ABSTRACT

THE EFFECT OF CONTACT TIME ON ADSORPTION OF METHYLENE BLUE USING BANANA *PEEL (Musa Parasidiaca Linn.)* MODIFIED HCL AS ADSORBENT

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Methylene blue is commonly used in the textile industry. Methylene blue waste that is not treated properly and enters the aquatic environment, will be difficult to decompose. This compound has the molecular formula $C_{16}H_{18}ClN_3S.3H_2O$ with a molecular mass of 373.91 grams/mol, dark green in color, odorless, stable in air and soluble in water (dark blue solution), chloroform and alcohol. The technique used to reduce the levels of dyes in water is by using adsorption. Banana peel waste can be used as an absorbent biomaterial in removing dyes in the water purification process from industrial waste because it contains pectin and cellulose which are basically hydroxyl and carboxyl groups. In this study, the adsorbent of Raja Nangka Banana peel activated by 2 M HCl was used to adsorb methylene blue dye with various contact times of 25, 50, 75, 100 and 125 minutes. Standard solutions were prepared with a concentration range of 1; 1.5; 2; 2.5; 3 ppm and produces a straight line equation y=0.2042 x - 0.0242 with a correlation coefficient (r) = 0.9986. The results showed that the adsorbent of banana raja nangka peel activated by 2 M HCl could adsorb methylene blue dye. The optimal adsorption capacity of methylene blue dye at a contact time variation of 75 minutes is 139.0227 mg/g.

Keyword : banana peel, methylene blue, adsorption, spectrophotometer, contact time.