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Мікологічні знахідки

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NEW FOR UKRAINE SPECIES OF *SCUTELLINIA* (*PYRONEMATACEAE, PEZIZALES*) FROM THE SVYDOVETS MOUNTAIN RANGE (CARPATHIAN BIOSPHERE RESERVE)

Key words: Ascomycota, *new records, Svydovets Mountain Range, Ukraine*

Abstract. The article reports on three new for Ukraine records of *Scutellinia* collected in the Svydovets Mountain Range (Carpathian Biosphere Reserve): *S. crinita* (Bull.) Lambotte, *S. crucipila* (Cooke et W. Phillips) J. Moravec, and *S. pseudotrechispora* (J. Schröt.) Le Gal. Brief descriptions, localities, data on general distribution and original illustrations are provided.

The Svydovets Mountain Range (Rakhiv District, Zakarpatska Region) covers an area of 6580 ha in the highest parts of the Svydovets area (from 600 to 1883 m altitude). It is one of the protected areas of the Carpathian Biosphere Reserve [2].

Different types of beech forest associations (*Fageta sylvaticae*) are dominant. On the rocky landforms, beech-sycamore and beech-ash-sycamore forests (*Fageto-Aceretum pseudoplatanae, Fageto-Fraxineto-Aceretum*) are also common. On the northern macroslope conditions are favorable for the formation of fir forests (*Abieta albae*) and near the upper limit of the forest — for the spruce formation (*Piceeta abietis*). Above the forest belt, there is a subalpine zone where *Duschekia viridis* (Rupr.) Pouzar and *Juniperus sibirica* Burgsd. occur [4].

The Svydovets for a long time attracted attention of botanists while mycologically this area is little explored. The first mycological survey in the Svydovets and surrounding regions took place over 70 years ago. A. Pilat [13] has published data about species diversity of *Ascomycota* and *Basidiomycota* (19 and 387 species, respectively).

In 2009—2010 we began studying species diversity of fungi of these areas [6]. As a result of our research, we have identified new for Ukraine taxa of ascomycetous fungi belonging to *Helotiales* (*Rutstroemia juniperi* K. Holm et L. Holm, *Myriosclerotinia sulcatula* T. Schumach. et L.M. Kohn) and *Pezizales* (*Peziza echinospora* P. Karst., *Melastiza chateri* (W.G. Sm.) Boud.) [3].

The present paper reports 3 new for Ukraine species of the genus *Scutellinia* (Cooke) Lambotte (*Pyronemataceae, Pezizales*).

The genus *Scutellinia* is cosmopolitan. To the naked eye, the species are distinguished by the red or orange—red discoid ascocarps, clothed with stiff, brownish or black hairs (setae) along the apothecial rim and on the outside of apothecia [14, 15].

On the basis of substrate relations, three ecological groups of *Scutellinia* are recognized: humus saprotrophs, or soil-inhabiting (utilize soils of various nutritional qualities), which is the most numerous group; xylosaprotrophs (grow both on deciduous and coniferous wood, and avoid soils as a substrate), and forest saprotrophs (grow on a variety of non-living organic substrates and materials, soils and rotting wood being the usual substrates, including carbobionts and coprobionts) [15, 16].

On the world scale, the number of species currently placed in to *Scutellinia* has been estimated to vary from ca. 30 spp. in Hawksworth et al. (1983) [10] to 45 spp. in Hawksworth et al. (1995) [11], and 66 spp. in Kirk et al. (2008) [12]. So far, 19 species and 4 varieties are known in Russia [1]. Prior to the beginning of our research, only 7 species of this genus were reported for Ukraine [5].

