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# The adsorption of remazol red dye using porous activated carbon (PAC) from rice husk ash treated using alkali treatment

## Abstract

This research investigated the adsorption of 50 mg/L of Remazol Red (RR) dye using porous activated carbon (PAC) prepared from rice husk ash (RHA) via alkali treatment. Two type of alkali were used, namely sodium hydroxide (NaOH) and potassium hydroxide (KOH), with four different concentrations (0.5 M, 1.0 M, 1.5 M and 2.0 M) using without any mechanical agitation. This study is significant as it used shorter processing time and lower temperature during the preparation of PAC compared to conventional treatment using furnace with higher processing temperature and longer time. The PAC was prepared by mixing RHA into the alkali solution (NaOH and KOH) for 2 hours and then washed using distilled water until the pH became neutral. The adsorption test was conducted using RR dye for 6 hours, tested using UV spectrophotometer and characterized using SEM, EDX and FTIR. Results showed that 1.0 Na-PAC had a higher adsorption percentage of 84% dye removal at 360 minutes, while 2.0 K-PAC had79% dye removal. It can be concluded that Na-PAC has a higher removal percentage of RR dye at different concentrations than K-PAC.