New Disease Reports

New host species for *Chalara fraxinea*

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Fraxinus spp. are deciduous trees belonging to the family *Oleaceae*. Among about 70 known ash species in the world, the common ash (*Fraxinus excelsior*) is the most widely distributed in Europe;black (*F. nigra*), green (*F. pennsylvanica*) and white (*F. americana*) ash trees in North America; and Manchurian (*F. mandschurica*) ash in northeast Asia (Laas, 1987). A newly emerged disease in Europe is having a devastating effect principally on *F. excelsior* trees and is caused by the fungus *Hymenoscyphus albidus,* recently assigned to species *H. pseudoalbidus* (Queloz *et al.,* 2010). This pathogen is normally found in its anamorphic stage, *Chalara fraxinea* (Kowalski & Holdenrieder, 2009). During recent years the fungus has spread across Europe from east to west (Kowalski & Holdenrieder, 2009). Ash dieback was first noticed in the 1990s in Poland (Kowalski & Holdenrieder, 2009) and has subsequently been reported in Austria, Czech Republic, Denmark, Estonia, France, Finland, Germany, Hungary, Italy, Kaliningrad (Russia), Latvia, Lithuania, Norway, Romania, Slovenia, Slovakia, Sweden and Switzerland (Kirisits *et al*., 2009, Ogris *et al*., 2010, Rytkönen *et al.,* 2010). The disease has not been recorded in any other country to date where ash are indigenous, and only *F. excelsior* and *F. angustifolia* have been recorded as susceptible hosts, and*F. ornus* as moderately susceptible (Kirisits *et al.,* 2009).

During autumn 2009, several introduced ornamental ash species (approx. 40 years old) showing ash dieback symptoms (Fig. 1) were investigated. These were located in three southeastern Estonian parks (Luua, Tartu and Järvselja, on approx. 60 km long NW-SE transect). Black ash trees were badly affected with symptoms including wilting of leaves, dieback and necrotic lesions of shoots and twigs, and death of canopy. Green ash trees were moderately affected (with symptoms similar to black ash, but with less evidence of dead shoots within the canopy). White and Manchurian ash trees were least affected with symptoms including wilting of leaves, but only minor shoot and twig dieback and bark necrosis. *C. fraxinea* was consistently isolated from shoots with the above symptoms, as well as branches and petioles of all affected species. Growth of the fungus on malt extract agar in the dark at 22°C was relatively slow (38-40 mm in three weeks). It formed hyaline cotton white or light orange mycelium, often darkening to light brown in some areas (Fig. 2). The fungus was diagnosed by characteristic morphological features (phialides and phialospores, Fig. 3) (Kowalski & Holdenrieder, 2009). This is the first report of *C. fraxinea* infecting these ash species in the world.

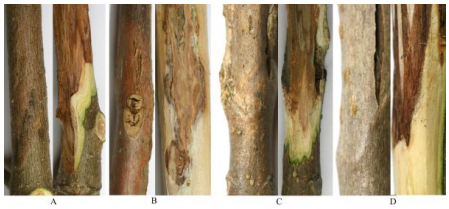

Figure 1

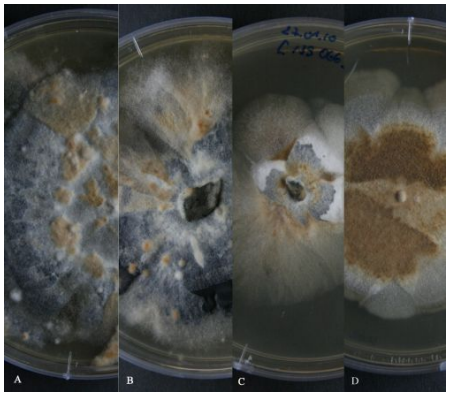

Figure 2

Figure 3

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References

Kirisits T, Matlakova M, Mottinger-Kroupa S, Cech TL, Halmschlager E, 2009. The current situation of ash dieback caused by *Chalara fraxinea* in Austria . *SDU Faculty of Forestry Journal*, Serial: A, Special Issue, 97-119.

Kowalski T, Holdenrieder O, 2009. The teleomorph of *Chalara fraxinea*, the causal agent of ash dieback. *Forest Pathology* **39**, 304-308. [doi:10.1111/j.1439-0329.2008.00589.x]

Laas E, 1987. Dendroloogia [Dendrology]. Tallinn, Estonia : Valgus. [In Estonian]

Ogris N, Hauptman T, Jurc D, Floreancig V, Marsich F, Montecchio L, 2010. First Report of *Chalara fraxinea* on Common Ash in Italy . *Plant Disease* **94**, 133. [doi:10.1094/PDIS-94-1-0133A]

Queloz V, Grünig CR, Berndt R, Kowalski T, Sieber TN, Holdenrieder O, 2010. Cryptic speciation in *Hymenoscyphus albidus*. *Forest Pathology* (in press). [doi:10.1111/j.1439-0329.2010.00645.x]

Rytkönen A, Lilja A, Drenkhan R, Gaitnieks T, Hantula J, 2010. First record of *Chalara fraxinea* in Finland and genetic variation among samples from Åland, mainland Finland, Estonia and Latvia . *Forest Pathology* (in press). [doi:10.1111/j.1439-0329.2010.00647.x]

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