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Highly Efficient and Selective Adsorbent for potentially toxic metals Removal from Aquatic Media

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Highlights

- * Efficient hybrid adsorbent material for the elimination of trace elements from water.
- * Very stable material with a high adsorption capacity.
- * Top performing remediation adsorbent for the adsorption of Zn from real water solutions.

Abstract

Efficient hybrid materials based adsorbents are highly recommended for potentially toxic metals removal from polluted water media. Herein, novel silica particles modified with a new bispyrazolylpropane Schiff base were synthesized and characterized using relevant physical techniques. The resulting hybrid material (**SiNAL3**) was studied for its ability to uptake Zn^{II}, Cu^{II}, Pb^{II} and Cd^{II} ions in aqueous solution via kinetics studies. The maximum adsorption capacities of **SiNAL3** for Zn^{II}, Cu^{II}, Pb^{II} and Cd^{II} were approximately 1.23, 0.32, 0.29 and 0.23 mmol g⁻¹, respectively, with an equilibrium reached after only 25 min for all metals. The

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