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SHORT COMMUNICATION

The first report of *Libertella* spp. on Fagaceae in Slovakia

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Abstract There were no published data about the occurrence of *Libertella* species in Slovakia. Three *Libertella* species, *L. faginea* on *Fagus sylvatica*, *L. betulina* on *Betula pendula*, and *L. quercina* on *Castanea sativa*, are described here. Morphological observations with descriptions of other *Libertella* species growing on Fagaceae were compared, and possible conspicuity with any of the known species is discussed.

Keywords Beech · Birch · Chestnut · Fagaceae

Members of the genus *Libertella* Desm. are anamorphic fungi that correspond to various genera of teleomorphs in Pezizomycotina. Seventy-seven species are listed as parasites or saprophytes on different species of vascular plants (Glawe and Rogers 1982; Ellis and Ellis 1985; Kirk et al. 2001). Teleomorphs are mostly members of the genus *Diatrypella* (71 species), but some of them are also members of other genera, namely *Eutypa* (1), *Eutypella* (1), *Diaporthe* (1), and *Polystigma* (2); 1 species has an unknown teleomorph (Kirk et al. 2001).

The genus *Libertella* belongs to the family Diatrypaceae, one of the seven families of the Xylariales (Smith et al. 2003). Members of this family are common worldwide, typically occurring on a broad range of dead or declining woody angiosperms. Host specificity is variable within the group, within some species apparently being associated with one plant genus (Acero et al. 2004). Species of the genus *Libertella* form acervuli that are subcortical, erumpent, and yellow to red with branched conidiophores that produce hyaline, one-celled, filiform conidia (Barnett and Hunter 1972).

Libertella spp. were found on branches and trunks (Hinds 1981; Pilotti et al. 2005), but it was also isolated from leaves (Barengo et al. 2000). In inoculation trials, an unidentified *Libertella* species isolated from *Platanus* × *acerifolia* caused wood streaking and wood decay (Pilotti and Ponzio 2004). Some species are considered as parasites; e.g., one species of the genus was associated with trunk decay columns in living aspen that ranged from 0 to 17.1 m in height with an average length of 4.6 m (Hinds 1981). However, in some studies other species are identified as saprophytes. Trees of the family Fagaceae are well-known hosts of *Libertella* species. *Libertella faginea* Desm. was collected on twigs and stems of *Fagus sylvatica* from England (Ellis and Ellis 1997), France, Germany, and Romania (Sutton 1980), from the Ukraine (Dudka et al. 2004) and also from Switzerland on injured twigs (Sieber and Hugentobler 1987).

On *Quercus* sp., another genus from family Fagaceae, *Libertella quercina* Grove, was published from England (Grove 1937), the Ukraine (Irsenaite and Treigiene 2001), and Hungary (Magyar and Tóth 2003).

No published data about the occurrence of *Libertella* species in Slovakia are included in the *Checklist of Nonvascular and Vascular Plants of Slovakia* (Lizon and Bacigálová 1998), although Juhásová (2004) mentioned the possible occurrence of *L. betulina* Desm. on *Betula* in Slovakia. This article is the report of the occurrence of three *Libertella* species in Slovakia.

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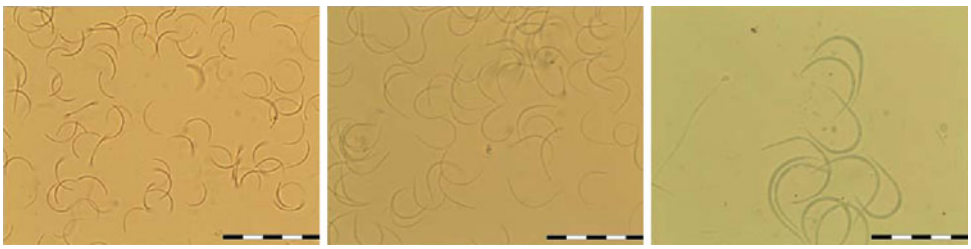

Figs. 1–3 Conidia of *Libertella* spp. **1** *L. faginea* on *Fagus sylvatica*. **2** *L. betulina* on *Betula pendula*. **3** *L. quercina* on *Castanea sativa*. *Bars* **1**, **2** 50 μm; **3** 20 μm

Libertella faginea Desm., Annls Sci. Nat., Bot., sér. 1 19: 276, 1830. Fig. 1

Specimen examined: Slovak Republic, Veľký Biel, on branches and stems of *Fagus sylvatica* L., 27 August 2004, Juhásová, SAV F-3142.