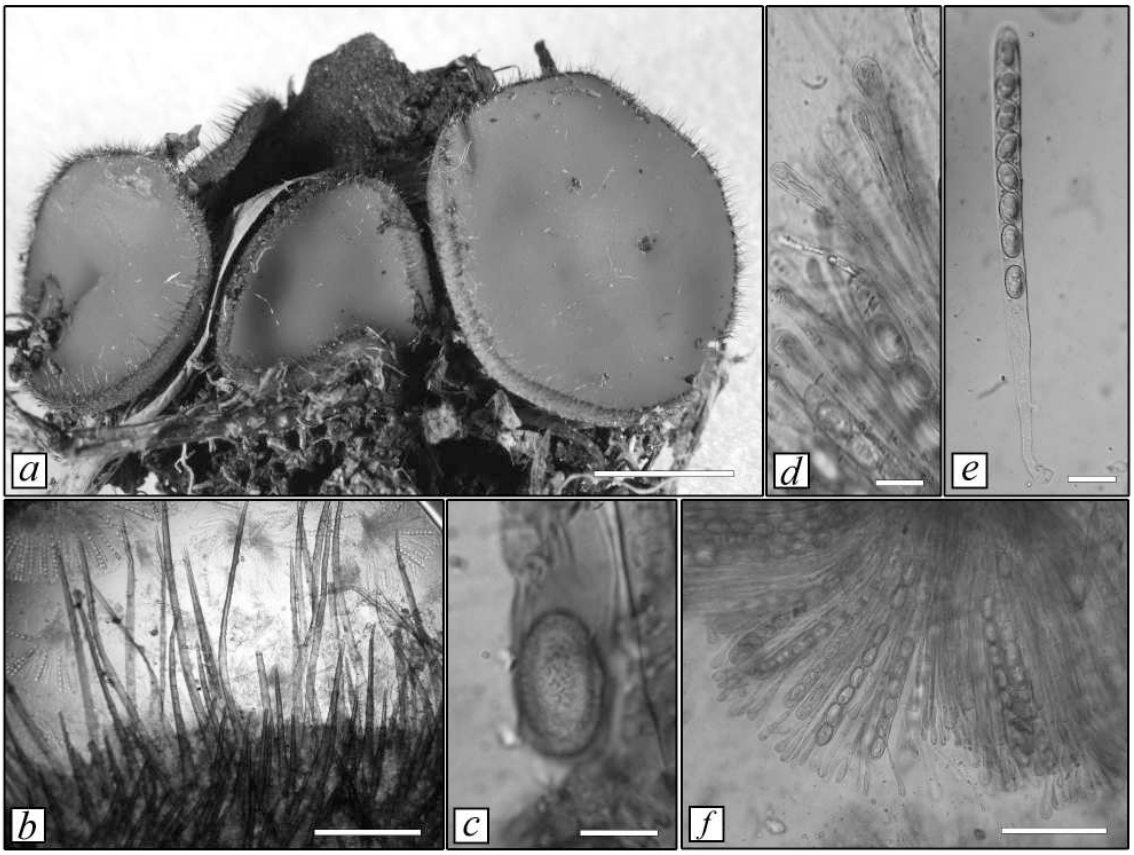

Fig.1. *Scutellinia crinita*: *a* — apothecia; *b* — hairs; *c* — spore; *d* — paraphyses; *e* — ascus with spores; *f* — fragment of hymenial layer. Bars: *a* — 5 mm; *b* — 400 μm; *c* — 10 μm; *d* , *e* — 20 μм; *f* — 100 μм

All specimens were collected by the second author in June—September 2011 during the survey in the Svydovets Mountain Range.

Brief descriptions of the species, their associated substrates, localities, information on general distribution, and original illustrations are given below. Species of fungi are arranged following *Index Fungorum* [7] and *MycoBank* [8].

***Scutellinia crinita* (Bull.) Lambotte**, *Mém. Soc. roy. Sci. Liège*, Série 2, **14**: 299 (1887). — *Peziza crinita* Bull., *Herb. Fr.* **9**: tab. 416, fig. 2 (1789) (Fig. 1.)

Apothecia sessile, discoid, 2-5 mm diam. **Hymenium** pale orange, yellowish red, margin and outer surface moderately covered by long brownish hairs. Ectal excipulum of globose to angular cells, 40—80 μm in diam. **Hairs** long, up to 1600—2000 μm, thick-walled, multiseptate, brownish, with multifurcate base and often with branches of second order. Some hairs are divided in overhead part. **Asci** subcylindric, 185—230 × 15—19 μm. **Ascospores** broadly ellipsoid, 19.5—21.00 × 13.5—14.00 μm (16.6—21.2 × 11.1—13.8 μm in [14]), ellipsoid, multiguttulate with one large guttule, broadly rounded at the poles. Spore sculpturing from small warts to short ridges. **Paraphyses** straight, ca. 3 μm broad, septate, simple, branched.

Habitat: on soil, 05.07.2011.

Distribution: Europe (Austria, Czech Republic, France, Germany, Iceland, Norway, Sweden, Switzerland, Ukraine). Asia (China, Japan, Russia (Far East)). North America.

