

## A New Species of *Plectocarpon* (Lichenicolous Roccellaceae, Ascomycota) on *Peltigera*

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**Abstract.** A new lichenicolous species, *Plectocarpon peltigerae*, growing on *Peltigera leucophlebia thalli*, is described from Canada and Russia.

*Plectocarpon* Fée is a widespread lichenicolous genus containing at least 15 species, growing mainly on Peltigerales (Diederich & Etayo 1994). A new species apparently confined to *Peltigera leucophlebia* is described here from Canada and Russia.

### MATERIAL AND METHODS

We have studied specimens from DUKE and LE. Handmade sections were examined in water, 5% KOH (K), Congo Red with KOH pre-treatment, or Lugol's reagent without (I) or with KOH pretreatment (K/I). Measurements of asci and ascospores all refer to material examined in KOH; those of ascospores do not include the perispore. Drawings were done using a drawing tube.

**PLECTOCARPON PELTIGERAE** Zhurb., Ertz, Diederich & Miadl., *sp. nov.* FIGS 1–2

Ascomata lichenicola, convexa, atra, verrucosa, 0.3–0.9(–1.5) mm diam., plurilocularia, loculis ad 200  $\mu$ m diam., ad 120  $\mu$ m alta. Textura stromatica atrorufa, cum pigmento olivaceo, K–. Asci 4(8)–spori, 40–58  $\times$  12–19  $\mu$ m. Ascospores 3-septatae, 18–22  $\times$  4.5–6.5(–7.0)  $\mu$ m. Conidia 4.5–5.5  $\times$  1.0–1.5  $\mu$ m.

TYPE: CANADA. BRITISH COLUMBIA. Spahats Creek, 10 km N of Clearwater, Wells Gray Provincial Park, Trophy Mtn trail, *Miadlikowska* 08.29.00–5 (DUKE, holotype; BR, hb. Diederich, isotypes).

*Ascomata* black, stromatic, gall-forming, distinctly convex but not constricted at base, 0.3–0.9(–1.5) mm in diam., developing in center of dark brown circular areas of thallus, dispersed, often confluent and covering larger parts of host thallus; when well developed, often dividing into  $\pm$  flat external ring that is usually clearly separated from

more convex central part by circular depression; the upper surface of central part of ascomata, including young ones, strongly verrucose, each verruca containing fertile perithecia-like loculus soon exposed through irregular punctiform or more often elongate opening, giving appearance of agglomeration of lirellae-like ascomata; external ring often developing into verrucose, lirellae-like structure containing perithecia-like loculi; in poorly developed specimens, ring often missing or incomplete. Ascomata in section initially showing continuous host cortex of cells that turned reddish brown,  $\pm$  intact host photobiont layer, and numerous roundish, fertile, immersed perithecia-like loculi, up to 200  $\mu$ m in diam. and 120  $\mu$ m in height, generally well separated from each other, surrounded by brownish to olivaceous, K– excipular layer; when mature, the excipular tissue enlarges and host cortex becomes darker brown, giving appearance of thick, dark brown to black multilocular stroma, 140–220  $\mu$ m thick. *Hymenium* hyaline, pale brownish to olivaceous, entirely filling loculi, I+ red, K/I + blue. *Paraphyses* abundant, anastomosed, 1.8–2.3  $\mu$ m in diam., apically not distinctly swollen. *Asci* of the *Opegrapha*-type, wall I– and K/I–, except for a K/I+ blue apical ring, with distinct ocular chamber, claviform, generally 4-spored, although asci with eight young spores have been observed, 40–58  $\times$  12–19  $\mu$ m. *Ascospores* narrowly ellipsoid, 3-septate, slightly constricted at septa, hyaline, 18.0–22.0  $\times$  4.5–6.5(–7.0)  $\mu$ m, with a distinct perispore 0.5–1.0  $\mu$ m thick (in KOH). *Pycnidia* intermixed with the ascomatal loculi and indistinguish-

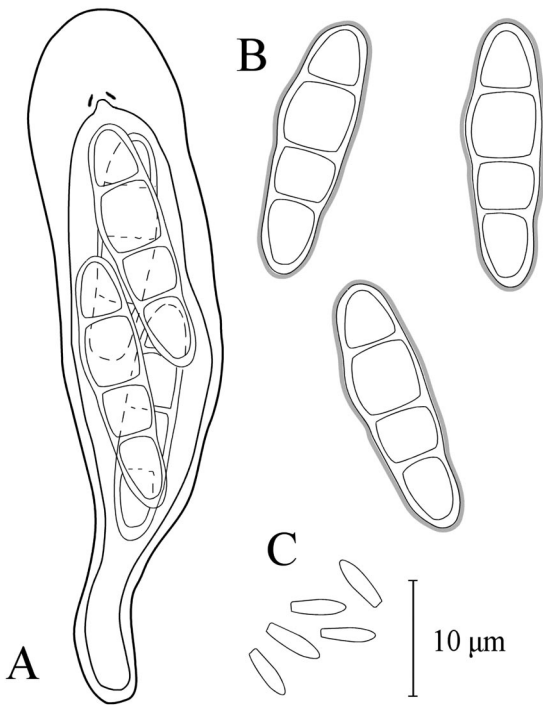


FIGURE 1. *Plectocarpon peltigerae* (holotype). — A. Ascus with four ascospores. — B. Ascospores. — C. Conidia. All drawings in K/I.

able from them externally. *Conidia* bacilliform, aseptate, hyaline, with a truncate base,  $4.5\text{--}5.5 \times 1.0\text{--}1.5 \mu\text{m}$ .

