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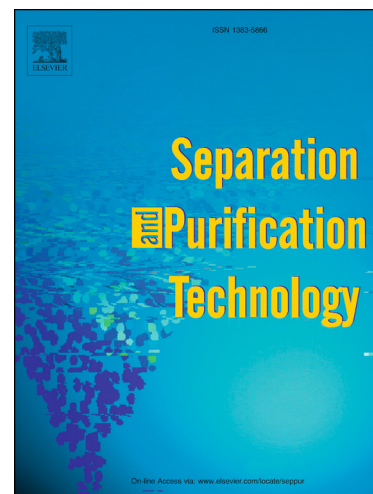
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Removal of Cr(VI) and fluoride by membrane capacitive deionization with nanoporous and microporous *Limonia acidissima* (wood apple) shell activated carbon electrode

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Abstract

Membrane capacitive deionization (MCDI) is an attractive desalination technique to achieve pure water by adsorbing ions in charge porous electrodes. In the current study nano-porous and micro porous activated carbon was derived from *Limonia acidissima* shells. The *Limonia acidissima* shell activated carbon (LASAC) prepared with chemical and thermal modification. The characterization techniques such as SEM, TGA, DTA, DTG, and N₂ adsorption–desorption isotherm analysis were used for analysis LASAC. The LASAC electrode was used in MCDI lab scale self-made set up for simultaneous sorption of Cr(VI) and fluoride from the aqueous system. The LASAC electrode performance of was found effective for simultaneous removal of Cr(VI) and fluoride from mixed feed solution with maximum electrosorption capacity of Cr(VI) and fluoride were found to 0.8086 mg/g and 0.7805 mg/g for 10 mg/L; 3.227 mg/g and 2.7554 mg/g

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