Notes: The fungus is quite common in northern temperate and boreo-alpine regions of Europe [15] as a forest saprotroph on a wide range of substrates, e.g. decaying wood, burnt ground, soils, dung, and plant remnants [15, 16]. In our opinion, this species is widespread in Ukraine; however, it has been earlier misidentified as a closely related *S. scutellata*, which has more elongate and coarsely warted ascospores.

***Scutellinia crucipila* (Cooke et W. Phillips) J. Moravec**, *Česká Mykol.* **38** (3): 149 (1984). — *Peziza crucipila* Cooke et W. Phillips, in Cooke, *Mycogr.*, Vol. **1**. Discom. (London): fig. 237 (1876). — *Cheilymenia crucipila* (Co-

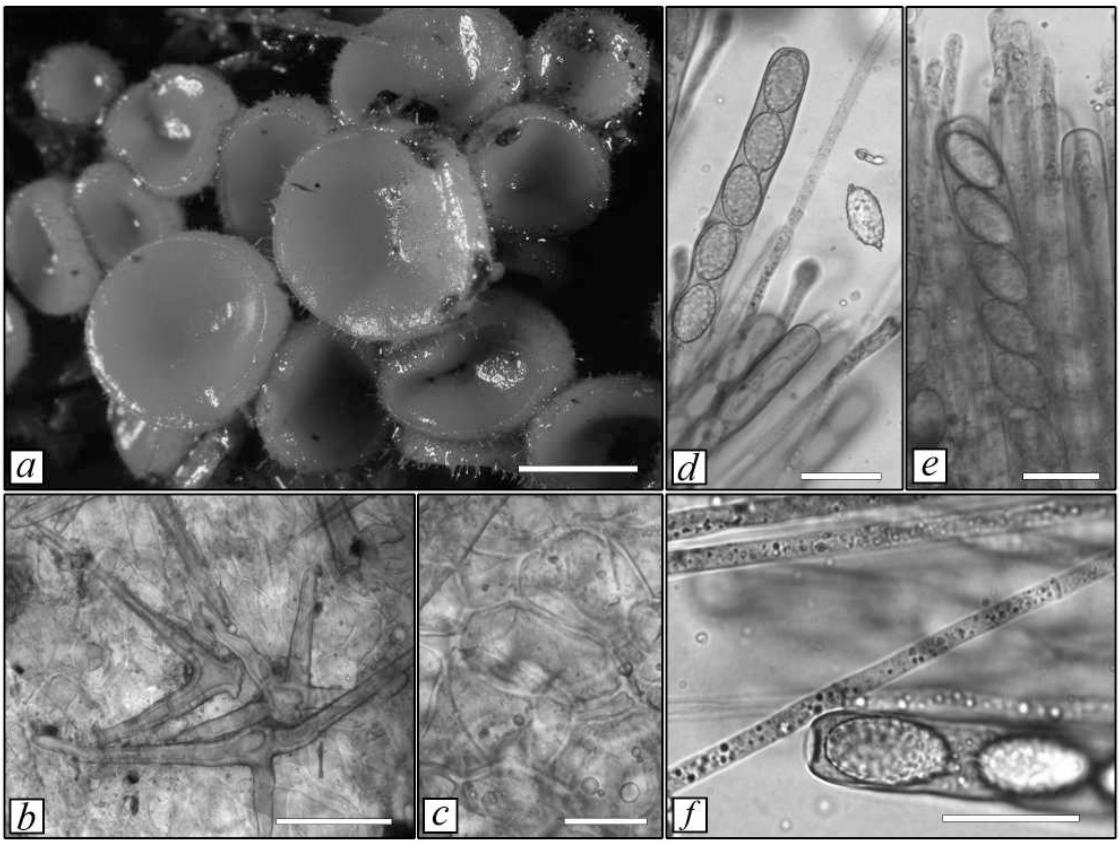

Fig. 2. *Scutellinia crucipila*: *a* — apothecia; *b* — hairs; *c* — excipulum; *d* — ascus with spores; *e* — fragment of hymenial layer; *f* — fragment of ascus with spores. Bars: *a* — 2 mm; *b* — 100 μm; *c* — 25 μm; *d e, f* — 20 μм

oke et W. Phillips) Le Gal, *Discom. de Madagascar*: **111** (1954) (Fig. 2.)

