Adsorption of heavy metals by biochar from lignocellulosic materials

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Over the recent past, biochar has emerged as a promising material for its carbon sequestration properties, use as a soil amendment and potential for removing heavy metals from wastewater. Among other sources, heavy metals are present in soil and wastewater from mining operations, posing environmental and health threats. In the current work, biochars collected from commercial and demonstration facilities have been evaluated for their ability to adsorb heavy metals and characterized with respect to chemical and physical properties. Based on laboratory results, biochars will be identified for field applications. Results to date indicate large differences in metal adsorption depending on the feedstock process by which the biochar was produced. In general, more alkaline biochars are more effective at adsorbing heavy metals.