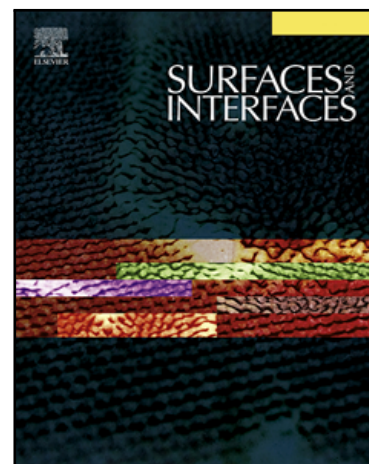


Trimetallic Oxide Entrapped in Alginate Polymeric Matrix Employed for Adsorption Studies of Fluoride

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**Highlights**

- To synthesize a biopolymer-based adsorbent by entrapping of trimetallic (Fe–La–Ni) oxide into the calcium alginate beads matrix.
- To study the adsorption behavior of  $F^-$  onto Fe–La–Ni oxide entrapped calcium alginate beads (Ca@FLN).
- To prove the adsorption mechanism using nine different adsorption isotherms.
- To confirm fluoride adsorption via anion exchanges and electrostatic interactions.
- As synthesized novel Ca@FLN entrapped in the polymeric matrix shows a very high adsorption capacity i.e. 333 mg/g due to a very high surface area ( $257\text{ m}^2/\text{g}$ ).

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