EFFECT OF ADSORBENT CONTACT TIME OF JAVA BARK (Lannaea coromandelica (Houtt.)Merr) TO THE ADSORPTION CAPACITY OF Cd (II)

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ABSTRCT

***Background**: Based on the parameters of chemical requirements, the water consumed should not contain any metal elements that exceed the set threshold. According to the Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2023, the maximum limit of cadmium in bottled water is 0.003 mg/L. In this study, tannin biosorbents are used from the extraction of Javanese bark. The bark of the Javanese wood contains tannin compounds that have the potential to bind heavy metals. Therefore, tannin polymerization with formaldehyde is carried out and then the capacity and adsorption of biosorbents to Cd (II) are determined.* **Purpose:** *This study aims to determine the effect of the variation in the contact time of biosorbent of Javanese bark on the adsorption capacity of Cd (II).* **Research method:** *The method used was an experiment by studying the effect of biosorbent contact time from Javanese bark with adsorbate. The variation in time used for the contact of Javanese bark biosorbents used was 20, 40, 60, 80, 100, 120, 140 and 160 minutes. The residual Cd (II) levels in the solution are determined using a UV-Vis Spectrophotometer. The adsorption capacity was obtained from the ratio of the mass of adsorbent Cd (II) compared to the mass of the biosorbent (mg/g).* **Research Results:** *The adsorption capacity of Cd (II) at contact times of 20, 40, 60, 80, 100, 120, 140, and 160 minutes is 0.073 respectively; 0,075; 0,078; 0,079; 0,116; 0,060, 0,052; 0.035 mg/g. The optimum contact time was at 100 minutes of contact (0.116 mg/g). At contact time of 120, 140, 160 minutes there is a decrease due to the desorption process. The desorption process occurs when the biosorbent has passed through the saturated absorption of Cd (II) because the active side of the biosorbent has reacted with the adsorbate.* **Conclusion:** *From the results of the study, it can be concluded that the longer the contact time of biosorbents in the adsorption of Cd(II) metals, the adsorption capacity will increase until the optimal contact time is reached. After reaching the optimal contact time, there is a decrease in adsorption due to the desorption process. In the study, the optimal contact time of Javanese bark biosorbent was obtained at a contact time of 100 minutes with an adsorption capacity of 0.116 mg/g.*

***Keywords:** tannin, cadmium, adsorption, biosorbent, javanese bark*