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## A CONTRIBUTION TO THE COPROPHILOUS DISCOMYCETES IN ESTONIA

This paper is a continuation of the investigations of coprophilous discomycetes found in different localities of Estonia from 1958 to 1987. The samples of dung of various animals deposited in the Herbarium of the Institute of Zoology and Botany, Academy of Sciences of the Estonian SSR in Tartu, have been studied as well as the samples containing the fruit bodies freshly collected and those developed in a wet chamber under laboratory conditions.

In this paper the descriptions of the species of five genera are presented. They are the species belonging to the genera *Cheilymenia*, *Coprobria*, *Fimaria*, *Iodophanus* and *Thecotheus*. This paper completes the list of coprophilous species which are known in Estonia at present.

***Cheilymenia coprinararia* (Cooke) Boud.** Haapsalu district, Vormsi Island, Saksby, on dung of elk, Sept. 10, 1980, coll. A. Kollom; Rumpo Peninsula, on dung of elk, Sept. 20, 1986, coll. M. Saar; Valga district, Lüllemäe, on dung of elk, Sept. 1986, coll. V. Prokhorov.

Setae stiff, multiseptate (to 10 septae), rooted at the base, light brown or brown,  $147.9\text{--}426.9 \times 15.7\text{--}25.1 \mu\text{m}$ . Asci 8-spored, cylindrical with rounded apex, downwards tapering into long stalk,  $191.3\text{--}224.2 \times 10.8\text{--}11.1 \mu\text{m}$ . Spores uniseriate, ellipsoid, hyaline, smooth,  $11.4\text{--}12.5 \times 6.4\text{--}7.7 \mu\text{m}$ , each with one de Bary bubble (they are often visible in Cotton blue in lactophenol).

***Cheilymenia stercorea* (Pers.: Fr.) Boud.** Harju district, Prangli Island, on dung of horse, Aug. 25, 1960, coll. P. Põldmaa; Hiiumaa district, Kärkla, on dung, May 22, 1967; Rakvere district, Viitna, on dung of elk, Sept. 10, 1974, coll. B. Kullman; Altja, on dung of elk, Sept. 21, 1974, coll. B. Kullman; Haapsalu district, Vormsi Island, Rumpo Peninsula, on dung of cow, Sept. 20, 1986, coll. M. Saar.

Setae of two types — stiff, rooted, right, septate (to 15 or 20 septae),  $343.0\text{--}1006.2 \times 32.0\text{--}40.0 \mu\text{m}$  and stellate, 4—5-armed, septate, placed at the base of apothecium. Asci cylindrical, with rounded apex, narrowed into long stalk,  $251.5\text{--}289.8 \times 11.5\text{--}12.6 \mu\text{m}$ . Spores uniseriate, ellipsoid, smooth, hyaline,  $13.9\text{--}14.5 \times 6.9\text{--}7.5 \mu\text{m}$ . Paraphyses filamentous, slightly enlarged at the tips, with orange droplets of oil.

***Cheilymenia theleboloides* (Alb. et Schw.: Fr.) Boud.** Hiiumaa district, on dung of cow, June 18, 1963, coll. A. Raitviir; Pärnu district, Kolbergi, on dung of cow, Aug. 18, 1963, coll. K. Kalamees.

Setae thin-walled, septate, bulbous at the base, 1—2-septate, pale yellow to hyaline,  $231.0\text{--}277.2 \times 8.3\text{--}15.4 \mu\text{m}$ . Asci cylindrical, with rounded apex, gradually tapering into long stalk, inamyloid,  $198.0\text{--}240.9 \times 13.3 \mu\text{m}$ . Spores uniseriate, ellipsoid, smooth, hyaline,  $19.9\text{--}22.4 \times 9.9\text{--}10.8 \mu\text{m}$ , without inclusions. Paraphyses filamentous, septate, slightly swollen at the tips to  $2.9\text{--}3.3 \mu\text{m}$ .

