

研究报告

黄土高原不同土壤结构体有机碳库的分布

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摘要 根据不同植被类型和土壤类型, 分别从黄土高原不同地域分层(0~20 cm、20~40 cm和40~60 cm)采集22个土壤剖面样品, 研究土壤有机碳库在不同结构体中的分布特征. 结果表明, 所有结构体, 从表层向下有机碳含量和贮量皆呈递减趋势; 而各土层, 从>5 mm、2~5 mm、1~2 mm到0.25~1 mm结构体有机碳含量呈递增趋势, 而从0.25~1 mm到<0.25 mm呈下降趋势, 以0.25~1 mm结构体中有机碳含量最高. 由于不同大小结构体所占比例不同, 因此不同结构体中的有机碳贮量与含量并不完全一致: 从>5 mm、2~5 mm到1~2 mm结构体中有机碳贮量呈递减趋势, 而从1~2 mm、0.25~1 mm到<0.25 mm呈递增趋势, 以1~2 mm结构体有机碳贮量最低. 有机碳含量除土垫旱耕人为土在<0.25 mm结构体中最大外, 干湿砂质新成土、黄土正常新成土和筒育干润均腐土在0.25~1 mm结构体中最高; 但有机碳贮量在干湿砂质新成土和黄土正常新成土中以<0.25 mm结构体所占比例最大, 在筒育干润均腐土和土垫旱耕人为土中以>5 mm结构体所占比例最大. 在不同植被下有机碳含量、贮量不同, 表现为自然林地>裸地>人工林地>农地.

关键词 [有机碳](#) [土壤结构体](#) [碳库](#)

分类号

Distribution of organic carbon pools in different sizes of soil aggregates in Loess Plateau

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Abstract

According to the types of vegetation and soil, 22 soil profile samples (0~20 cm, 20~40 cm and 40~60 cm) were collected from different regions of Loess Plateau to approach the distribution of organic carbon pools in different sizes of soil aggregates. The results showed that the organic carbon content and storage in all sizes of soil aggregates were decreased with increasing soil depth. For each soil layer, the organic carbon content had an increasing trend in the aggregates with the sizes from >5 mm, 2~5 mm, 1~2 mm to 0.25~1 mm, and a decreasing trend from 0.25~1 mm to <0.25 mm. Because of the different proportions of each size of soil aggregates, the organic carbon storage and content in different sizes of soil aggregates were not the same, *i.e.*, the storage was decreased with the sizes from >5 mm, 2~5 mm to 1~2 mm, while increased from 1~2 mm, 0.25~1 mm to <0.25 mm. Except Eum-Orthic Anthrosols had the highest organic carbon content in its aggregate of <0.25, Ust-Sandiic Entisols, Los-Orthic Entisols and Hap-Ustic Isohumisols had a peak value in their aggregate of 0.25~1 mm. The organic carbon storage was the highest in the aggregate of <0.25 mm in Ust Sandiic Entisols and Los-Orthic Entisols, and in the aggregate of >5 mm in Hap-Ustic Isohumisols and Eum-Orthic Anthrosols. The soil organic carbon content and storage under different types of vegetation had the trend of natural forestland >bare land >artificial forest land >farming land.

Key words

扩展功能

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