

Research Title	Treatment of Arsenic from the As-contaminated Water by Physical and Chemical Modified Kaolin and Montmorillonite
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This study investigated the arsenic (V) removal from the As-contaminated water by physical and chemical modified kaolin and montmorillonite. The results found that montmorillonite ground and burn 100 °C and refluxed with KOH 2 M (MG-F100-R-KOH 2 M). at 90 °C for 4 hours was the best condition for 100 % of arsenic (V) adsorption efficiency compared to adsorbent as K-G-F100-R-KOH 2M (38.09%). In addition, the maximum As (V) adsorption (100 %) was obtained with the following optimum conditions: a 20 g/l (0.2 w/v) dosage of M-G-F100-R-KOH 2 M, contact time of 24 h, a solution pH of 4.

The adsorption isotherm of M-G-F100-R-KOH 2 M, exhibited a good fit with the Langmuir isotherm. The maximum As (V) adsorption capacity of M-G-F100-R-KOH 2 M was 1.33 mg As (V)/g adsorbent which higher As (V) capacity than K-G-F100-R-KOH 2 M, M-G and K-G.

X-ray fluorescence showed that Al:Si content ratio of 0.345 was for best optimum for the highest As(V) removal from As-contaminated water. It Indicated that Al: Si of adsorbent has an effect on arsenic adsorption efficiency (As (V) in water, besides the BET surface area of the adsorbent. Furthermore, from the desorption, the results found that using NaOH 0.5 M as eluent had high desorption equal to 95.20 %, and 21% for using DI as eluent. This indicated that indicated the mechanism of As (V)

adsorption as physiochemical mechanism for M-G-F100-R-KOH 2 M. The alumino site of the adsorbent is positively charged ($Al_5-OH_2^+$), so it can bond with the arsenic (v) in the $H_2AsO_4^-$ form. In addition, the results of FTIR confirm that Al-OH in adsorbent should have a role in As (V) adsorption.

Keywords: Arsenic, Kaolin, Montmorillonite, Adsorption