Acervuli varied greatly in form. They are small, often confluent, covered by the periderm but showing their color through it. They open by minute pores (Grove 1937). Saccardo (1882) describes the spores of *L. faginea* as sporidis distichis, cylindrical, curved, dilute-fuscous, 16 × 3–4 μm, occurring on bark of branches of *F. sylvatica*; rare on *Castanea*, *Acer*, *Carpinus*, and *Alnus serrulata* in Great Britain, as the anamorph state of *Quaternaria persoonii* Tul. & C. Tul. (current name, *Eutypella quaternata* (Pers.) Rappaz). Grove (1937) describes them as very delicately filiform-fusoid, curved, 17–26 × 0.5–0.75 μm, issuing in very highly gelatinous, coiled and twisted, saffron-yellow or orange tendrils. Conidiophores are crowded and as long as the spores. It is very common in Great Britain on trunks and branches of *F. sylvatica*. Our sample collection of *F. sylvatica* is identical with the description of *L. faginea* provided by Grove (1937).

Libertella betulina Desm., Annls Sci. Nat., Bot., sér. 1 19: 276, 1830. Fig. 2

Specimen examined: Slovak Republic, Nitra, Štúrova street, on branches and stem of *Betula pendula* Roth, 28 June 2006, Adamčíková, SAV F-3143.

Libertella betulina is the pycnidial stage of *Diatrype stigma* (Hoffm.) Fr. (Grove 1937). The acervuli are small or expanded, at first pinkish, covered by the elevated periderm, then divided into many tortuous chambers, rich golden-yellow. Spores are yellow in mass, fusoid, faintly curved, pointed at both ends, issuing in golden-yellow tendrils. The conidia are 13–16 × 0.75–1 μm (Grove 1937) and 14 μm long according to Desmazieres (1851). Conidiophores are crowded, branched, acicular, nearly straight, about as long as the conidia.

Libertella quercina Tul., Select. fung. carpol. (Paris) 2: 98, 1863. Fig. 3

Specimen examined: Slovak Republic, Horné Otrokovce, on branches of *Castanea sativa* Mill., 28 June 2006, Adamčíková, SAV F-3144.

The single collection of *L. quercina* collected on *C. sativa* in Slovakia was found on a damaged chestnut tree about 20 years old. The *Castanea* tree was dry at approximately one-third of the upper part of the tree crown. The damaged part of the crown was covered with dried leaves, and we observed color changes on the bark surface. On the surface of the bark were seen stromata of the fungus that were subepidermal red-orange-colored shiny acervuli.

No mature fruit bodies were found; therefore, pieces of attacked bark and branches were placed in a damp chamber. In the damp chamber, the conidia were released from acervuli as a sticky orange substance. This substance contained long, curved, hyaline conidia, which were 23.9–41.2 × 0.7–0.8 μm (mean, 36 × 0.76).

The acervuli of *L. quercina* are small, flat to subconical, three- to four angled, dark, hymenium labyrinthiform, pale grey, finally covered with golden-yellow spores, spores abundant, slender, and strongly arcuate, 35 μm long or more; when collapsed, produce golden matter; occurred on bark of *Quercus* as abundantly as in England and France (Grove 1937). Saccardo (1906) described *Cytosporina quercina* (Tul.) Traverso (basionym *Libertella quercina*) on branches of *Quercus* and *Castanea* in Italy, France, and Germany with conidia that were cylindric-filiform, arched curved, hyaline, 30–35 × 1–1.5 μm. It is the anamorph state of *Diatrypella quercina* (Pers.) Cooke (Grove 1937). These descriptions are identical with our observations and measurements of *Libertella* fungus collected from the chestnut. There are no more recent data about the occurrence of this fungus on *Castanea sativa*.

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