CALICIUM PINASTRI (LICHENIZED ASCOMYCOTA), A LICHEN SPECIES NEW TO POLAND

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The lichen genus *Calicium* Pers. (Physciaceae, Teloschistales, Ascomycota – Lumbsch & Huhndorf 2007; for comparison see also Miądlikowska *et al.* 2006) is characterized by apothecia with a usually long stalk and globose to lens-shaped capitulum. Asci are cylindrical to clavate and dissolve at an early age, forming the mazaedium, a structure consisting mostly of ascospores. Spores are always 1-septate, dark brown and usually ornamented (Purvis *et al.* 1992; Tibell 1999a). Species of *Calicium* grow mostly on bark of trees or wood, but a few taxa can also inhabit rocks (Tibell 1999a). Other work by Tibell (2003) clearly shows that the genus *Calicium* Pers. as currently circumscribed is not monophyletic. Its molecular phylogeny contains several distinct clades, which to some extent can be characterized morphologically (Tibell 2003).

In Poland, eleven taxa of *Calicium* have been reported up to now (Fałtynowicz 2003). Bielczyk (2003) encountered nine species of the genus in the Polish Western Carpathians, and Kościelniak and Kiszka (2003) reports as many as four *Calicium* species from the Polish Eastern Carpathians.

During intensive fieldwork in the Tatra Mts conducted by the first author within the EU LACOPE project, a very interesting specimen of a calicioid fungus morphologically resembling the genus *Sphinctrina* Fr. was collected. Detailed examination placed it within the genus *Calicium*, and all the characters agreed with *C. pinastri* Tibell, rather rare in Europe. The present report is the first record of the species in Poland and the second record of the species in the Western Carpathians. Previously, *C. pinastri* was reported from the Slovak Carpathians by Palice *et al.* (2006).

This paper briefly characterizes the species, gives its general distribution, and discusses similar taxa. A voucher specimen is deposited in KRAM, with duplicates in UGDA and hb. Palice.

Calicium pinastri Tibell

Mycotaxon **70**: 436. 1999.

Thallus thin, inconspicuous to disappearing, grey; apothecia stalked, up to 0.4 mm high, with obconical to lenticular capitulum up to 0.2 mm wide, all parts black, shiny and not pruinose; asci cylindrical, with uniseriately arranged spores, up to 40 × 5 µm; spores 1-septate, brown, broadly ellipsoid, rather smooth, but older with irregular cracks of ornamentation, *ca* 11–13 × 6 µm.

AFFINITIES. *Calicium pinastri* resembles *C. parvum* Tibell, another member of the genus described from pine bark. Both taxa can be distinguished by the shape of asci, cylindrical in the former and clavate in the latter. Although similar at first glance, mainly because of their minute size, *C. parvum* is unlikely to be mistaken for *C. pinastri* when studied in more detail. Additional distinguishing characters are the verrucose thallus with frequently present pycnidia and pruinose apothecia of different shape. Other species similar to *C. pinastri* are *C. abietinum* Pers. and *C. glaucellum* Ach., but *Calicium abietinum* has a brownish apothecial

stalk and larger spores with warty ornamentation, whereas *C. glaucellum* usually has white pruina at the edge of the excipulum, larger apothecia, and young spores with almost spirally arranged ridges of ornamentation (Tibell 1999a, b; Jonsson 2003). Occasionally one may find it difficult to distinguish *C. pinastri* from poor specimens of *C. glaucellum* growing on bark; these specimens sometimes lack whitish pruina, and rich samples are needed for correct identification.

Tibell (2003) provides very interesting information on the affinities of *C. pinastri*, based on molecular studies. He places the species within the *Calicium glaucellum* clade. Surprisingly, the closest relative of *Calicium pinastri* is shown to be the rather dissimilar *C. montanum* (based on ITS rDNA data). Only one sequence of each taxon was used, however, and more molecular data are needed to confirm this relationship. *C. parvum* was not sampled in that study.

DISTRIBUTION AND ECOLOGY. In Poland *C. pinastri* has been found at only one locality in the Western Carpathians. It was growing on flaking bark on the lower part of the trunk of a middle-aged *Picea abies* growing on the margin of extensive pasture and conifer forest. Associated lichen taxa at the Polish locality include, for example, *Hypogymnia physodes* (L.) Nyl., *Lecanora conizaeoides* Nyl., *L. pulicaris* (Pers.) Ach., *Trapeliopsis flexuosa* (Fr.) Coppins & P. James and *Scoliciosporum chlorococcum* (Graeve ex Stenh.) Vězda.

As there are very many similar habitats in the area, we expect the species to be more frequent but perhaps overlooked or confused with similar members of the genus.

GENERAL DISTRIBUTION. *Calicium pinastri* has been recorded only from Europe: Czech Republic (Tibell 1999b; Vězda & Liška 1999), Germany (Tibell 1999b; Scholz 2000), Finland (Tibell 1999a, b; Santesson *et al.* 2004), Estonia (Jüriado *et al.* 2000), Sweden (Jonsson 2003; Santesson *et al.* 2004), Austria (Berger & Priemetzhofer 2005) and Slovakia (Palice *et al.* 2006).

NOTE. Interesting discussions of the ecological preferences and requirements of the species, as well as comments on its local distribution, are provided by Jonsson (2003) and Palice *et al.* (2006), and also by Peksa (2004) who compared *C. parvum* and *C. pinastri* in the Czech Republic.

SPECIMENS EXAMINED. POLAND. TATRA MTS: Rów Podtatrzański trench, Tatra National Park, near Małe Ciche village, Wawrzeczkowa Cyrhla glade, alt. 950 m, 49°17′13″N, 20°03′32″E [ATPOL grid square Ge 50]; on the margin of extensive pasture, on bark of *Picea abies* (L.) H. Karst., 16 June 2004, *leg. L. Śliwa 2251* (KRAM-L 50579, UGDA-L 14098, hb. Palice).

ADDITIONAL SPECIMEN EXAMINED. CZECH REPUBLIC. ŠUMAVA: *ca* 1.5 km W of Pěkná, in Vltava River valley, peat bog pine forest, on bark of *Pinus sylvestris*, 14 April 2000, *leg. M. Kukwa s.n.* (UGDA-L 7965).

ACKNOWLEDGEMENTS. We are grateful to Zdeněk Palice (Průhonice) for his assistance and for confirmation of our identification, and to the anonymous reviewer for constructive comments on the manuscript. Financial support from EU–Project LACOPE (*Landscape Development, Biodiversity and Co-operative Livestock Systems in Europe*; contract no. EVK2-2002-00150; 2002–2006) is gratefully acknowledged.

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Received 26 June 2008