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同位素示踪·资源环境·动植物生理

新疆典型草原土壤腐殖酸组分的变化规律

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摘要:

以新疆典型草原黑钙土、栗钙土和棕漠土为对象,研究了3种土壤不同土层腐殖质矿物复合体组分及其垂直分布规律。结果表明:13种典型草原土壤腐殖质总碳量的顺序为黑钙土(35、46g/kg)、栗钙土(31.30g/kg)和棕漠土(0.68g/kg);23种草原土壤都是以胡敏素(HM)含量最高,黑钙土、栗钙土和棕漠土的含量分别为68.17%、65.47%和42.81%;3按照腐殖酸类型分析,黑钙土和栗钙土是以胡敏酸(HA)为主的富啡酸(FA)-胡敏酸(HA)型,CH/CF＞1;而棕漠土则相反,是胡敏酸-富啡酸型,CH/CF＜1;4黑钙土、栗钙土和棕漠土腐殖质组分中游离R_2O_3结合的胡敏酸分别为6.85%、5.65%和1.65%,而富啡酸分别为0.53%、0.84%和4.91%;5在3种草原土壤中,游离腐殖酸从0~20cm到40~60cm的垂直变化规律分别为:黑钙土中游离胡敏酸和富啡酸分别从5.74和2.33g/kg降到2.70和0.89g/kg;栗钙土中游离胡敏酸和富啡酸分别从1.88和1.03g/kg降到0.59和0.75g/kg;棕漠土中游离胡敏酸和富啡酸分别由2.10和2.90g/kg降到1.92和0.67g/kg。

关键词: 土壤 复合体 游离腐殖酸 分布规律

THE DISTRIBUTION REGULARITY OF SOIL HUMUS CONTENTS IN TYPICAL GRASSLAND SOIL IN XINJIANG

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Abstract:

In this study, the typical grassland chernozem, chestnut soil and calcic brown soil were analyzed to evaluate humus contents in different layers and to confirm their vertical contribution. Results showed: 1 The total carbon contents in three typical grassland soils of Xinjiang decreased according to the order of chernozem>chestnut soil>calcic brown soil; 2 Humin(HM)is predominant in these three typical grassland soils, and the decreasing sequence was the same as that of total carbon. 3 The analysis based on humus types indicated that chernozem and chestnut soil belonged to humic-fulvic acid type, and humic acid was the main content, the ratio value of CH(the carbon content of Humic acid) to CF (the carbon content of Fulvic acid) was more than 1(CH/CF>1), while the calcic brown soil belonged to fulvic-humic(FA)acid type(CH/CF<1). 4 Humic acids combined with sesquioxide in typical grassland chernozem, chestnut soil and calcic brown soil were 6.85%, 5.65% and 1.65%, respectively. And fulvic acids combined with sesquioxide were 0.53%, 0.84%, 4.91% in the same order, respectively. 5 The vertical contribution regularities of dissociated humus from 0~20cm to 40~60cm in depth showed that the dissociated humic acid and fulvic acid in chernozem decreased from 5.74 and 2.33 g/kg to 2.70 and 0.89g/kg, respectively. In the chestnut soil decreased from 1.88 and 1.03 g/kg to 0.59 and 0.75g/kg, which decreased from 2.10 and 2.90g/kgto 1.92 and 0.67g/kg(in the calcic brown soil).

Keywords: soil humic complex dissociated humic acids distribution regularity

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