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# 遮荫对撂荒地草本群落生物量分配和养分积累的影响

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**摘要:** 城市化进程导致农村出现大量的撂荒地, 了解撂荒地不同利用方式下的植物群落动态可为撂荒地利用与管理提供重要的基础数据。撂荒地栽植与没有栽植林木是否影响林下草本群落的生物量分配与养分积累仍有待于研究。采用 50%—95% 遮荫网处理, 模拟林下光环境对撂荒地草本群落生物量分配和养分积累特征的影响。结果表明: 随着遮荫强度增加, 群落总生物量显著降低。遮荫处理显著降低了地上生物量及其分配比例, 而对根部生物量的影响不显著, 却显著提高了根部生物量的分配比例。光照强度与总生物量和地上生物量呈极显著正相关。遮荫处理显著降低了群落地上部分 C 含量, 显著提高了 P、K 含量, 对 N 含量影响不显著; 遮荫处理也显著提高了根部 C、N、P 含量, 但对 K 含量的影响不显著。随遮荫强度增加, 地上部分 C、N、P、K 的分配比例显著降低, 根部 C、N、P、K 的分配比例显著提高。相关分析表明, 光照强度仅与地上部分 N 含量、根部 C、N、P 含量极显著相关。遮荫处理显著降低了地上部分 C:N、C:P 和地下部分的 C:N, 但对地下部分 N:P、C:P 影响不显著。可见, 遮荫将影响撂荒地草本植物群落地上部分生物量和养分积累, 而根部对光照强度改变的响应不敏感。

**关键词:** 遮荫; 撂荒地; 草本群落; 生物量分配; 养分积累

## Effects of shading treatments on biomass and nutrient accumulation of herb community in abandoned land in the subtropical region

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**Abstract:** Urbanization in China results in a large amount of abandoned land in hilly regions. Understanding the dynamics of plant communities in abandoned land under different utilizations will be helpful to efficiently manage and utilize such land. Theoretically, different uses of abandoned land might produce different light environments, which might influence the biomass and nutrient accumulation of herb communities in abandoned land. Developing plantations is a universal way of utilizing the abandoned land. As yet, little information is available about planted trees and their effect on the biomass allocation and nutrient accumulation of the herb communities in the abandoned land of the subtropical region. In order to understand the shifts of herb communities in the abandoned land after planting trees, therefore, the light environments under the plantation were simulated using a 50%—95% shading net, and the characteristics of biomass allocation and nutrient accumulation of the herb community under the simulated light regimes was investigated. The results showed that the total biomass of herb communities significantly decreased with the decreases of light intensity. Significant changes were observed in the aboveground biomass and its allocation proportion under shading treatments. However, the root biomass showed no significant changes compared to the control, and its allocation proportions significantly increased. There was a

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