Note: The species of *Cheilymenia* presented in this paper are probably widespread, but in contemporary literature the data on them are scanty and quite dispersed. Only in the USA (Denison, 1964) all taxa are studied. *C. theleboloides* is reported in the USSR for the first time.



***Coprobria granulata* (Buill.: Fr.) Boud.** Kingissepa district, Vilsandi Island, on dung of cow, Aug. 15, 1980, coll. K. Kalamees; Valga district, Lüllemäe, on dung of cow, Sept. 9, 1986, coll. V. Prokhorov; Haapsalu district, Vormsi Island, Rumpo Peninsula, on dung of cow, Sept. 20, 1986, coll. M. Saar.

Apothecia discoid to saucer-shaped, orange, 1.0—1.5 mm in diameter, seated on white subiculum. Asci cylindrical with rounded apex,  $166.3\text{--}175.7 \times 10.3\text{--}12.6 \mu\text{m}$ . Spores uniseriate, ellipsoid, smooth, hyaline,  $16.1\text{--}16.4 \times 9.1\text{--}9.6 \mu\text{m}$ , without inclusions. Paraphyses filamentous, septate, hyaline, swollen at the tips to  $11.2 \mu\text{m}$ , with orange droplets in upper cells.

Note: This species is widely distributed and strongly associated with the dung of cow.

***Fimaria hispanica* Torre et Calonge.** Rakvere district, Viitna, on dung of elk, Sept. 10, 1974, coll. B. Kullman; Haapsalu district, Vormsi Island, on dung of horse, Sept. 19, 1980, coll. A. Kollom; Paide district, Sinisalu, on dung, Sept. 11, 1982, coll. A. Raitviir.

Apothecia discoid to pulvinate, covered with brownish, hyphoid hairs, hymenium cream-coloured, with well-differentiated rim, about 0.5 mm in diameter. Ectal excipulum of *textura angularis*. Asci 8-spored, cylindrical, with rounded apex and long stalk,  $231.0\text{--}250.0 \times 10.0\text{--}14.9 \mu\text{m}$ . Spores uniseriate, ellipsoid, smooth, hyaline,  $14.9\text{--}15.6 \times 6.7\text{--}7.5 \mu\text{m}$ , each with de Bary bubble. Paraphyses agglutinated and not clearly visible.

***Fimaria porcina* Svrček et Kubicka.** Rakvere district, Palmse, on burnt soil (probably infected by dung), July, 4, 1974, coll. A. Raitviir; Võru district, Vastseliina, on dung of sheep, Apr. 2, 1986, coll. M. Saar.

Apothecia turbinate to pulvinate with narrowed base, clothed with brownish hyphoid hairs, hymenium pale brownish with creamish tint, 0.3—0.45 mm in diameter. The hairs are agglutinated into bundles, in upper part of the apothecium, but in basal part they are loose. Ectal excipulum of *textura angularis*. Asci 8-spored, cylindrical clavate with rounded apex, gradually tapering into long stalk, inamyloid,  $107.9\text{--}149.4 \times 8.3\text{--}10.0 \mu\text{m}$ . Spores uniseriate, ellipsoid, smooth, hyaline,  $9.9\text{--}11.6 \times 6.3\text{--}7.0 \mu\text{m}$ , each with one de Bary bubble (they appear in Cotton blue in lactophenol or in dried material). Paraphyses filamentous, septate, branched, hyaline,  $2.2\text{--}2.7 \mu\text{m}$ , embedded in upper part in brown substance.

Note: These two species, i. e. *Fimaria hispanica* and *F. porcina* are closely related. They are distinguished mostly by dimensions of spores and asci, as well as by the colour of the hymenium (Pfister, 1984).

