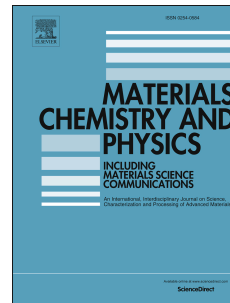


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Preparation, characterization and evaluation of bio-based magnetic activated carbon for effective adsorption of malachite green from aqueous solution

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**Preparation, characterization and evaluation of bio-based magnetic activated carbon for effective adsorption of malachite green from aqueous solution**

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**ABSTRACT**

The removal feasibility of malachite green (MG) on Magnetic Activated Carbon (Fe<sub>3</sub>O<sub>4</sub>-AC) from aqueous solution was investigated. The physicochemical/morphological properties of the prepared novel sorbents were identified using an analysis technique. The maximum adsorption capacity of the synthesized magnetic sorbent was found in the range of 217.68-311.40 mg/g at 298-318 K while it was determined between 103.64 and 106.54 mg/g for activated carbon (AC). All results showed that the synthesized adsorbent is an effective adsorbent for the removal of MG from aqueous solutions in addition to its advantageous properties such as considerable high surface area and porosity, natural source requirement, low cost and easy producible.

**Keywords:** Malachite Green, Adsorption, Chestnut shell, AC, Fe<sub>3</sub>O<sub>4</sub>-AC, Thermodynamics, Kinetics, Desorption.

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