*Distribution and host.*—Known from Canada (British Columbia) and Russia (Komi Republic: Northern Ural; Karelia Republic: Keret' Archipelago in the Kandalaksha Gulf of the White Sea) on *Peltigera leucophlebia* (upper surface of thallus, rarely also on corticated patches on the underside of apothecia), not obviously damaging the host. The hosts of the Canadian collections might represent a distinct, possibly new species of *Peltigera* closely related to *P. leucophlebia*; their identity is currently being investigated by JM.

*Discussion.*—This is the first known species of *Plectocarpon* growing on *Peltigera*. It is distinguished from all other known species of the genus by the special ascomata, in which when well developed, an outer fertile ring is separated from the central, also fertile part by a circular depression surrounding that center. This ring is best seen in the type specimen, but poorly developed or absent in other specimens. Furthermore, the fertile loculi become exposed following a slit-like opening, and the resulting mature ascomata appear as covered by a number of radiating or irregularly disposed lirellae. In none of the other known species of *Plectocarpon* have such lirelliform structures been observed.

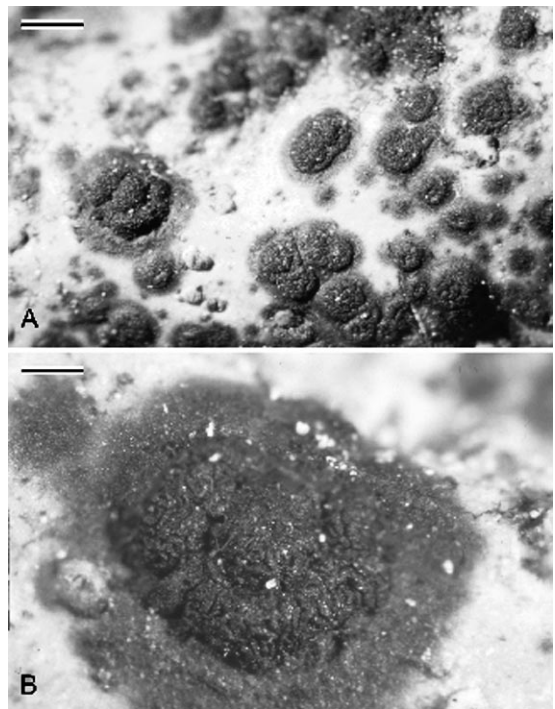


FIGURE 2. *Plectocarpon peltigerae* (holotype). — A. Thallus of *Peltigera leucophlebia* with numerous ascumata. — B. Ascoma. Scale bars: A = 1 mm, B = 250  $\mu\text{m}$ .

*Plectocarpon lambinonii* Diederich & Etayo is distinguished by more strongly convex galls, mostly 2-spored asci, and a K+ green stromatic pigment (Diederich & Etayo 1994). *Plectocarpon arthonioides* Diederich has shorter ascospores,  $15.5\text{--}17.0 \times 5.0\text{--}5.5 \mu\text{m}$  that are six per ascus (Aptroot et al. 1997).

The species might be confused with *Arthonia fuscopurpurea* that has ascumata of a similar size, also growing on *Peltigera*. However in that species, the ascumata are more flattened and reddish brown—not black, the asci are of the *Arthonia*-type, and the ascospores are 1-septate.

*Paratypes* (all on *Peltigera leucophlebia*).—CANADA. BRITISH COLUMBIA. Spahats Creek, 10 km N of Clearwater, Wells Gray Provincial Park, near Spahats Creek Falls,  $51^{\circ}44' \text{N}$ ;  $120^{\circ}01' \text{W}$ , 710 m, *Miadlikowska* 08.07.02–22 & *Zhurbenko* 02209, 02215, 02217, 02218, 02237, 02257, 02266 (DUKE; LE; hb. Diederich), near S boundary of Park, Murtle River Trail NE of Dawson Falls,  $51^{\circ}58' \text{N}$ ;  $120^{\circ}06' \text{W}$ , 730 m, *Zhurbenko* 02239 (LE), Clearwater River Trail,  $51^{\circ}43' \text{N}$ ;  $120^{\circ}01' \text{W}$ , 550 m, *Zhurbenko* 02282 (LE), Philip Creek Trail,  $52^{\circ}52' \text{N}$ ;  $120^{\circ}00' \text{W}$ , 800 m, *Zhurbenko* 02160 (LE). RUSSIA. KARELIA REPUBLIC. Loukhi District (= Karelia Keretina), Keret' Archipelago in the Kandalaksha Gulf of White Sea, Srednii Island,  $66^{\circ}17' \text{N}$ ,  $33^{\circ}38' \text{E}$ , 10 m, *Himmelbrant*, 2000 (LE). KOMI REPUBLIC. Troitsko-Pechorskii Region, Northern Ural, headwaters of Pechora River, Pechora-Ilych State Reserve, 125 km SE of Troit-

sko-Pechorsk, Sobinskoe, 61°59' N; 58°02' E, elev. 160 m, *Zhurbenko 97253* (LE, hb. Diederich).

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