

RESEARCH PAPERS

利用天然浓缩丹宁合成新型凝胶吸附剂通过表面沉淀去除水溶液中铅

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收稿日期 修回日期 网络版发布日期 接受日期

**摘要** Lead has caused serious environmental pollution due to its toxicity, accumulation in food chains and persistence in nature. In this paper, removal of lead from aqueous solutions is investigated using a novel gel adsorbent synthesized from natural condensed tannin. The novel adsorbent performs in aqueous solutions as a weak base with valid basic groups of 1.2 mmol.g<sup>-1</sup> tannin gel particles and therefore results in the elevation of pH value of aqueous solutions. Even when initial pH is 3.6, final pH at equilibrium can climb up to 6.5 that is above the pH value for Pb(OH)<sub>2</sub> precipitation formation and then lead can be removed from wastewater by this so-called surface precipitation. The adsorption isotherm can be expressed by the Langmuir equation and the maximum capacity for adsorption of Pb is up to 92 mg.g<sup>-1</sup> (based on dry adsorbent) when initial pH value is 3.6. Hence, the adsorbent does offer favorable properties in lead removal with respect to its high adsorption capacity at low initial pH value, which is advantageous to lead removal from acidic wastewater. A model is put forward to describe the individual adsorption phenomenon of the tannin gel adsorbent.

**关键词** [condensed tannin](#) [lead removal](#) [surface precipitation](#) [tannin gel adsorbent](#)

分类号

**DOI:**

### Lead Removal from Aqueous Solutions Using Novel Gel Adsorbent Synthesized from Natural Condensed Tannin

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Received Revised Online Accepted

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**Key words** [condensed tannin](#); [lead removal](#); [surface precipitation](#); [tannin gel adsorbent](#)

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