

茶树根际土壤磷的解吸特性

杨威,周卫军^{**},包春红,苗霄霖,胡文敏

(湖南农业大学资源环境学院,长沙 410128)

Desorption characteristics of phosphorus in tea tree rhizosphere soil.

YANG Wei, ZHOU Wei-jun, BAO Chun-hong, MIAO Xiao-lin, HU Wen-min

(College of Resources and Environment, Hunan Agricultural University, Changsha 410128, China)

摘要

参考文献

相关文章

全文: PDF (476 KB) HTML (KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要

为了阐明茶树根际土壤磷的释放过程与供应机制,采用外源磷吸附培养方法,研究了不同母质、不同种植年限茶树根际土壤磷的解吸过程与特性,并用最小二乘法进行最优函数拟合.结果表明:茶树根际土壤与非根际土壤磷的解吸过程有明显的差异.茶树根际土壤的磷解吸能力极显著高于非根际土壤;与非根际土壤相比,根际土壤的平均有效磷含量、平均解吸率和平均 β 值(单位吸附量中的解吸量)分别高出 $5.49 \text{ mg} \cdot \text{kg}^{-1}$ 、1.7%和24.4%.不同成土母质发育的茶树根际土壤磷解吸能力为花岗岩风化物>第四纪红色粘土>板页岩风化物.随着种植年限的延长,3种母质茶树根际土壤的有效磷与磷解吸能力均有不同程度地提高.

关键词: 根际土壤 磷解吸 种植年限 成土母质 茶树

Abstract:

In order to explore the phosphorus (P) release process and its supply mechanism in tea tree rhizosphere soil, an exogenous P adsorption and culture experiment was conducted to study the P desorption process and characters in the tea tree rhizosphere soils having been cultivated for different years and derived from different parent materials. The least squares method was used to fit the isotherms of P desorption kinetics. There was an obvious difference in the P desorption process between the rhizosphere soils and non rhizosphere soils. The P desorption ability of the rhizosphere soils was significantly higher than that of the non rhizosphere soils. As compared with non rhizosphere soils, rhizosphere soils had higher available P content, P desorption rate, and β value (desorbed P of per unit adsorbed P), with the average increment being $5.49 \text{ mg} \cdot \text{kg}^{-1}$, 1.7%, and 24.4%, respectively. The P desorption ability of the rhizosphere soils derived from different parent materials was in the order of granite > quaternary red clay > slate. The average available P content and P desorption ability of the rhizosphere soils increased with increasing cultivation years.

Key words: rhizosphere soil phosphorus desorption cultivation years soil parent material tea tree.

链接本文:

<http://www.cjae.net/CN/> 或 <http://www.cjae.net/CN/Y2013/V24/I7/1843>

没有本文参考文献

- [1] 李凡¹,王敏^{1,2},孙红炜¹,杨淑珂¹,路兴波^{1**}. 转Bt基因玉米根际土壤及秸秆残体中 [J]. 应用生态学报, 2013, 24(7): 1907-1913.
- [2] 朱秋莲^{1,2,3},邢肖毅^{1,3},程曼^{1,3},薛志婧^{1,3},安韶山^{1,3**}. 宁南山区典型植物根际与非根际土壤碳、氮形态[J]. 应用生态学报, 2013, 24(4): 983-98
- [3] 杨阳^{1,2},刘守伟¹,潘凯¹,吴凤芝^{1**}. 分蘖洋葱根系分泌物对黄瓜幼苗生长及根际土壤微生物的影响[J]. 应用生态学报, 2013, 24(4): 1109-1117.
- [4] 王欣欣^{1,2},符建荣^{2**},邹平²,陈维²,叶静²,俞巧钢²,姜丽娜²,王强². 长期植稻年限序列水稻土团聚体有机碳分布特征[J]. 应用生态学报, 2013, 24(3): 719-724.
- [5] . 黄土丘陵区不同植被根际土壤微量元素含量特征[J]. 应用生态学报, 2012, 23(03): 645-650.
- [6] 张鼎华,林开森,李宝福. 杉木、马尾松及其混交林根际土壤磷素特征[J]. 应用生态学报, 2011, 22(11): 2815-2821.
- [7] 孙立涛,王玉,丁兆堂. 地表覆盖对茶园土壤水分、养分变化及茶树生长的影响[J]. 应用生态学报, 2011, 22(09): 2291-2296.
- [8] 徐劼,于明革,陈英旭,傅晓萍,段德超. 铅在茶树体内的分布及化学形态特征[J]. 应用生态学报, 2011, 22(04): 891-896.
- [9] 刘微,王树涛,陈英旭,吴伟祥,王璟. 转Bt基因水稻根际土壤微生物多样性的磷脂脂肪酸(PLFAs)表征[J]. 应用生态学报, 2011, 22(03): 727-733.

服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

作者相关文章

- ▶ 杨威
- ▶ 周卫军^{**}
- ▶ 包春红
- ▶ 苗霄霖
- ▶ 胡文敏