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Review

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Waste-based alternative adsorbents for the remediation of pharmaceutical contaminated waters: has a step forward already been taken?

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Abstract (147 words)

When adsorption is considered for water treatment, commercial activated carbon is usually the chosen adsorbent for the removal of pollutants from the aqueous phase, particularly pharmaceuticals. In order to decrease costs and save natural resources, attempts have been made to use wastes as raw materials for the production of alternative carbon adsorbents. This approach intends to increase efficiency, cost-effectiveness, and also to propose an alternative and sustainable way for the valorization/management of residues.

This review aims to provide an overview on waste-based adsorbents used on pharmaceuticals' adsorption. Experimental facts related to the adsorption behaviour of each adsorbent/pharmaceutical pair and some key factors were addressed. Also, research gaps that subsist in this research area, as well as future needs, were identified. Simultaneously, this review aims to clarify the current status of the research on pharmaceuticals' adsorption by waste-based adsorbents in order to recognize if the right direction is being taken.

Keywords: Wastewater treatment; Adsorption; Activated carbon; Waste management; Pharmaceuticals

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