

# THE USE OF *Michelia alba* LEAVES FOR THE REMOVAL OF HEXAVALENT CHROMIUM (VI) FROM AQUEOUS SOLUTION

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## ABSTRACT

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Toxic heavy metal such as the hexavalent chromium(VI) is the most common environmental pollutants and demanding for elimination by using various conventional treatments and methods. Plant waste biosorption is the current treatment discovered and demonstrated to have better efficiency than conventional method. In this research, the use of *M. alba* leaves for Cr(VI) removal with effect of different pH conditions (unadjusted & adjusted pH) as well as particle size of biosorbent (500  $\mu\text{m}$ , 330  $\mu\text{m}$ , and 149  $\mu\text{m}$ ) were investigated. The biosorbent samples were collected, washed, dried, blended, and sieved into corresponding particle size. A standard curve was constructed in order to determine the optimum concentration of Cr(VI) solution used. Finally, metal uptake plot was obtained and subsequently applied on Langmuir and Freundlich isotherms to analyze the adsorption data. In this study, the results revealed that the adjusted pH condition (pH2) was the optimum condition for the biosorbent sample to achieve greater efficiency in metal removal of 91.37% with particle size of 330  $\mu\text{m}$ . The Langmuir constants,  $Q_{\text{max}}$  and  $b$  were calculated to be 1.35 mg/g and 3.41 L/mg; while the Freundlich constants,  $K$  and  $n$  were found to be 0.38 mg/g and 2.73 respectively.