Apothecia sessile, 1—4 mm diam, disc-shaped to shallow saucer-shaped. **Hymenium** yellow-orange, margin covered by short yellowish or pale brown hairs. Ectal excipulum of globose to angular cells, 30—50 μm in diam. **Hairs** short, up to 300—450 μm, 1—4 septate, with furcated base; however, there are stellate hairs with 2—5 divergent arms 70—200 μm long, 5—10 μm wide, thickest at base. **Asci** 180—250 × 15—17 μm, cylindric, with a long, gradually tapering base. **Ascospores** ellipsoid, biguttulate, 16.6 × 9.6 μm, sculpturing composed of small irregular warts. **Paraphyses** straight, ca. 3 μm broad, septate, branched at basis.

Habitat: on clay soil, 05.07.2011.

Distribution: Europe (Czech Republic, Denmark, United Kingdom (England), Norway, Ukraine). North America (USA).

Notes: The fungus has tentatively been accommodated in a boreo-polar species group [15, 16]. *S. crucipila* is a humus saprotroph specialized to clay as well as to humus. It belongs to a group of species characterized by occurring on soils of median pH-values (pH 6—7) and a moderately high content of organic matter (5—15 %) [16].

The species has commonly been treated as a member of *Cheilymenia,* due to the pale brown hairs, occurrence of stellate excipular hairs, and a loosening perispore of the ascospore wall. The taxon was recently transferred to *Scutellinia* by Moravec, who placed it in sect. *Minutae* Svrček because of the short hairs and the separable, sculptured ascospore wall [15].

***Scutellinia pseudotrechispora* (J. Schröt.) Le Gal,** *Bull. trimest. Soc. mycol. Fr.* **78**: 213 (1962). — *Humariella pseudotrechispora* J. Schröt., in Cohn, *Krypt.-Fl. Schlesien* (Breslau) 3.2(1—2): **38** (1893) [1908] (Fig. 3.)

Apothecia sessile, solitary, disc-shaped to shallow cup-shaped, 1.5—3.0 mm diam. **Hymenium** red to brownish red, margin distinct, outer surface and margin with short, brownish hairs. Ectal exipulum of globose to angular texture, 30—80 μm in diam. **Hairs** short, up to

