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ONLINE ISSN : 1880-7577

PRINT ISSN : 0021-4795

Mokuzai Gakkaishi

Vol. 54 (2008) , No. 5 p.289-298

[\[PDF \(2889K\)\]](#) [\[References\]](#)

## The Use of Phospholipid Fatty Acid Analysis to Estimate the Changes in Microbial Community Structure during Wood Decay in Forests

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(Received December 17, 2007)

(Accepted March 12, 2008)

**Abstract:** Phospholipid fatty acid (PLFA) analysis was used to estimate the changes in microbial community structure during decompositions of sugi and konara wood samples buried in soil of sugi plantation or broad-leaved forest. As the result of cluster analysis, the microbial community structure estimated by PLFA composition was classified in two groups by the wood species of sample, not by the forest vegetation. In konara wood samples, the index of fungal biomass measured as PLFA of fungal origin was held constant at a higher level, and the amount of gram positive bacterial biomass increased as the decay proceeded. The amount of each microbial biomass was positively correlated with the degree of wood decay. In sugi wood samples, PLFAs chosen as indexes of fungal, gram positive bacterial and actinomyces groups increased during wood decay, but no correlation was found between the amount of fungal biomass and the degree of wood decay. These results suggested that bacterial and actinomyces groups other than the fungal group would play a significant role in the decay of sugi wood samples.

**Keywords:** microbial community structure, PLFA, wood decay

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To cite this article:

Miho Matsushita, Ayami Hato and Sadatoshi Meguro: Mokuzaï Gakkaishi Vol. 54, No. 5, 289-298 (2008) .

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doi:10.2488/jwrs.54.289

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