

Wood decay fungi isolated from heart rots on Japanese larch plantation trees in Nagano, Japan

Hiromu Hashitani¹⁾, Yuko Ota¹⁾, Tsutomu Hattori²⁾, Kana Yamashita²⁾, Toshihiro Yamada³⁾, Yasuhisa Nishioka⁴⁾, Kenichi Yanagisawa⁴⁾, Kenichiro Toda⁴⁾

¹⁾College of Bioresource Science, Nihon University, Japan

²⁾Forestry and Forest Products Research Institute, Japan

³⁾The University of Tokyo Chichibu Forest, Japan

⁴⁾Nagano Prefecture Forestry Research Center, Japan

Purpose: Decay damage of Japanese larch increases with tree age and differs depending on the growing environment. Many larch plantations in Japan have reached logging age. Therefore, it is important to know the current state of wood decay to control decay damage in the next generations. In this study, we isolated wood decay fungi from heart rot and determined the decay damage rate in Japanese larch trees in plantations at three sites.

Methods: Japanese larch trees were logged and collected from plantations at the following three sites in Nagano prefecture: Kawakami (115-yr old), Ina (55-yr old), and Sakuho (68-yr old). The decay damage rate was calculated as the proportion of decayed trees out of the total number of trees examined. Disks were collected from some of decayed trees and wood decay fungi were isolated from heart rot in the disks. Wood decay fungi were identified based on their rDNA ITS sequences and the morphology of their mycelia on PDA.

Results and Conclusions: Six species of wood decay fungi (*Sparassis crispa*, *Phaelous schweinitzii*, *Porodaedalea chrysoloma*, *Oligoporus balsameus*, *Antrodia carbonica*, and *Coniophora sp.*) were isolated from heart rot. The decay damage rates were 31%, 18%, and 18% in plantations at Kawakami, Ina, and Sakuho, respectively. *Phaelous schweinitzii* was frequently isolated from Japanese larch trees at all sites. *Porodaedalea chrysoloma* was frequently detected from Japanese larch trees in Kawakami and Ina, but not from those in Sakuho, suggesting that heart rot fungi in Japanese larch may depend on specific environmental or host conditions.