Behavior of *Hymenoscyphus fraxineus* in the leaves of four foreign ash species (*Fraxinus* spp.) in Hokkaido, Japan

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**Purpose:** *Hymenoscyphus fraxineus* causes a lethal disease known as “ash dieback” in European ash *Fraxinus excelsior*, in Europe. However, this fungus endophytically inhabits the living leaves of Manchurian ash, *F. mandshurica*, in Japan. *Hymenoscyphus fraxineus* can infect ashes including East Asian and Euramerican species. While *F. excelsior* is susceptible in general, this species are healthily growing in the Sapporo campus of Hokkaido University. *Fraxinus pennsylvanica* and *F. americana* are economically important in North America, concerned attacks by *H. fraxineus* possibly introduced. In this study, we compared the behavior of *H. fraxineus* in the leaves of foreign ash species.

**Methods:** Four ash trees, *F. excelsior*, *F. pennsylvanica*, *F. americana* (Euramerican species) and *F. chinensis* subsp. *rhynchophylla* (East Asian species), growing in Sapporo were investigated. *Fraxinus pennsylvanica* and *F. americana* are weakening in the sites. Symptomless leaves of the trees were continuously collected. Whole DNA were extracted from the leaf samples, and then, the relative amount of fungal DNA of *H. fraxineus* to plant DNA was calculated by using real-time quantitative polymerase chain reaction.

**Results and conclusions:** The fungal DNA was apparently lower in *F. excelsior* healthily growing in the site. In *F. pennsylvanica*, the fungal DNA began to increase at the onset of the defoliation period. That in the leaflets of *F. americana* reached the peak even in late August. In *F. chinensis* subsp. *rhynchophylla*, the fungal DNA was slightly detected and retained low. These results suggested that change of relative amount of fungal DNA in the leaves was different between four ashes.