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Review

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Environmental application of biochar: Current status and perspectives

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Abstract

In recent years, there has been a significant interest on biochar for various environmental applications, *e.g.*, pollutants removal, carbon sequestration, and soil amelioration. Biochar has several unique properties, which makes it an efficient, cost-effective and environmentally-friendly material for diverse contaminants removal. The variability in physicochemical properties (*e.g.*, surface area, microporosity, and pH) provides an avenue for biochar to maximize its efficacy to targeted applications. This review aims to highlight the vital role of surface architecture of biochar in different environmental applications. Particularly, it provides a critical review of current research updates related to the pollutants interaction with surface functional groups of biochars and the effect of the parameters variability on biochar attributes pertinent to specific pollutants removal, involved mechanisms, and competence for these removals. Moreover, future research directions of biochar research are also discussed.

Keywords: Biochar, Contaminant removal, Pyrolysis, Adsorption, Functional group

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