Revision of the genera *Sporormia* and *Sporormiella*[1]

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The genus *Sporormia* is restricted to the type species *S. fimetaria* DeNot., *S. fimicola* Ahmed & Asah and *S. mirabilis* Bret. & Faur., in which the ascospores are arranged in a truncate bundle, parallel to the ascus and surrounded by a common gelatinous sheath. The cells of the ascospores are without germ slits.

In *Sporormiella*, which is regarded as a distinct genus, the ascospores are not arranged in a truncate bundle. Each spore has a distinct and separate gelatinous sheath and each cell of the ascospore has an elongated germ slit. The type species is *S. nigropurpurea* Ell. & Ev.

The following 35 species of *Sporormia* are transferred to *Sporormiella*: *S. affinis* Sacc., *S. americana* Griff., *S. antarctica* Speg., *S. australis* Speg., *S. bipartis* Cain, *S. capybarae* Speg., *S. chaetomioides* Griff., *S. commutata* Niessl, *S. corynespora* Niessl, *S. dakotensis* Griff., *S. heptamera* Auersw., *S. herculea* Ell. & Ev., *S. insignis* Niessl, *S. irregularis* I. Egel., *S. kansensis* Griff., *S. lageniformis* Fuckel, *S. lata* Griff., *S. leporina* Niessl, *S. longispora* Cain, *S. megalospora* Auersw., *S. minima* Auersw., *S. muskokensis* Cain, *S. ontariensis* Cain, *S. ovina* (Desm.) Sacc., *S pascua* Niessl, *S. pentamera* Oud., *S. pilosa* Cain, *S. pilosella* Cain, *S. polymera* Cain, *S. pulchella* Hansen, *S. pyriformis* Speg., *S. scandinavica* I. Egel., *S. schoterriana* Bret. & Faur., *S. splendens* Cain, *S. vexans* Auersw.

There are 22 new species described in the genus *Sporormiella*, as follows: ***S. alloimera***, ***S. anisomera***, ***S. calomera***, ***S. cylindrospora***, ***S. cymatomera***, ***S. decamera***, ***S. dodecamera***, ***S. dubia***, ***S. euryspora***, ***S. isomera***, ***S. longisporopsis***, ***S. minimoides***, ***S. minipascua***, ***S. octonalis***, ***S. platymera***, ***S. schadospora***, ***S. septenaria***, ***S. systenospora***, ***S. subtilis***, ***S. teretispora***, ***S. tetramera***, ***S. trogospora***.

These coprophilous species are from Argentina, Canada, Mexico, and the United States.

A total of 66 species are described, 61 of which are illustrated. Keys to the species of *Sporormia* and *Sporormiella* are included.

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Le genre *Sporormia* est limité à l'espèce type *S. fimetaria* DeNot., *S. fimicola* Ahmed & Asah et à *S. mirabilis* Bret. & Faur., où les ascospores sont disposées en un faisceau tronqué, parallèle à l'asque, et entourées par une enveloppe gélatineuse commune. Les cellules des ascospores n'ont pas de fentes germinatives.

Chez *Sporormiella*, considéré comme un genre différent, les ascospores ne sont pas disposées en un faisceau tronqué. Chaque spore a une enveloppe gélatineuse distincte et séparée, et chaque cellule de l'ascospore a une fente germinative allongée. L'espèce type est *S. nigropurpurea* Ell. & Ev.

Les 35 espèces suivantes de *Sporormia* sont transférées au genre *Sporormiella*: *S. affinis* Sacc., *S. americana* Griff., *S. antarctica* Speg., *S. australis* Speg., *S. bipartis* Cain, *S. capybarae* Speg., *S. chaetomioides* Griff., *S. commutata* Niessl, *S. corynespora* Niessl, *S. dakotensis* Griff., *S. heptamera* Auersw., *S. herculea* Ell. & Ev., *S. insignis* Niessl, *S. irregularis* I. Egel., *S. kansensis* Griff., *S. lageniformis* Fuckel, *S. lata* Griff., *S. leporina* Niessl, *S. longispora* Cain, *S. megalospora* Auersw., *S. minima* Auersw., *S. muskokensis* Cain, *S. ontariensis* Cain, *S. ovina* (Desm.) Sacc., *S. pascua* Niessl, *S. pentamera* Oud., *S. pilosa* Cain, *S. pilosella* Cain, *S. polymera* Cain, *S. pulchella* Hansen, *S. pyriformis* Speg., *S. scandinavica* I. Egel., *S. schoterriana* Bret. & Faur., *S. splendens* Cain, *S. vexans* Auersw.

