



Different types of biochar: effect of aging on the Cu(II) adsorption behavior

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ABSTRACT

Biochar has been recognized as an effective heavy metal adsorbent; however, there is limited knowledge on the effect of biochar aging on its heavy metal adsorption behavior. To study the effect of aging on the Cu(II) adsorption behavior of different biochar types, the surface properties and adsorption characteristics of peanut biochar (PB), cotton biochar (CB) and their corresponding dry-wet aging biochar (PDB, CDB) were analyzed. After the dry-wet aging process, the Cu(II) adsorption capacity of cotton-derived biochar was increased by 292%, whereas the Cu(II) adsorption capacity of peanut-derived biochar decreased by 45.56%. At the same time, the O/C ratio of the two biochar types increased, and the increase for CB was more considerable than that for PB. Considering that there was a consistency between the changes of the specific surface area, ash content and adsorption capacity of the biochar, we inferred that the change of specific surface area and ash content of biochar may be the main reasons for the change of adsorption capacity.

Keywords: Biochar; Aging; Cu(II); Adsorption

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