

Sorption of methylene blue and acid orange 7 onto ananas comosus peels and leaves based activated carbon

Abstract

The adsorption of Methylene Blue (MB) and Acid Orange 7 (AO7) dye onto Ananas Comosus Mixed Peels and Leaves (ACMPL) were carried out by conducting four different parameters such as initial concentration, pH, dosage of adsorbent, and contact time. Effect of initial concentration for both dyes showed that higher initial concentration would take longer contact time to attain equilibrium due to higher amount of adsorbate molecules. The effect of pH showed highest percentage removal for MB is at pH 9 which is 95.81%. Meanwhile for AO7 the highest percentage removal is 31.06% at pH 3. The percentage removal of MB had reached the equilibrium at dosage 0.5g while AO7 keep increasing with the increment of adsorbent dosage. The percentage removal of MB and AO7 had increased until hour 2.5 which was from 72.5% to 86.93% and 19.441% to 36.89% respectively and reached equilibrium at 3 hour contact time.

Keywords

Acid orange 7; Activated carbon; Adsorption; Ananas comosus; Methylene blue