

东祁连山不同退化程度高寒草甸土壤有机质含量及其与主要养分的关系

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摘要:

对东祁连山金强河河谷轻度、中度、重度退化高寒草甸土壤有机质含量变化及其与土壤全磷、全氮、速效磷、速效氮含量之间的关系进行了研究。结果表明:随着退化程度的加重,020 cm层土壤有机质、全氮和速效磷含量均不断下降,全磷含量呈现出先降后升但总体呈下降的趋势,但速效氮含量则不断上升,各养分的变化差异均达到极显著水平($P < 0.01$)。在划分的轻度退化草地土壤中,有机质含量分别与全磷、全氮、速效磷、速效氮含量之间均不存在显著的相关关系($P > 0.05$),另外所划分的中度退化和重度退化草地也同样如此。但是通过把3个不同程度退化草地结合起来作为整体进行综合分析,结果表明,除了全磷,土壤有机质含量分别与全氮、速效氮、速效磷含量三者之间存在极显著的相关关系($P < 0.01$)。在较大尺度上,有机质可以作为土壤营养状况的主要判断指标。在研究高寒草地土壤养分状况及其综合评价中,要特别注意其时空异质性,要重视尺度问题。

关键词: 高寒草甸; 退化; 土壤有机质; 土壤养分; 东祁连山

Content of soil organic matter and its relationships with main nutrients on degraded alpine meadow in Eastern Qilian Mountains

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Abstract:

The content of soil organic matter (SOM) of alpine meadow with different degraded degrees in Jinqiang River area of Eastern Qilian Mountains was measured and its relationships with the contents of soil total phosphorus (TP), total nitrogen (TN), available phosphorus (AP) and available nitrogen (AN) were studied. The results indicated that the contents of OM, TN and AP decreased along with the degradation degree within 0 to 20 cm. However, the content of TP showed an increasing and then decreasing trend along with the degradation degree. And the content of AN showed an increasing trend. The change of each nutrient was significant at 0.01 level. Under light degradation, the content of soil OM had no significant correlation with other four nutrients. Same results were obtained with mediate degradation and heavy degradation. But took the three degraded alpine meadow as a whole, OM was significant ($P < 0.01$) respectively correlated with TN, AN and AP except TP. Under a relatively large scale, OM could be used as the indicator of soil nutrition status. When studying and estimating soil nutrient condition of alpine meadow, temporal and spatial heterogeneity and scale should be addressed.

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