Vingt-deux nouvelles espèces de *Sporormiella* sont décrites: ***S. alloimera***, ***S. anisomera***, ***S. calomera***, ***S. cylindrospora***, ***S. cymatomera***, ***S. decamera***, ***S. dodecamera***, ***S. dubia***, ***S. euryspora***, ***S. isomera***, ***S. longisporopsis***, ***S. minimoides***, ***S. minipascua***, ***S. octonalis***, ***S. platymera***, ***S. schadospora***, ***S. septenaria***, ***S. systenospora***, ***S. subtilis***, ***S. teretispora***, ***S. tetramera***, ***S. trogospora***.

Ces espèces coprophiles viennent d'Argentine, du Canada, du Mexique et des États-Unis.

Un total de 66 espèces sont décrites, dont 61 sont illustrées. Des clés d'identification sont présentées pour les espèces de *Sporormia* et *Sporormiella*.

Introduction

The genus *Sporormia* was established by DeNotaris (1849) with a single species, *S. fimetaria*, which consequently becomes the type. The same species was used as the type of the genus *Brochospora* by Kirschstein (1944). He evidently accepted the proposal of Clements and Shear (1931) to make *S. minima* Auerswald the type of the genus *Sporormia*. This is not pos-

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sible and *Brochospora* is consequently a synonym of *Sporormia*. *Sporormiella* was published by Ellis and Everhart (1892) with a single new species, *S. nigropurpurea* with four-celled ascospores. This genus was separated from *Sporormia* on the basis of a reported stroma on the surface of the dung. We failed to find any fungus stroma on the dung in the type collection. The surface of the dung is blackened, but this is not fungus stroma. *S. nigropurpurea* is consequently not generically distinct from the species with four-celled ascospores that have been placed in *Sporormia*.

Breton and Faurel accepted Kirschstein's (1944) proposal of separating *Sporormia* into two genera and erected a new genus *Sporormiopsis* with the type species *Sporormia minima* Auerswald (given as *Sporormiopsis minima* Auerswald). They suggested that the genus *Sporormia* be restricted to *S. fimetaria* and *S. mirabilis* Breton & Faurel.

Ahmed and Asad (1968) also restricted the genus to the two species named above with an additional new one, *Sporormia fimicola*.

In this publication, *Sporormia* is used in this restricted sense for these three species. The remaining species are treated under the oldest, validly published generic name for this large group of species, *Sporormiella*, or otherwise excluded from *Sporormia*. We include keys for 66 species. Of these, 37 are new combinations and 22 are described as new. Illustrations are given for all except five. No attempt has been made to deal with the non-coprophilous species, which are merely listed. We have included an additional list of coprophilous species for which we have had no material for examination.

Methods

Measurements of asci and ascospores were taken in water. The length of the asci included the ascospore-containing portion of the stipe (length of the stipe consists of non-ascospore-bearing part). To determine the width of the asci and ascospores, measurements were taken at the broadest part. Measurements of the ascospores do not include the gelatinous sheath.

Aqueous cotton blue was used for staining the hyaline gelatinous sheaths, which were difficult to observe in water mounts. Semipermanent slides were made by staining with cotton blue in lactophenol and sealing them with nail polish. After the nail polish was completely dried, a layer of picture varnish was applied.

The terminology used for germ slits was based on the examination of the ascospores in surface view. When the germ slit was parallel to the longitudinal axis of the ascospores it was called parallel and when oblique to this axis, it was designated as oblique. In cases where the ends of a germ slit met the diagonally opposite ends of the ascospore cell it was described as diagonal. In species where the germ slit was at right angles to the longitudinal axis of the ascospore it was termed transverse.

Descriptions

SPORORMIA

Sporormia DeNot., Mem. Accad. Torino 2, 10: 342. 1849.

= *Brochospora* Kirsch., Hedwigia, 81: 204. 1944.

Fimicolous. Perithecia scattered, subglobose, immersed in the substrate, neck absent; peridium thin, membranaceous. Asci eight-spored, bitunicate, cylindrical, broadly rounded above, contracted below into a short stipe. Ascospores cylindrical, 15- or more-septate, finally becoming dark brown, united by a common gelatinous sheath into a cylindrical, truncate mass in the center of the ascus; septa transverse; germ slits usually absent.

TYPE SPECIES: *Sporormia fimetaria* De Not.