***Iodophanus carneus* (Pers.: Pers.) Korf. apud Kimbr. et Korf.** Võru district, on several decomposing textiles, Oct. 5, 1958, coll. A. Raitviir; Kingissepa district, Viidumäe, on dung of horse, May 6, 1972, coll. A. Raitviir; Tartu district, Variku, on dung of cow, Apr. 7, 1980, coll. V. Prokhorov; Valga district, Lüllemäe, on dung of cow, Sept. 9, 1986, coll. V. Prokhorov.

Apothecia 1.0—1.3 mm in diameter, fleshy-rosy, clothed at basal part with hyaline hyphoid hairs. Asci  $211.2\text{--}231.0 \times 21.6\text{--}28.2 \mu\text{m}$ . Spores ellipsoid, hyaline, minutely warted,  $20.2 \times 11.6 \mu\text{m}$  (nucleus and nucleolus are visible in them). Paraphyses simple or branched, septate,  $5.0\text{--}10.0 \mu\text{m}$  in diameter at the tips, with orange guttules in upper cells.

***Iodophanus difformis* (Karst.) Kimbr., Luck-Allen et Cain.** Hiiumaa district, Tahkuna, on dung of horse, Sept. 1, 1960, coll. A. Raitviir.

Apothecia discoid, convex, broadly sessile, about 1.0 mm in diameter, pale brown, brownish. Ectal excipulum of *textura angularis*. Asci cylindrical with rounded apex, downwards tapering into quite long stalk, diffusely blueing in Melzer reagent,  $171.6\text{--}178.8 \times 14.9\text{--}16.6 \mu\text{m}$ . Spores ellipsoid, smooth,  $18.9\text{--}20.0 \times 9.1\text{--}9.5 \mu\text{m}$ , with a thick wall when young.

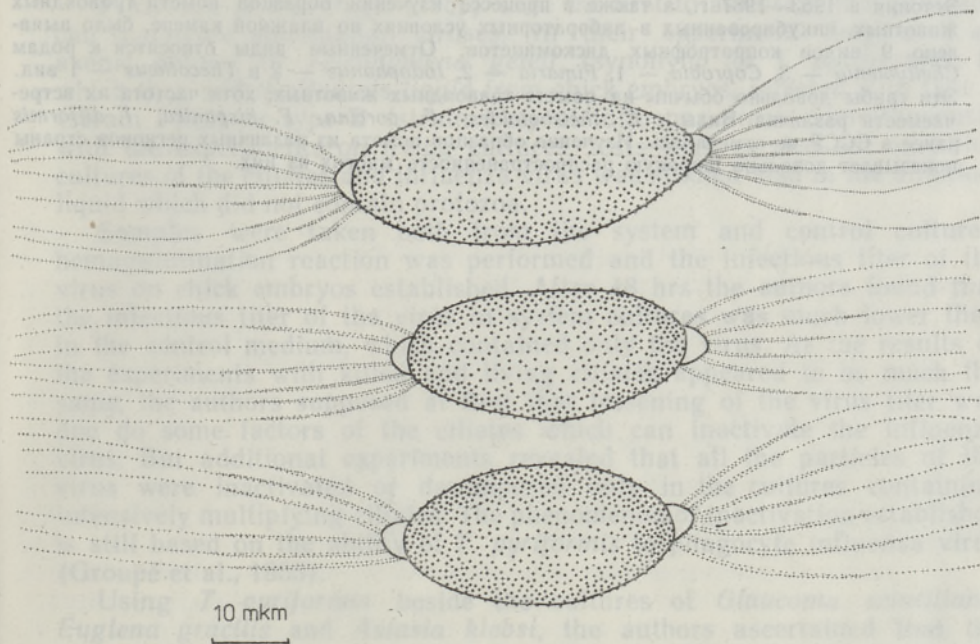


Paraphyses filamentous, septate, hyaline, 3.5–5.0  $\mu\text{m}$  in diameter at the tips.

