq

Usama S. Altimari - Department of Medical Laboratories Technology, AL-Nisour University College, Baghdad, Iraq

Ayad F. Alkaim - Department of Chemistry, College of Science for Women, University of Babylon, Hillah, Iraq

خلاصه مقاله:

The biosorption properties of an agricultural waste using pineapple leaf powder as activated carbon (PLAC) were studied to remove contaminated colors from dye mixtures, including cationic and anionic dyes such as brilliant yellow (BY), malachite green (MG), methylene blue (MB), and Rhodamine B (RhB) as real samples of industrial dyes for the treatment of industrial water. The main factors such as adsorbent dosage, initial dye concentrations, solution pH, and equilibrium time that influenced the adsorption performance were investigated in all single and binary systems. The best maximum adsorption capacities (Q_m) were obtained for MG, MB, BY, and RhB in the single system are 98.5, 88.2, 80.98, and 77.7 mg/g and removal percentage 98.11%, 93.65%, 8.12%, and 70.25%, respectively. The pH of solution has no influence on adsorption of RhB dye on to Activated carbon (AC-PL), whereas for MB dye, adsorption increases with increasing pH and the best adsorption at pH 9.0. But in the case of MG dye, the best adsorption is at pH 9.0 and the minimum is at pH 2.0 and the best solution pH of BY dye is at pH 11.0. Through the mixture of two dyes (MB with BY) and (MG with RhB), it turns out that the removal of the dye MB and MG is better and with very high efficiency compared to RhB and BY in binary system. The bio sorption was regenerated by adsorption process after the loading process and reused for several times.

کلمات کلیدی:

Removal, anionic dye, Cationic dye, Adsorption, Activated carbon, Isotherm

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