KEY TO THE SPECIES OF *Sporormia*

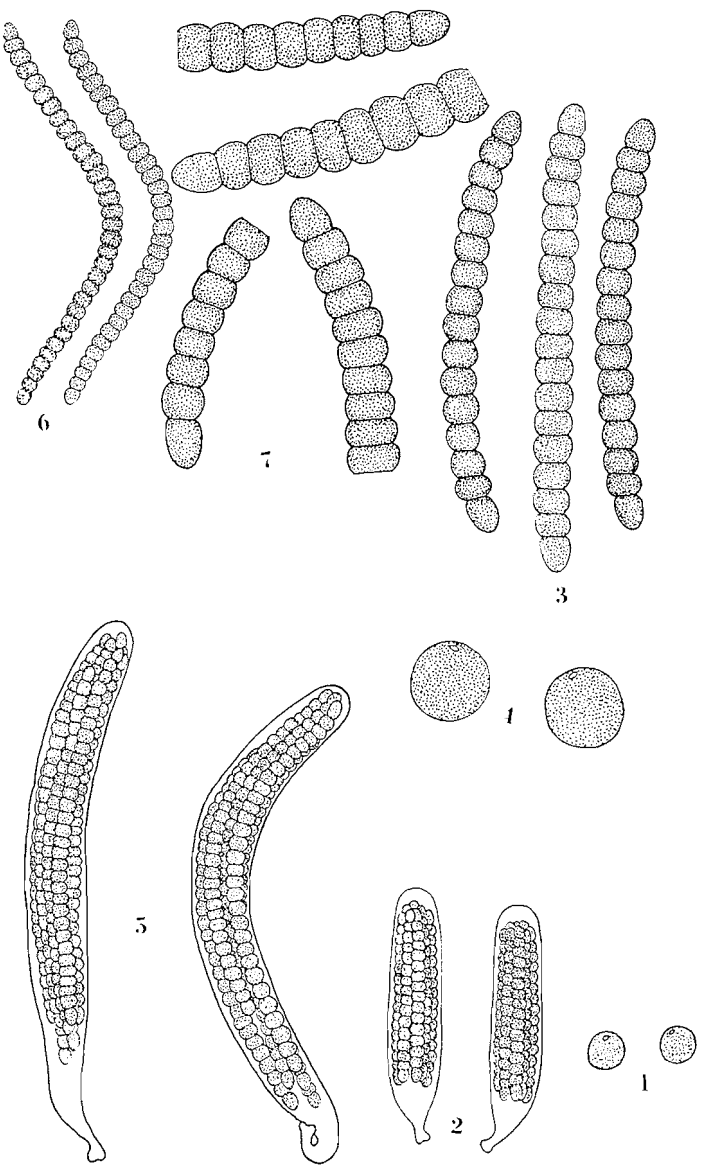
1. Perithecia less than 150 μ in diameter; asci less than 100 μ long, ascospores 16- to 20-celled, 50–57 × 3.5–4.5 μ (Figs. 1–3) ..... 1. *S. fimetaria*
1. Perithecia more than 150 μ in diameter; asci over 100 μ long; ascospores 29- to 32-celled, 130–160 × 4–6 μ (Figs. 4–7) ..... 2. *S. mirabilis*
1. Perithecia more than 150 μ in diameter; asci over 100 μ long; ascospores 16-celled, 85–116 × 5.0–6.5 μ ..... 3. *S. fimicola*

1. *Sporormia fimetaria* De Not., Mem. Accad. Torino, 2, 10: 342. 1849. Figs. 1–3
≡ *Sphaeria fimetaria* (De Not.) Rabenh., Herb. Mycol. (ed. 1), No. 1733. 1853.
≡ *Brochospora fimetaria* (De Not.) Kirsch., Hedwigia, 81: 204. 1944.

Perithecia scattered, immersed in the substrate, globose, 91–125 μ in diameter, thin, membranaceous, dark brown and opaque, without neck, the ostiole being simply an opening in the perithecial wall. Asci eight-spored, cylindrical, 70–80 × 12–16 μ, broadly rounded

above, contracted below into a very short persistent stipe. Paraphyses filiform, septate, sparingly branched, longer than and mixed with the asci. Ascospores parallel, firmly united into a cylindrical, truncate mass in the center of the ascus, 16- to 20-celled, cylindrical, 50–57 × 3.5–4.5 μ, broadly rounded at the ends, light brown when young, becoming dark brown and opaque when mature, transversely septate; constrictions at septa broad and deep; segments easily separable; terminal cells nearly twice the length of the remaining cells; germ slit absent; a narrow hyaline gelatinous sheath surrounds the entire mass of ascospores.

HABITAT: On dung of cow, deer, goat, and rabbit.



FIGS. 1–3. *Sporormia fimetaria* (TRTC 38898). Fig. 1. Perithecia, × 40. Fig. 2. Asci with ascospores, × 430. Fig. 3. Ascospores, × 920. FIGS. 4–7. *Sporormia mirabilis* (TRTC 38880). Fig. 4. Perithecia, × 40. Fig. 5. Asci with ascospores, × 430. Fig. 6. Ascospores, × 430. Fig. 7. Parts of the ascospores, × 920.

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TYPE: Italy.

SPECIMENS EXAMINED: CANADA: British Columbia: TRTC 39741. MEXICO: Nuevo Leon, TRTC 38898. UNITED STATES: Kansas: Rooks Co., TRTC 39373. Montana: Prairie Co., TRTC 35753. New York: Cattaraugus Co., TRTC 37606. Ohio: Peebles Co., *Bruce Fink*.

