
Removal of cadmium from contaminated waters using saltbush (*Atriplex canescens*) biomass: identification of Cd binding sites

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Abstract: The effect of pH on Cd(II) binding capacity of saltbush biomass was determined. Metal quantification performed using ICP/OES showed that Cd binding increased as pH increased from 2.0 to 5.0. The highest percentage of Cd bound ranged from 74–81%, 22–40%, and 70–80% for the native, esterified, and hydrolysed biomass. XAS studies showed that cadmium was present as Cd(II) and oxygen was the nearest neighbouring atom with bond lengths of approximately 2.3 Å and coordination numbers ranging between 4 and 5. Results indicated that carboxyl groups may be the primary ligand involved in the Cd binding by saltbush biomass.

Keywords: saltbush; cadmium binding; EXAFS; XANES; ICP/OES.

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