*Thecotheus cinereus* (Cr. et Cr.) Chenantais (= *Thecotheus holmskjoldii* (Hansen) Chenantais. Rakvere district, Venevere, Hangusi, on dung of cow, Aug. 17, 1958, coll. A. Raitviir; Paide district, Sinisalu, on dung, Sept. 11, 1982, coll. A. Raitviir; Valga district, Lüllemäe, on dung of cow, Sept. 9, 1986, coll. V. Prokhorov.

Apothecia sessile, solitary, cylindrical, subconical or barrel-shaped, white, white-grayish, about 0.4 mm in diameter. Ectal excipulum of textura angularis. Asci 8-spored, cylindrical with rounded apex, downwards tapering into long stalk, diffusely blueing in Melzer reagent, (289.3–)302.2–462.9  $\times$  41.8–46.6  $\mu\text{m}$ . Spores ellipsoid, hyaline, with polar apiculae, ornamented by minute, colourless warts, 38.5–41.8  $\times$  16.0  $\mu\text{m}$  (with apiculae), 33.7–36.9  $\times$  16.0  $\mu\text{m}$  (without apiculae). Paraphyses filamentous, septate, simple or branched, 4.0  $\mu\text{m}$  in diameter, swollen at the tips to 8.8–11.3  $\mu\text{m}$ , hyaline.

Note: The apiculae of spores are characterized by having very thin, numerous, hyaline cilia. They are probably formed by mucilaginous substances and they present some addition to the sheath of slime which envelops the spores. These cilia-like structures on the apiculae of *T. cinereus* have never been recorded before (the Figure).



Spores of *Thecotheus cinereus* with a mucilaginous ciliae on polar apiculae ( $\times 1000$ ).

### Discussion

Most of the species recorded in this paper are common and widespread fungi developing on dung of various animals, but the information concerning them is quite scanty. Two species described present special interest, i. e. *Fimaria hispanica* and *F. porcina*. They are recorded for the first time in our country, but on the other hand, the genus *Fimaria* which includes 11 taxa needs contemporary taxonomic revision.



## REFERENCES

- Denison, W. C. The genus *Cheilymenia* in North America // *Mycologia*, 1964, 56, N 5, 718—737.
- Pfister, D. H. On *Fimaria dentata*, a new combination with a review of synonyms and comments on *Fimaria* (Pezizales) // *Mycologia*, 1984, 76, N 5, 843—852.

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### ANDMEID EESTI KOPROFIILSETE LIUDSEENTE KONTA

Eestist ajavahemikus 1958—1987 kogutud herbaarmaterjali uurimisel, samuti rohusööjate loomade väljaheidete laboratoorsel inkubeerimisel avastati 9 liiki koprotroofseid liudseeni. Esindatud on perekonnad: *Cheilymenia* — 3 liiki, *Coprobria* — 1 liik, *Fimaria* — 2 liiki, *Iodophanus* — 2 liiki ja *Thecotheus* — 1 liik. *Cheilymenia theleboloides*, *Fimaria porcina*, *F. hispanica* ja *Iodophanus difformis* on esmasleiud Nõukogude Liidus.

Владимир ПРОХОРОВ

### СВЕДЕНИЯ О КОПРОТРОФНЫХ ДИСКОМИЦЕТАХ ЭСТОНИИ

В результате исследования гербарных материалов, собранных в разных районах Эстонии в 1953—1987 г., а также в процессе изучения образцов помета травоядных животных, инкубированных в лабораторных условиях во влажной камере, было выявлено 9 видов копротрофных дискомицетов. Отмеченные виды относятся к родам *Cheilymenia* — 3, *Coprobria* — 1, *Fimaria* — 2, *Iodophanus* — 2 и *Thecotheus* — 1 вид. Эти грибы довольно обычны на помете травоядных животных, хотя частота их встречаемости различна. Виды *C. theleboloides*, *F. porcina*, *F. hispanica*, *I. difformis* ранее в СССР не отмечались. Изучение образцов помета из различных регионов страны показывает довольно широкую распространенность многих из них.