2. *Sporormia mirabilis* Bret. & Faur. Bull. Tri. Soc. Mycol. Fr. 80: 247–258. 1964. Figs. 4–7

Perithecia scattered, immersed, subglobose, 180–300 μ in diameter, membranaceous, smooth, bare, dark brown to black; neck absent, ostiole being simply an opening in the wall of the peridium. Asci eight-spored, cylindrical, 150–200 × 17–21 μ, broadly rounded above, contracted below into a small, stout, rather persistent stipe, 10–15 μ in length. Paraphyses filiform, septate, sparingly branched, slightly longer, and mixed with the asci, 1.5–2.0 μ in diameter. Ascospores parallel to the ascus, grouped into a cylindrical mass occupying the major portion of the ascus, usually 32-celled, occasionally 29- to 31-celled, cylindrical, 130–160 × 4–6 μ, rounded at the ends, light brown when young, becoming dark brown and opaque when mature, transversely septate; constrictions at septa broad and deep, segments easily separable; terminal cells slightly narrower toward the ends, longer than the remaining cells; germ slit absent; gelatinous sheath hyaline, thin, enveloping the ascospore bundle.

HABITAT: On dung of wild sheep and goat.

TYPE: On dung of wild sheep, Issakarassène, Hoggar, Algeria, *P. Bourreil* and *P. Quezel*.

SPECIMENS EXAMINED: MEXICO: Durango, on goat dung, 13 Aug. 1960, *Cain*, TRTC 38880.

3. *Sporormia fimicola* Ahmed & Asad, Sydowia, 21: 291. 1967.

Perithecia subglobose, glabrous, 250–400 μ diameter, without neck. Asci eight-spored, cylindrical, 130–160 × 16–19 μ, abruptly contracted into a short stipe. Ascospores in a cylindrical bundle parallel with the ascus, 16-celled (very rarely 17-celled), cylindrical, 85–116 × 5.0–6.5 μ, with cells (excepting terminal ones) equal and easily separable. Apical cell reaching 6 μ long. Basal cell reaching 7 μ long. Germ slit oblique to diagonal. Ascospore bundle surrounded by a thin gelatinous sheath.

HABITAT: On goat dung.

TYPE: On goat dung, Karachi, W. Pakistan.

SPORORMIELLA

Sporormiella Ell. & Ev., North American Pyrenomycetes. p. 136. 1892.

= *Sporormiopsis* Bret. & Faur., Bull. Trim. Soc. Mycol. Fr. 80: 257. 1964. TYPE SPECIES: *Sporormia minima* Auersw.

= *Ohleriella* Earle, N.Y. Bot. Gard. J. 3: 349. 1902.

Petrak (1951) stated that *Ohleriella* is the same as *Sporormia*. From his description of the type species *O. mexicana* Earle, this is probably a synonym of *Sporormiella octomera*.

Fimicolous. Perithecia immersed to semi-immersed, scattered or aggregated in small groups, membranaceous to coriaceous, dark brown to black, smooth or covered with hairs in the upper part; neck varying from short papilliform to long cylindrical. Asci eight-spored, bitunicate, cylindrical to clavate with short to relatively long stipe. Ascospores three- to many-septate, at first hyaline, finally becoming dark brown; septa transverse to oblique; germ slit elongated, extending the entire length of the cell, parallel to diagonal, or transverse to the longitudinal axis of the ascospore; gelatinous sheath hyaline, surrounding each ascospore.

TYPE SPECIES: *Sporormiella nigropurpurea* Ell. & Ev.

KEY TO THE SPECIES OF *Sporormiella*

1. Ascospores four-celled 2
1. Ascospores more than four-celled 34

2. Ascospores uniseriate 3
2. Ascospores in two or more series 4

3. Ascospores less than 30 μ long (Figs. 8–10) ..... 51. *S. pulchella*
3. Ascospores over 30 μ long (Figs. 11–13) ..... 31. *S. lata*

4. Perithecia and neck hairy 5
4. Perithecia and neck not hairy 7

5. Ascospores over 50 μ long (Figs. 14–17)....47. *S. pilosa*
5. Ascospores less than 50 μ long....6

6. Ascospores over 7 μ wide, terminal cells longer and narrower than the mid-cells, germ slit diagonal (Figs. 18–20)....48. *S. pilosella*
6. Ascospores less than 7 μ wide, cells nearly equal in size, germ slit parallel (Figs. 21–23)....11. *S. chaetomioides*

7. Asci cylindrical, abruptly contracted below into a short stipe....8
7. Asci tapering gradually from the broadest part near the apex into a short or elongated stipe....13

8. Ascospores less than 37 μ long....9
8. Ascospores over 37 μ long....10

9. Germ slit nearly parallel, with a kink near the middle; cells readily separable at the central septum, easily separable at the other septa (Figs. 24–26)....36. *S. minima*
9. Germ slit very strongly oblique to diagonal, without a kink near the middle; cells equally separable at all septa (Figs. 27–29)....37. *S. minimoides*

