

# Adsorptive Removal of Fluoride Using Biochar – A Potential Application in Drinking Water Treatment †

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**Abstract:** Fluoride is a geogenic contaminant that is typically found in drinking water based on groundwater sources. Fluoride pollution in water is an important difficulty globally, with health dangers such as dental and skeletal fluorosis. It is recommended for drinking water having a lesser concentration than 1.5 mg/L fluorides to avoid additional fluorosis risks. In the present study, biochar was investigated for its defluoridation potential. The effects of raw material ratio, pH, contact time, adsorbent dosage, temperature, initial concentration of fluoride, and the coexisting ions on the removal efficiency of fluoride were explored. Biochar may be an efficient and low-cost adsorbent for treating high-concentration fluoride-containing wastewater.

**Keywords:** biochar; fluoride; adsorption; groundwater; industrial water.

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