

桉-栎混合凋落物分解及其土壤动物群落动态

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Decomposition of eucalyptus-alder mixed litters and dynamics of soil faunal community.

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- 摘要
- 参考文献
- 相关文章

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摘要

采用放置不同孔径凋落袋(6目、30目和260目)的方法,研究了四川省乐山市苏稽镇不同比例巨桉(*Eucalyptus grandis*)与台湾栎木(*Alnus formosana*)混合凋落物的质量损失率及土壤动物群落结构的变化.结果表明:不同比例桉-栎混合凋落物均表现出前期分解迅速,后期分解较慢的规律.不同孔径凋落物袋中凋落物的分解率表现为6目最大,30目次之,260目最小.同孔径凋落物袋中不同比例桉-栎混合凋落物的分解速率也有不同,6目中各种凋落物分解时长相差较小,而30目和260目中纯巨桉、纯台湾栎木凋落物分解率达95%的时间之差分别为1175 d和908 d.凋落物分解过程中大型土壤动物类群结构发生了明显变化,分解初期主要为啮虫目,中期为后孔寡毛目,后期为鞘翅目,末期为双翅目.这些结果为进一步研究桉栎混交林物质循环提供了重要数据.

关键词: 巨桉 台湾栎木 土壤动物群落 凋落物分解 混合凋落物

Abstract:

In order to understand the decomposition characteristics of eucalyptus (*Eucalyptus grandis*)-alder (*Alnus formosana*) mixed litters and the roles of soil fauna in the decomposition process, litter samples of the two tree species were collected from the Suji Town of Leshan, Sichuan Province, and mixed with different proportions. The mixtures were put in 6-, 30-, and 260-mesh litterbags to investigate their mass loss and the dynamics of soil faunal community during the process of decomposition. Different proportion mixtures all presented the same decomposition pattern, *i.e.*, decomposed rapidly in early period and slower in later period. The mixtures had the highest decomposition rate in 6-mesh litterbag, followed by in 30-mesh, and in 260-mesh litterbag. In the litterbags with same meshes, the decomposition rate of different proportion mixed litters also varied. In 6-mesh litterbag, the durations for the decomposition of the litters had slight difference; while in 30- and 260-mesh litterbags, the durations for pure *E. grandis* and *A. formosana* litters getting 95% mass loss had a difference of 1175 and 908 days, respectively. During the decomposition of the litters, soil macrofauna had an obvious change in community structure. In early period, Psocoptera dominated; in mid period, Opisthopora dominated; in later period, Coleoptera dominated; and by the end, Diptera dominated. This study provided important information to understand the material cycling in eucalyptus-alder mixed plantation.

Key words: *Eucalyptus grandis* *Alnus formosana* soil faunal community litter decomposition mixture leaf litter

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