

风化煤腐殖酸对氮、磷、钾的吸附和解吸特性

刘秀梅;张夫道;冯兆滨;张树清;何绪生;王茹芳;王玉军

中国农业科学院土壤肥料研究所 北京100081

N, P and K adsorption and desorption characteristics of humic acids made from the airslake-coal

LIU Xiu-mei;ZHANG Fu-dao;FENG Zhao-bin;ZHANG Shu-qing;HE Xu-sheng;WANG Ru-fang;WANG Yu-jun *

Institute of Soil and Fertilizer; CAAS; Beijing 100081; China

摘要

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摘要 研究了风化煤腐殖酸在不同pH值条件下对氮、磷、钾的吸附和解吸特性。结果表明,1)在pH.4~8条件下,随着氮、磷、钾初始处理浓度的增加,腐殖酸对其吸附量和解吸量均呈上升趋势,但解吸率均呈下降趋势;2)在不同pH值的介质溶液中,腐殖酸对氮、磷、钾的吸附和解吸特性不尽相同,其中,在碱性条件下,腐殖酸对氮的吸附和解吸作用较强,在酸性条件下,腐殖酸对磷的吸附和解吸作用较强,而腐殖酸对钾的的吸附和解吸作用在中性条件下更易发生;3)腐殖酸对氮、磷、钾的等温吸附可用Linear、Langmuir和Freundlich三个吸附方程来拟合,相关性达显著或极显著水平,但以Freundlich方程为最优。

关键词: 腐殖酸 氮 磷 钾 吸附 解吸 pH值 腐殖酸 氮 磷 钾 吸附 解吸 pH值

Abstract: N, P and K adsorption and desorption characteristics of humic acids, which were made from the efflorescent coal at different pH values were studied in this paper. The major results were summarized as follows: 1) The N, P and K adsorption and desorption amounts of humic acids showed a rising tendency along with the increase of initial concentration of N, P and K at different pH levels (from 4 to 8), but the desorption ratios of them all declined. 2) The characteristics of adsorption and desorption of humic acids on nitrogen, phosphorus, and potassium were variable at different pH, among which N adsorption and desorption capacity became larger particularly under the alkali condition, while under the acid condition, the P adsorption and desorption capacity increased, and K adsorption and desorption of humic acids was easier in the neutral solution. 3) The isothermal adsorption of humic acid on N, P and K could be fitted using Linear, Langmuir, and Frenldich equations with correlation coefficient being significant, among which Frenldich equation was the best.

Keywords:

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