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## 湘南红壤丘陵区不同植被类型下土壤肥力特征

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**摘要:** 以自然植被恢复长期定位试验为基础, 通过分析自然恢复 31a 后形成的 6 个植被类型区(樟树、枫树、梓树、白欖木、唐竹、白茅草)、2 个同期种植的人工植被区(湿地松、板栗)以及相邻裸地区 0—100 cm 土层 pH 值、有机质及主要养分含量的变化, 明确了湘南红壤丘陵区不同植被类型对土壤肥力的影响。结果表明: (1) 白茅草和唐竹区的土壤 pH 值显著高于裸地区, 但枫树和白欖木区的土壤酸化明显。(2) 土壤有机质、活性有机质、全 P、速效 P 等指标表现为乔木>草本>灌木, 碱解 N、全 K、速效 K 表现为灌木>乔木>草本, 全 N 表现为乔木>灌木>草本。(3) 土壤综合肥力优劣为: 枫树区>梓树区>白欖木区>樟树区>唐竹区>白茅草区>湿地松区>板栗区>裸地区, 自然恢复植被比人工植被更有利于土壤肥力的提高。

**关键词:** 红壤; 植被类型; 土壤肥力; 自然恢复

## Characteristics of soil fertility under different vegetation types in the hilly red soil region of southern Hunan

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**Abstract:** In Southern China, the hilly red soil region accounts for  $2.0 \times 10^6 \text{ km}^2$  and is an important production base for agriculture, forestry and animal husbandry. However, because of the increasing demand for firewood, timber and food in recent decades, many types of vegetation have been destroyed, which has resulted in local soil degradation and soil fertility decline, giving the region the title “red desert”. This soil degradation significantly limits sustainable economic development in this region and so restoring vegetation and improving soil fertility are vital. Natural vegetation restoration, by preventing human disturbance, is an important method for improving fertility by redistributing nutrients in degraded red soil in subtropical hilly regions. However, improving soil fertility by natural vegetation restoration is a long-term process, and the effect of different plants in improving soil fertility is not well understood. In this study, the distribution regularities of nutrients in the soil profile under natural vegetation restoration compared with that in artificial vegetation plots and bare plots were investigated and the effect of natural vegetation restoration on improving soil fertility in subtropical hilly regions was assessed.

A long-term natural vegetation restoration experiment (—2 hectares) was initiated in 1981 at the Red Soil Experiment Station of the Chinese Academy of Agricultural Sciences, Qiyang County, Hunan Province. The effect of natural vegetation

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