

7. Ascospores deeply constricted at septum, cells usually separable at maturity 8
 7. Ascospores nonconstricted at septum or only slightly so, cells nonseparable at maturity 10
8. Ascospores less than 20 μ in length 1. *D. anisomera* sp. nov.
 8. Ascospores more than 20 μ in length 9
9. Ascospores 30–42 \times 11–18 μ 36. *D. variispora* sp. nov.
 9. Ascospores larger, 64–82 \times 19.5–28 μ 6. *D. chodocola* sp. nov.
10. Ascospores 25 μ or less in length 11
 10. Ascospores more than 25 μ in length 12
11. Ascospores 20–25 \times 9–14 μ 33. *D. simulans* sp. nov.
 11. Ascospores 14–18 \times 6–10 μ 27. *D. niesslii*
12. Ascospores 47–65(–75) \times 25–37 μ 29. *D. pachylospora* sp. nov.
 12. Ascospores narrower than above 13
13. Ascospores (40–)42–55 \times 16–21 μ 30. *D. patagonica*
 13. Ascospores 55–62 \times 24–28 μ *D. winteri*
14. Ascospores deeply constricted at septum, cells generally separable at maturity 15
 14. Ascospores not deeply constricted at septum, cells nonseparable at maturity 18
15. Ascospores more than 60 μ in length 16
 15. Ascospores less than 60 μ in length 17
16. Ascospores 90–100 μ in length 7. *D. chorizomera* sp. nov.
 16. Ascospores (60–)64–82 μ in length 6. *D. chodocola* sp. nov.
17. Ascospores 45–55 μ in length 4. *D. canina*
 17. Ascospores 20–25 μ in length *D. leptospora*
18. Ascospores 50–64 \times 22–23 μ 15. *D. furfuracea*
 18. Ascospores 18–20 \times 6–7.5 μ 9. *D. consociata*
19. Perithecia with straight or flexuous hairs 20
 19. Perithecia with tomentose layer 31
20. Hairs of perithecia hyaline, pale or bright-colored 21
 20. Hairs of perithecia not as above, brownish or black 25
21. Ascospores uniseriate 22
 21. Ascospores biseriate 24
22. Ascospores broad, over 30 μ in diameter *D. griffithsii*
 22. Ascospores less than 30 μ in diameter 23
23. Ascospores 24–28 μ in diameter *D. winteri*
 23. Ascospores 16–21 μ in diameter 30. *D. patagonica*
24. Ascospores 82–88 μ in length *D. gigaspora*
 24. Ascospores 64–82 μ in length 6. *D. chodocola* sp. nov.
25. Hairs of perithecia rough or smooth; ascospores nonconstricted at septa, cells nonseparable 26
 25. Hairs of perithecia always smooth; ascospores deeply constricted at septa, cells separable at maturity 10. *D. crinita* sp. nov.
26. Ascospores uniseriate 27
 26. Ascospores biseriate 30
27. Hairs rough or smooth; ascospores 38–50 \times 17–20 μ 5. *D. chaetomioides*
 27. Hairs always smooth; ascospores smaller than above 28
28. Ascospores 27–32 \times 13–16 μ *D. vulgaris*
 28. Ascospores less than 13 μ in diameter 29
29. Ascospores 31–36 \times 10–11 μ *D. araneosa*
 29. Ascospores 20–28 \times 9–11 μ 24. *D. melanotricha* sp. nov.
30. Hairs smooth, ascospores 54–60 \times 24–29 μ 17. *D. illinoisensis* sp. nov.
 30. Hairs smooth; ascospores 48–54 \times 16–18 μ 18. *D. intonsa* sp. nov.

illustrations, together with available specimens regarded as *D. canina*. Materials from N. Lundqvist helped greatly in the formulation of this concept. *Delitschia canina* is easily identified by its clavate asci and deeply constricted ascospores, which separate readily at septa.

5. *Delitschia chaetomioides* Karst., Mycol. Fenn. 11:60. 1873. Figs. 87-90
 ≡ *Phorcys chaetomioides* (Karst.) V. Höhn., Akad. Wiss., Wien Sitzungsber., Math.-Naturwiss., Kl. 129: 158. 1920.