10. Ascospores less than 47 μ long (Figs. 30–32)....6. *S. australis*
10. Ascospores over 47 μ long....11

11. Ascospores less than 60 μ long (Figs. 33, 34)....26. *S. intermedia*
11. Ascospores over 60 μ long....12

12. Ascospores 60–65 × 10.5–12.5 μ (Figs. 35, 36)....60. *S. teretispora*
12. Ascospores 70–80 × 13–16 μ (Figs. 37–40)....14. *S. cylindrospora*
12. Ascospores 92–114 × 18–21 μ....8. *S. borealis*

13. Septa of the ascospores oblique....14
13. Septa of the ascospores transverse....15

14. Ascospores 27–32 × 5.5–6.0 μ (Figs. 41–43)....39. *S. muskokensis*
14. Ascospores 37–42 × 7.5–8.5 μ (Figs. 44–46)....30. *S. lageniformis*
14. Ascospores 50–58 × 10–13.5 μ....27. *S. irregularis*

15. Ascospores less than 60 μ long....16
15. Ascospores over 60 μ long....27

16. Ascospores cylindrical or subcylindrical....17
16. Ascospores somewhat tapered toward each end....21

17. Ascospores less than 30 μ long....18
17. Ascospores over 30 μ long....20

18. Ascospores less than 4.5 μ wide; germ slit parallel (Figs. 47–49)....16. *S. dakotensis*
18. Ascospores over 4.5 μ wide; germ slit oblique to diagonal or diagonal....19

19. Ascospores over 23 μ long; germ slit oblique to diagonal (Figs. 50–52)....59. *S. subtilis*
19. Ascospores less than 23 μ long; germ slit diagonal (Figs. 53–55)....40. *S. nigropurpurea*

20. Upper cell of the ascospore conspicuously narrowed toward the end; cells of the ascospore not easily separable, germ slit oblique to diagonal, occasionally parallel, septa transverse with a tendency toward being oblique (Figs. 56, 57)....32. *S. leporina*
20. Upper cell of the ascospore not conspicuously narrowed toward the end; cells of the ascospore easily separable, germ slit usually parallel, occasionally oblique, with a kink near the middle, septa strictly transverse (Figs. 58–60)....28. *S. isomera*

21. All cells of the ascospore nearly equal in size, germ slit usually parallel in all the cells....22
21. All cells of the ascospore not equal in size, germ slit not parallel in all the cells....23

22. Septa of ascospores usually transverse, occasionally tend to be oblique; ascospores 45–52 × 11.5–14 μ (Figs. 61, 63)....21. *S. grandispora*
22. Septa of the ascospores strictly transverse; ascospores 38–45 × 8–9 μ (Figs. 64–66)....19. *S. dubia*

23. Terminal cells longer than mid-cells and nearly equal in size; mid-cells nearly equal in size....24
23. All cells of the ascospore unequal in size....25

24. Ascospores 27–34 × 7–10 μ, diagonal germ slit in all the cells (Figs. 67–69)....15. *S. cymatomera*
24. Ascospores 38–43 × 12–15 μ, parallel to slightly oblique germ slit in the terminal cells, transverse to obliquely transverse in the mid-cells (Figs. 70–72)....4. *S. anisomera*

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25. Ascospores over 45 μ long (Figs. 73, 74).....10. *S. capybarae*
25. Ascospores less than 45 μ long.....26

26. Ascospores 20–30 × 5.5–7.0 μ.....24. *S. inaequalis*
26. Ascospores 32–38 × 6–8 μ (Figs. 75–77).....61. *S. tetramera*
26. Ascospores 38–44 × 10–13 μ (Figs. 78–80).....2. *S. alloiomera*

27. Ascospores less than 80 μ long.....28
27. Ascospores over 80 μ long.....31

28. Ascospores conspicuously narrowed toward ends, germ slit parallel except in second cell.....53. *S. scandinavica*
28. Ascospores conspicuously narrowed toward ends, germ slit oblique or obliquely transverse.....29
28. Ascospores usually not conspicuously narrowed toward ends, germ slit strictly parallel or diagonal.....30

29. Ascospores less than 15 μ wide, germ slit oblique (Figs. 81–84).....58. *S. systenospora*
29. Ascospores over 15 μ wide, germ slit obliquely transverse (Figs. 85, 86).....52. *S. pyriformis*

30. Ascospores less than 13 μ wide, germ slit strictly parallel (Figs. 87–89).....29. *S. kansensis*
30. Ascospores over 13 μ wide, germ slit diagonal (Figs. 90–93).....35. *S. megalospora*

31. Ascospores over 17 μ wide.....32
31. Ascospores less than 17 μ wide.....33

32. Ascospores 80–88 × 20–24 μ, germ slit transverse to obliquely transverse (Figs. 94–97).....20. *S. euryspora*
32. Ascospores 95–118 × 18–20 μ, germ slit nearly parallel to almost diagonal (Figs. 98–101).....44. *S. ovina*

