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Column Studies on Chromium(VI) Adsorption onto Kala Jamun (Syzygium cumini L.) Seed Powder

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Abstract : This paper evaluate the industrial use of Kala Jamun (Syzygiumcumini L.) Seed powder (KSP) for the continuous adsorption of Cr(VI) in a column adsorption process. Adsorption of Cr(VI) onto Kala jamun (Syzygiumcumini L.) Seed Powder have been examined with the variation of (a) bed depth of the adsorbents, (b) flow rate of the adsorbents and (c) Cr(VI) concentration. The results showed that both the adsorption and the regeneration of the Cr(VI) onto Kala Jamun (Syzygiumcumini L.) seed Powder (KSP) can effectively occur in the column mode of adsorption. On increasing the bed depth, the adsorption of Cr(VI) onto KSP increases whereas on increasing the flow rate and the Cr(VI) concentration of KSP adsorption decreases. The results of the column studies were also fitted to Bed Depth Service Time (BDST) model. The BDST model was appropriate for designing the column for industrial purpose.

Keywords : bed-depth-service-time, continuous adsorption, Cr(VI), KSP
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