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Efficiency of biochar for reducing mobility of inorganic contaminants

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Anthropogenic activities have produced numerous sites with extensive contamination close to residential areas. Several physicochemical and biological remediation methods exist for remediation of metal contaminated soils and lands, such as soil washing, soil flushing, phytoremediation, and electrokinetics.

Biochar (biologically derived charcoal) is produced by pyrolysis of biomasses under low oxygen conditions, and it can be applied for recycling organic waste in soils.

The main objectives of the present study were to determine the possible use of biochar from forest residues (*Populus nigra*) in order to achieve a stabilization of inorganic contaminants by adsorption processes. Adsorption of copper by biochar from dilute solutions showed a closer agreement with the Langmuir isotherm in a concentration range 25-500 mM. The decontamination by biochar is very suitable because the treatment is passive and does not require specialized equipment or extensive labor as compared to other remediation methods. Moreover, biochar is also a possible carbon sink due to its long term storage in environment, thereby favouring mitigation of the anthropic impact on environment.