33. Ascospores less than 14 μ wide, four ascospores at about the same level in the upper part of the ascus and the other four ascospores at different levels below; septa occasionally almost oblique (Figs. 102–105).....33. *S. longispora*
33. Ascospores over 14 μ wide, two- or three-seriate; septa strictly transverse (Figs. 106–109).....34. *S. longisporopsis*

34. Number of cells in the ascospores constant.....35
34. Number of cells in the ascospores variable.....56

35. Ascospores five-celled (Figs. 110, 111).....46. *S. pentamera*
35. Ascospores more than five-celled.....36

36. Ascospores seven-celled.....37
36. Ascospores more than seven-celled.....41

37. Ascospores over 68 μ long (Figs. 112–114).....22. *S. heptamera*
37. Ascospores less than 68 μ long.....38

38. Ascospores less than 10 μ broad.....39
38. Ascospores more than 10 μ broad.....40

39. Five middle cells of the ascospore broader than long, more or less rhomboidal in shape, septa transverse to slightly oblique (Figs. 115, 116).....63. *S. vexans*
39. Second to fourth cell of the ascospore from the upper end broader than long, cells not rhomboidal in shape, septa strictly transverse (Figs. 117–119).....56. *S. septenaria*

40. Ascospores less than 14 μ wide, terminal cells ovate, germ slit oblique to diagonal (Figs. 120–123).....3. *S. americana*
40. Ascospores over 14 μ wide, terminal cells hemispherical, germ slit transverse to obliquely transverse (Figs. 124–126).....62. *S. trogospora*

41. Ascospores eight-celled.....42
41. Ascospores more than eight-celled.....53

42. Ascospores more or less clavate, one cell of the ascospores enlarged.....43
42. Ascospores cylindrical, no cell of the ascospore enlarged.....50

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43. Third cell from the upper end enlarged....44
43. Fourth cell from the upper end enlarged....48

44. Ascospores over 60 μ long (Figs. 127, 128)....1. *S. affinis*
44. Ascospores less than 60 μ long....45

45. Ascospores over 10 μ wide....46
45. Ascospores less than 10 μ wide....47

46. Asci clavate, gradually narrowing below into a long stipe, spore slightly clavate, apical cell conical, ascospores less than 12 μ wide (Figs. 129, 130)....13. *S. corynespora*
46. Asci cylindrical-clavate, abruptly contracted below into a very short stipe; ascospores oblong-fusiform, apical cells hemispherical, ascospores over 12 μ wide (Figs. 131–133)....42. *S. octonalis*

47. Ascospores less than 50 μ long (Figs. 134, 135)....41. *S. octomera*
47. Ascospores over 50 μ long (Figs. 136–138)....54. *S. schadospora*

48. Ascospores over 49 μ long (Figs. 139–141)....43. *S. ontariensis*
48. Ascospores less than 49 μ long....49

49. Ascospores 32–36 × 5.5–6.5 μ (Figs. 142–144)....38. *S. minipascua*
49. Ascospores 40–49 × 8–9 μ (Figs. 145, 146)....45. *S. pascua*

50. Ascospores over 100 μ long....51
50. Ascospores less than 100 μ long....52

51. Ascospores 140–160 × 9.0–12.5 μ, cells longer than broad, asci bulging in the middle (Figs. 150–153)....57. *S. splendens*
51. Ascospores 100–122 × 13–15 μ, cells as long as broad, asci not bulging in the middle portion (Figs. 154–157)....25. *S. insignis*

52. Ascospores 79–95 × 14–16 μ, segments easily separable at all septa, germ slit parallel in the terminal cells, transverse to obliquely transverse in the remaining cells (Figs. 158–161)....49. *S. platymera*
52. Ascospores 48–58 × 6–7 μ, segments readily separable at the central septum, not easily separable at other septa (Figs. 147–149)....7. *S. bipartis*

53. Ascospores 10-celled (Figs. 162–164)....17. *S. decamera*
53. Ascospores more than 10-celled....54

54. Ascospores 16-celled....55. *S. schotteriana*
54. Ascospores less than 16-celled....55

55. Ascospores 12-celled (Figs. 165–167)....18. *S. dodecamera*
55. Ascospores 13-celled (Figs. 168, 169)....5. *S. antarctica*

56. Ascospores 100–160 μ long, 10- to 16-celled, 1 cell (2nd to 5th) from the upper end conspicuously enlarged only in the uppermost spore of the ascus (Figs. 170–174)....23. *S. herculea*
56. Ascospores less than 100 μ long....57

57. Ascospores seven- to nine-celled, 50–60 × 8.0–10.5 μ, third cell from the upper end larger than the rest (Figs. 175–178)....12. *S. commutata*
57. Ascospores more than nine-celled....58

