Ophiostoma spp. associated with pine- and spruce-infesting bark beetles in Finland and Russia

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The timber and pulp industries of Finland rely heavily on importations from Russia as source of raw timber. These imports raise the risk of accidentally importing forest pests and pathogens, especially bark beetles and their associated fungi, into Finland. Although ophiostomatoid fungi have previously been reported from Finland and Russia, the risks of accidentally moving these fungi has prompted a first survey to compare the diversity of conifer-infesting bark beetles and associated fungi from boreal forests on both sides of the Finnish-Russian border. The aim of the present study was to identify and characterise *Ophiostoma* species isolated in association with 11 bark beetle species infesting *Pinus sylvestris* and *Picea abies* during this survey in the eastern parts of Finland and neighbouring Russia. Fungal isolates were grouped based on morphology and representatives of each morphological group were subjected to DNA sequence comparisons of the internal transcribed spaced region (ITS1, 5.8S, ITS2) and □-tubulin gene region. A total of 15 species of *Ophiostoma* were identified, including seven known species, five new species, and three species for which the identity remains uncertain. In the *O. piceae*-complex we identified *O. canum*, *O. floccosum*, *O. karelicum* and *O. rachisporum* sp. nov., and related to these, some isolates belonging to the European clade of *O. minus* in the *O. minus*-complex. *Ophiostoma bicolor* and *O. fuscum* sp. nov. were identified in the *O. ips* -complex, while *O. ainoae*, *O. brunneo-ciliatum*, *O. tapionis* sp. nov. and *O. pallidulum* sp. nov. were shown to group close to, but not in a strict monophyletic lineage with species of the *O. ips*-complex. Together with a single *O. abietinum*-like isolate, the only species that grouped close to the *Sporothrix schenckii*- *O. stenoceras* complex, was *O. saponiodorum* sp. nov.

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