REMOVAL OF METHYLENE BLUE FROM AQUEOUS SOLUTION BY ADSORPTION ON NATURAL ADSORBENTS

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ABSTRACT

REMOVAL OF METHYLENE BLUE FROM AQUEOUS SOLUTION BY ADSORPTION ON NATURAL ADSORBENTS

Adsorption of methylene blue from aqueous solution using natural adsorbent is one of an alternative to remove color from wastewater. Natural adsorbents, prepared from natural wastes; egg shells, crab shells and cockle shells were used as adsorbent for removal of methylene blue from aqueous solution. The adsorption experiments were conducted on the three types of adsorbents and at different dosage of adsorbent for egg shells and cockle shells. The maximum removal of methylene blue 4.0 x 10^{-3} M occurred at 20g of adsorbent added. Meanwhile, the most effective removal of methylene blue of adsorbents dose was at 20g. The results indicate that crab shells have be higher percentage of adsorption than egg shells and cockle shells , that mean crab shells is more effective compared to egg shells and cockle shells. The results indicate that natural wastes as an alternative to commercial activated carbon for wastewater treatment.

CHAPTER 1

INTRODUCTION

Untreated Wastewater

Industries play as a big part in the occurrence in point source of the produce large amount of wastewater. The wastewater of textile and industrial discharge consist of greases, oil, heavy metals and chemical substance such as poly vinyl alcohol (PVA), pesticides and debris that will at one point, make their way back to the water resources. In developing countries such as Malaysia, 70% of industries wastes are dumped untreated into water where they are polluted the unstable water resources. The industries that produces product involving with metal, wood, chemicals, gasoline, oils and other are major uses of water during the production process. The result from the industries will produce larger amount of effluent mill or wastewater (William, 2001).

Wastewater includes raw sewage, paint," debris, oils, scums, heavy metals or toxic from home or industries, organic pollutant and inorganic pollutants that have higher of chemical oxygen demand (COD). Untreated of wastewater overflows are major problem if overflowing occur into water resources. There