

研究报告

不同温度条件下杉木、桉木和火力楠细根分解对土壤活性有机碳的影响

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摘要 通过室内培养试验, 研究了不同温度(9 ℃、14 ℃、24 ℃和28 ℃)条件下桉木、杉木和火力楠细根分解对土壤活性有机碳的影响. 结果表明, 不同树种细根的分解率不同, 树种间差异显著, 大小依次为火力楠>桉木>杉木. 细根分解率随着培养温度的增加而增大, 随着培养时间的延长而降低. 添加细根的种类、培养温度和培养时间均对实验系统中土壤微生物碳和水溶性有机碳的含量产生影响. 3个树种细根分解使土壤微生物碳和水溶性有机碳含量显著高于对照, 大小依次为火力楠>桉木>杉木>对照; 培养中期以及中等培养温度条件下细根分解对应着较高的土壤微生物碳和水溶性有机碳含量. 细根分解对土壤易氧化碳含量无显著影响.

关键词 [细根](#) [分解](#) [微生物碳](#) [水溶性有机碳](#) [易氧化有机碳](#)

分类号

Effects of tree species fine root decomposition on soil active organic carbon

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Abstract

With incubation test, this paper studied the effects of fine root decomposition of *Alnus cremastogyne*, *Cunninghamia lanceolata* and *Michelia macclurei* on the content of soil active organic carbon at 9 ℃, 14 ℃, 24 ℃ and 28 ℃. The results showed that the decomposition rate of fine root differed significantly with test tree species, which was decreased in the order of *M. macclurei* > *A. cremastogyne* > *C. lanceolata*. The decomposition rate was increased with increasing temperature, but declined with prolonged incubation time. Fine root source, incubation temperature, and incubation time all affected the contents of soil microbial biomass carbon and water-soluble organic carbon. The decomposition of fine root increased soil microbial biomass carbon and water-soluble organic carbon significantly, and the effect decreased in the order of *M. macclurei* > *A. cremastogyne* > *C. lanceolata*. Higher contents of soil microbial biomass carbon and water-soluble organic carbon were observed at medium temperature and middle incubation stage. Fine root decomposition had less effect on the content of soil readily oxidized organic carbon.

Key words [fine root](#) [decomposition](#) [microbial biomass carbon](#) [water-soluble organic carbon](#) [readily oxidized organic carbon](#)

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