

分离工程

## 腐殖酸负载载体对菲的吸附能效

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摘要

土壤腐殖酸的吸附作用对多环芳烃等疏水性有机污染物的迁移产生影响。针对腐殖酸负载载体的吸附能效开展研究, 利用不同粒径的玻璃珠(37~63、105~125、177~250和350~500 μm)作为载体, 从土壤中提取腐殖酸并负载其上对菲的吸附对比试验, 结果表明, 菲在固液两相的分布规律符合Freundlich吸附等温式, 粒径较小的材料(比表面积较大)负载效率高且整体吸附能力强。采用吸附能力系数与负载效率的比值评价吸附能效, 表现为粒径较小的材料(比表面积较大)吸附能效反而偏低。本文为提高腐殖酸吸附能效的应用研究提供了理论基础。

关键词

[腐殖酸](#) [菲](#) [吸附](#)

分类号

## Evaluation on humic-acid coated carriers for phenanthrene adsorption

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### Abstract

Humic acid in soil plays an important role in transfer of hydrophobic organic compounds such as polycyclic aromatic hydrocarbons (PAHs). Humic acid can be coated onto some carriers, and its adsorption performance is of great concern. In this study, glass beads in four different size ranges (37—63 μm, 105—125 μm, 177—250 μm, 350—500 μm) were used as the carrier and coated with humic acid extracted from natural soil. The lab-scale experiment for phenanthrene adsorption was carried out. The distribution of phenanthrene in solid and water phases was in accordance with Freundlich isotherms, which implies that larger total surface area (TSA) leads to higher coating efficiency and adsorption capacity. However, when the ratio of Freundlich capacity parameter to coating efficiency was used to evaluate the adsorption performance of humic acid in consideration of TSA, smaller particles (with larger TSA) resulted in a smaller ratio value. This study provides a reference for further studies on improvement of adsorption of humic acids.

### Key words

[humic acid](#) [phenanthrene](#) [adsorption](#)

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