58. Ascospores fusiform, 10- to 13-celled, 65–80 × 17–20 μ, 2 middle cells enlarged, asci cylindrical-clavate, stipe short (Figs. 183–186)....9. *S. calomera*
58. Ascospores cylindrical, 14- to 15-celled, 63–82 × 9.5–11 μ, in 15-celled ascospores the 7th cell is larger and in 14-celled ascospores the 5th and the 6th cells are larger, asci clavate, stipe very long (Figs. 179–182)....50. *S. polymera*

Descriptions

1. ***Sporormiella affinis*** (Sacc., Bomm. & Rouss.) Ahmed & Cain, comb. nov. Figs. 127, 128

BASIONYM: *Sporormia affinis* Sacc., Bomm. & Rouss., Bull. Soc. R. Bot. Belg. 25: 171. 1886.

= *Sporormia octomera* var. *macrospora* Felt., Piltz-Flora Luxemburg. 1, 2: 223. 1901.

Perithecia scattered, immersed, subglobose, 300–450 μ in diameter, smooth, bare, black; neck small, papilliform, smooth, bare, black. Peridium membranaceous. Asci eight-spored,

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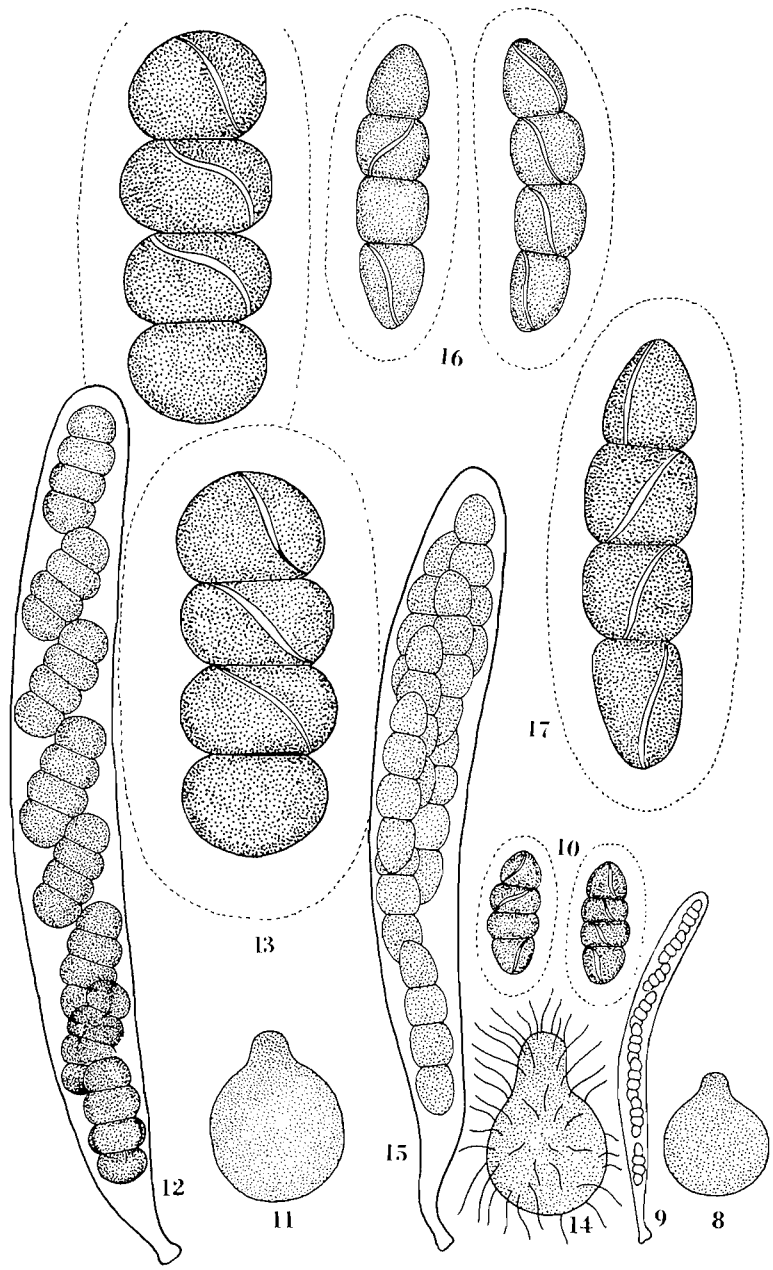
clavate, 210–240 × 30–36 μ, broadly rounded above, broadest near the apex, gradually narrowing below into a fairly short stipe, measuring 20–30 μ in length. Paraphyses abundant, filiform, septate, slightly constricted at the septa, equalling the asci and mixed with them. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, eight-celled, fusiform-cylindrical,



FIGS. 8–10. *Sporormiella pulchella* (TRTC 36871). Fig. 8. Perithecium, × 40. Fig. 9. Ascus with ascospores, × 430. Fig. 10. Ascospores, × 920. FIGS. 11–13. *Sporormiella lata* (TRTC 36615). Fig. 11. Perithecium, × 40. Fig. 12. Ascus with ascospores, × 430. Fig. 13. Ascospores, × 920. FIGS. 14–17. *Sporormiella pilosa* (TRTC 5315). Fig. 14. Perithecium, × 40. Fig. 15. Ascus with ascospores, × 430. Fig. 16. Ascospores, × 660. Fig. 17. Ascospore, × 920.

