Fungal decomposition of *Abies* needle and *Betula* leaf litter

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The effect of litter type and incubation temperature on the ability of fungi to decompose leaf litter of subalpine trees was examined by a pure-culture test. Mass loss of *Abies* needle and *Betula* leaf litter and utilization patterns of lignin and carbohydrates were investigated under two temperature conditions (20°C and 10°C) and compared for 29 species in basidiomycetes, ascomycetes and zygomycetes. The decomposing ability was generally higher in basidiomycetes than in ascomycetes and zygomycetes. Mass loss (% original mass) of litter was higher in *Betula* than in *Abies* and higher at 20°C than at 10°C. The 29 fungi were divided into lignocellulose decomposers, cellulose decomposers and sugar fungi based on their substrate utilization in *Abies* and *Betula* litter. Mass loss of lignin and carbohydrates by lignocellulose and cellulose decomposers was higher in *Betula* than in *Abies*. Mass loss of carbohydrates was higher at 20°C than at 10°C but the temperature did not influence mass loss of lignin, indicating lignin decomposition by fungi was less sensitive to temperature than carbohydrate decomposition. Lignin/carbohydrate loss ratio (L/C) of *Collybia* spp. that caused selective delignification was lower at 20°C than at 10°C for. These results indicate that the decomposability of litter, lignin and carbohydrate was different between *Abies* and *Betula* and that temperature affected not only the rate at which fungi decompose litter but also the ability of fungi to utilize lignin and carbohydrate.