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Utilization of Biochar for Arsenic Removal from Water †

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Abstract: Heavy metal pollution in water is a major concern prevailing in the present scenario. Considering the toxic effects of various heavy metals, an efficient remediation technique is of utmost importance. Arsenic contaminated water bodies have led to adverse effects on a large number of people worldwide. The effects include ulceration, pigmentation, hyperkeratosis, and it also affects vital organs. Biochar is an efficient and low-cost method for removing arsenic from its aqueous medium. The effective adsorbing capacity of biochars helps in the remediation process. Raw materials from livestock and other means are pyrolysed to attain the desired product. Various physical and chemical modifications such as doping, administration of radiations like UV light, activation, organic loading, inorganic loading, etc. can be opted for enhancing the adsorbing capacity and pore size of the biochar. The treatment of biochar with different metals improves the efficiency of the biochar. The impregnation of metals such as Fe, Mn, and Zn upon the biochar converts it to a magnetic form and easily removes arsenic from water. Metal complexes also enhance the adsorbing capacity of biochar. The use of biomasses for the production of biochar is environmentally friendly and economical at the same time.

Keywords: heavy metals; arsenic; biochar; water; remediation.

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Conflicts of Interest

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