

化学

海藻吸附水中铀离子初步研究

杜阳, 邱咏梅, 但贵萍, 张东, 雷家荣

中国工程物理研究院 核物理与化学研究所, 四川 绵阳 621900

收稿日期 2006-3-24 修回日期 2006-8-22 网络版发布日期: 2007-7-30

摘要 在不同pH、不同铀离子浓度、不同温度及添加其他金属离子的铀溶液中, 对铀离子在海藻上的吸附效率进行初步研究, 同时考察溶液中一些共存金属离子对海藻吸附铀离子效率的影响。研究表明: pH为5~8时, 烟台红藻和海菠菜受pH影响较小, 吸附容量约为1.40 $\mu\text{g/g}$; 海木耳吸附能力受pH影响较大, 吸附容量在1.03~2.23 $\mu\text{g/g}$ 范围内波动; 海藻的吸附效率及吸附容量与铀离子浓度有关, 最大分别达到95.8%和65.4 $\mu\text{g/g}$; 在24 h内, 吸附过程是一不依赖温度的过程; 实验中所用的金属离子对烟台红藻的铀吸附能力的影响程度在不同的时间段有所不同。

关键词 [海藻](#) [铀溶液](#) [吸附效率](#) [吸附容量](#)

分类号 [TL941.21](#)

Study of Algae's Adsorption to Uranium Ion in Water Solution

DU Yang, QIU Yong-mei, DAN Gui-ping, ZHANG Dong, LEI Jia-rong

Institute of Nuclear Physics and Chemistry, China Academy of Engineering Physics, P.O. Box 919-215, Mianyang 621900, China

Abstract The adsorption efficiencies of the algae to uranium ion were determined at various pH, uranium ion concentrations, adsorption temperatures and the species of coexisted metal ions, and the effect of coexisted metal ion on the adsorption efficiency was researched. The experimental results at pH=5-8 are as follows: 1) the adsorption capacity is a constant to be about 1.40 $\mu\text{g/g}$ for the Yantai red alga and the sea spinach, and is changeable in the range of 1.03-2.23 $\mu\text{g/g}$ with pH for the sea edible fungus; 2) for the algae the adsorption efficiency and adsorption capacity are related to uranium ion concentration, and the maximum adsorption efficiency and capacity is 95.8% and 65.4 $\mu\text{g/g}$, respectively; 3) the adsorption process for 24 h is not dependent on the temperature; 4) the effect of the species of coexisted metal ions on the adsorption capacity of uranium ion is various with the time during adsorption process.

Key words [algae](#) [uranium solution](#) [adsorption efficiency](#) [adsorption capacity](#)

DOI

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [\[PDF全文\]\(109KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“海藻”的 相关文章](#)
- ▶ [本文作者相关文章](#)

- [杜阳](#)
- [邱咏梅](#)
- [但贵萍](#)
- [张东](#)
- [雷家荣](#)

通讯作者