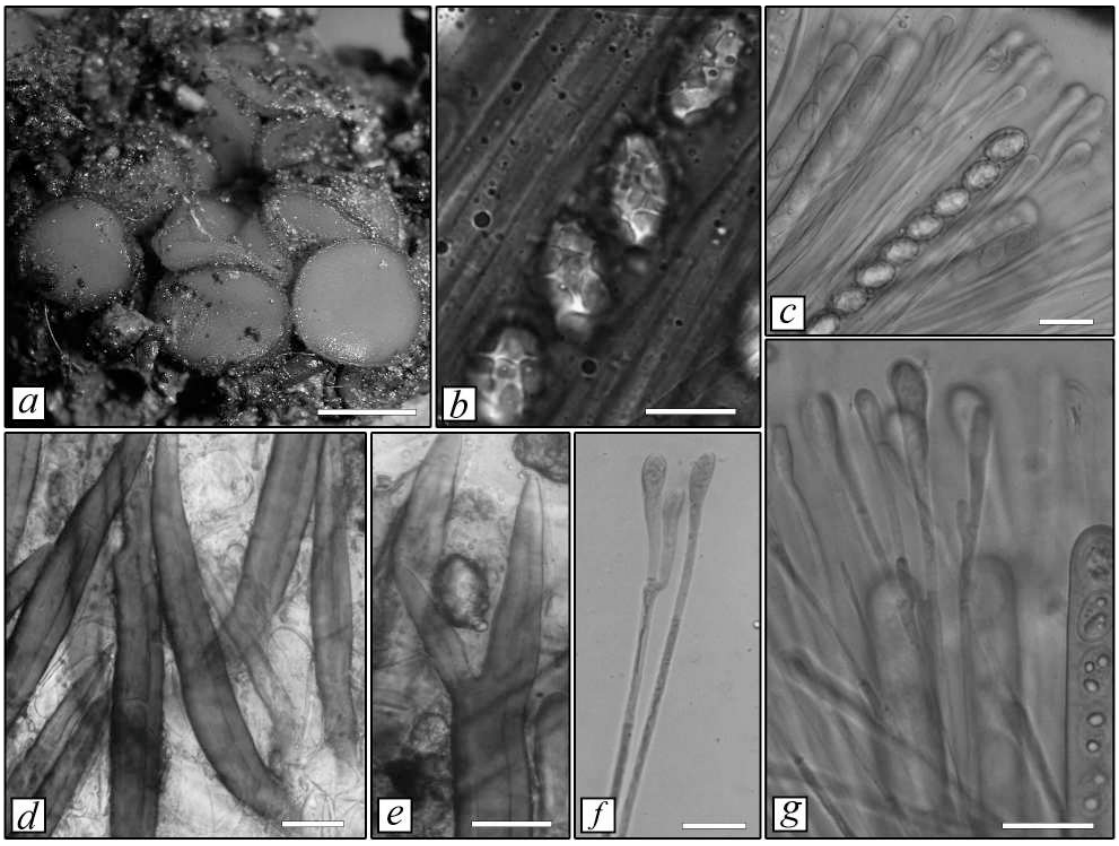

Fig. 3. *Scutellinia pseudotrechispora*: *a* — apothecia; *b* — ascus with spores; *c* — fragment of hymenial layer; *d, e* — hairs; *f, g* — paraphyses. Bars: *a* — 2 mm; *b* — 15 μм; *c, d, e* — 30 μм; *f, g* — 20 μм

200—300 μm, 1—3 septate, thick-walled, light-brown, narrowing toward the unbrabched or usually prominent, bifurcate base. Some hairs are divided in the upper part. **Asci** 180—220 × 17—20 μm, cylindric. **Ascospores** ellipsoid, multiguttulate, with well noticeable cristulo-reticulate (areolate) ornamentation, 27.6 × 16.6 μm (including encrustation). **Paraphyses** straight, septate, ~3.5 μm broad, enlarged about 6 μm, simple or branched from their part.

Habitat: on soil, *Abies alba* forest, 24.09.2011.

Distribution: Europe (Czech Republic, Denmark, France, Germany, Norway, United Kingdom (Scotland), Ukraine).

Notes: *S. pseudotrechispora* is tentatively referred to a boreotemperate species group in Europe; its extra-European distribution remains to be investigated. The fungus is a humus saprotroph; it frequently occurs on acidified soils in forests and along pathways [15].

The species is characterized by its small ascocarps, short, curved hairs, a cristulo-reticulate ornamentation of the ascospores, and an outer wall layer which loosens in heated lactic acid. Because of the similarity of spores, *S. pseudotrechispora* is commonly either placed in *Aleuria* as *A. pseudotrechispora* (J. Schröt.) Hohn., or misidentified as *Melastiza chateri* (W.G. Smith) Boud. According to Le Gal [15], the ascospore sculpturing in *S. pseudotrechispora,* as in members of *Aleuria* and *Melastiza,* is a result of excretions from sporoplasm vacuoles. This was not accepted by Merkus (1976) who under TEM recognized only one uniform way of the wall sculpture development in this complex of *Pyronemataceae*, viz. by an external condensing of epiplasmic material on the primary ascospore wall [15].

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НОВІ ДЛЯ УКРАЇНИ ВИДИ РОДУ *SCUTELLINIA* (*PYRONEMATACEAE, PEZIZALES*) ЗІ СВИДОВЕЦЬКОГО МАСИВУ (КАРПАТСЬКИЙ БІОСФЕРНИЙ ЗАПОВІДНИК)

Повідомляється про три нові для України види роду *Scutellinia*, зібрані на території Свидовецького заповідного масиву (Карпатський біосферний заповідник): *S. crinita* (Bull.) Lambotte, *S. crucipila* (Cooke et W. Phillips) J. Moravec і *S. pseudotrechispora* (J. Schröt.) Le Gal. Подано їхні короткі описи, інформація про місцезнаходження, загальне поширення, а також оригінальні ілюстрації.

Ключові слова: Ascomycota*, нові знахідки, Свидовецький масив, Україна*.

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НОВЫЕ ДЛЯ УКРАИНЫ ВИДЫ РОДА *SCUTELLINIA* (*PYRONEMATACEAE, PEZIZALES*) ИЗ СВИДОВЕЦКОГО МАССИВА (КАРПАТСКИЙ БИОСФЕРНЫЙ ЗАПОВЕДНИК)

Сообщается о трех новых для Украины видах рода *Scutellinia*, собранных на территории Свидовецкого заповедного массива (Карпатский биосферный заповедник): *S. crinita* (Bull.) Lambotte, *S. crucipila* (Cooke et W. Phillips) J. Moravec и *S. pseudotrechispora* (J. Schröt.) Le Gal. Приведены их краткие описания, данные об местонахождении и общем распространении, а также оригинальные иллюстрации.

Ключевые слова: Ascomycota*, новые находки, Свидовецкий массив, Украина*.