Perithecia embedded, scattered or in clusters, black and opaque, globose or pyriform, when globose, 500-700(-900) μ in diam, pyriform, 500-900 \times 600-1000 μ , surrounded by dark shaggy hairs. Neck black and opaque, variable in length from short papilliform with circular ostiole protruding through substratum to long, cylindrical, provided with numerous hairs, 400-700 \times 300-600 μ . Hairs brown, septate, flexuous, branched or unbranched with blunt apices, and with slightly thickened walls, 1.6-3 μ in diam, up to 400(-1000) μ long; those on rest of perithecia somewhat similar in morphology but generally rough, more hyphal and branched, thicker-walled, anastomosing, 3-5 μ in diam, up to 1000 μ long. Cells of peridium indistinct. Asci eight-spored, cylindrical, 200-250(-300) \times (22-)26-30(-35) μ , broadly rounded at apices, each terminating in a stipe, 27-65(-75) μ long. Paraphyses hyaline, septate, filamentous, numerous, 1.4-2 μ in diam. Ascospores uniseriate, oblong-ellipsoid (37-)38-50 \times 17-20 μ , broadly rounded to acutely narrowed, transversely uniseptate, nonconstricted; at first hyaline, then reddish brown, at maturity almost black and opaque, each surrounded by a gelatinous layer. Germinal slit longitudinal.

HOLOTYPE: on horse dung associated with No. 939 *Hypocopa fimeti* (P) in Mustiala, Finland, Karsten.

HABITAT: on horse and rabbit dung.

SPECIMENS EXAMINED: CANADA: Saskatchewan: Saskatoon, on Jack rabbit dung, 19 May 1934, R. Russell, TRTC 6623. EUROPE: Finland: Mustiala (TYPE, K). Sweden: Hälsingland: Mo Parish, pasture in pine forest, on old horse dung, 15 Aug. 1960, Lundqvist 2786a (UPS); Västergötland: Rongedala Parish, E of Rongedala railway station, on old horse dung after 23 days in moist chamber in laboratory in Uppsala, 12 June 1960, Lundqvist 2426c (UPS).

COMMENTS: *Delitschia chaetomioides* and *D. vulgaris* have in common numerous appendages on the ascocarps but can easily be separated on the basis of their ascospore measurements (those of *D. vulgaris* are smaller (27-32 \times 13-16 μ). In its measurements, *D. chaetomioides* more nearly approaches *D. patagonica*, from which it can be separated by its perithecial features.

6. *Delitschia chodocola* Luck-Allen & Cain, sp. nov. Figs. 91-95

Peritheciis sparsis, in substrato immersis, subglobosis vel piriformibus, atro-brunneis opacisque, levibus (frequenter pilis flexuosis), 700-1200 \times 560-1050 μ ; collo brevi-cylindraco vel papilliformi, nigro, circiter 240 μ long. Pilis flavo-brunneis. Cellulis peridii brunneis, angulatis irregularibusque. Ascis octosporis, cylindracois, 260-400 \times 36-48 μ , ad summam late rotundatis, stipite usque ad 115 μ longa. Paraphysibus numerosis, filiformibus, septatis, hyalinis, circiter 1 μ crass. Ascosporis biseriatis, ovato-ellipticis, (60-)64-79(-82) \times 19.5-25(-28) μ , transverse uniseptatis valde constrictis, segmentis ascosporarum maturis saepe sejunctis. Ascosporis ab hyalinis ad flavo-brunneas postremo atro-brunneis, strato mucoso hyalino involutis. Hilo germinali, longitudinaliter prolato.

HOLOTYPE: in fimo ovino, Medora, Billings Co., North Dakota, United States, 5 Sept. 1957, Cain, TRTC 36199.

ETYMOLOGY: Greek, *chodos* = dung and *cola* = dweller, referring to the habitat of the fungus.

Perithecia embedded, scattered, dark brown and opaque, subglobose or pyriform, smooth, rarely with pale hairs, 700-1200 \times 560-1050 μ . Neck black, papilliform or cylindrical, with circular ostiole, about 240 μ long. Hairs (when present) yellowish brown, thin-walled, flexuous, blunt, measuring up to 4 μ in diam and 100 μ long. Cells of the peridium dark brown, somewhat angular and irregular, up to 20 μ . Asci eight-spored (rarely four-spored), cylindrical, 260-400 \times 36-48 μ (swelling to 60 μ in water), broadly rounded at apices, each ascus abruptly terminating in stipe measuring up to 115 μ long. Paraphyses hyaline, filiform, septate, numerous, 1 μ wide. Ascospores uniseriate, immediately becoming biseriata, ovate-elliptical, (60-)64-79(-82) \times 19.5-25(-28) μ , transversely uniseptate, deeply constricted, segments frequently separating at maturity; at first hyaline, then yellowish brown to red-brown, at maturity dark