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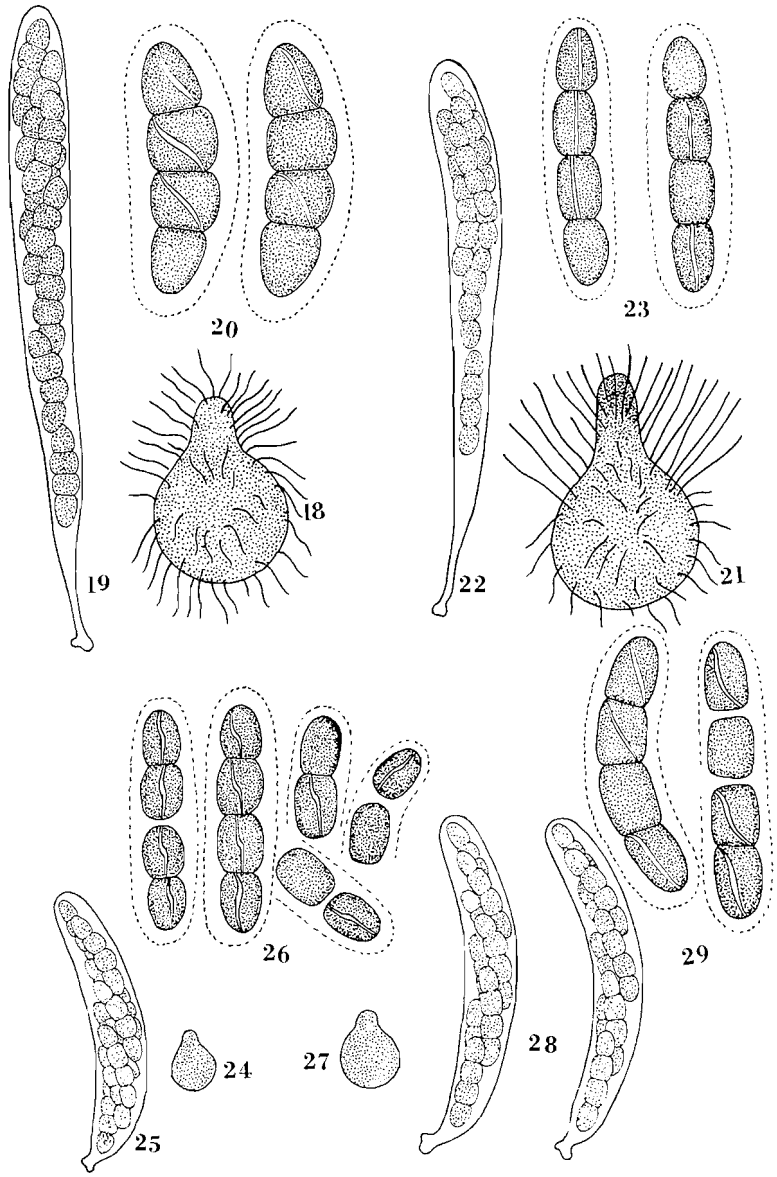
65–80 × 12–15 μ, rounded at the ends, dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments easily separable; third cell from the upper end broadest, tapering gradually toward each end, terminal cells somewhat bluntly conical, germ slit oblique to diagonal, gelatinous sheath hyaline, broad.

HABITAT: On dung of rabbit.

TYPE: Europe.

SPECIMENS EXAMINED: CANADA: Ontario: Bruce Co., TRTC 5345, RFC 5927. Simcoe Co.,



FIGS. 18–20. *Sporormiella pilosella* (TRTC 5316). Fig. 18. Perithecium, × 40. Fig. 19. Ascus with ascospores, × 430. Fig. 20. Ascospores, × 920. FIGS. 21–23. *Sporormiella chaetomioides* (TRTC 38420). Fig. 21. Perithecium, × 40. Fig. 22. Ascus with ascospores, × 430. Fig. 23. Ascospores, × 920. FIGS. 24–26. *Sporormiella minima* (TRTC 39787). Fig. 24. Perithecium, × 40. Fig. 25. Ascus with ascospores, × 430. Fig. 26. Ascospores, × 920. FIGS. 27–29. *Sporormiella minimoides* (TRTC 36242). Fig. 27. Perithecium, × 40. Fig. 28. Asci with ascospores, × 430. Fig. 29. Ascospores, × 920.

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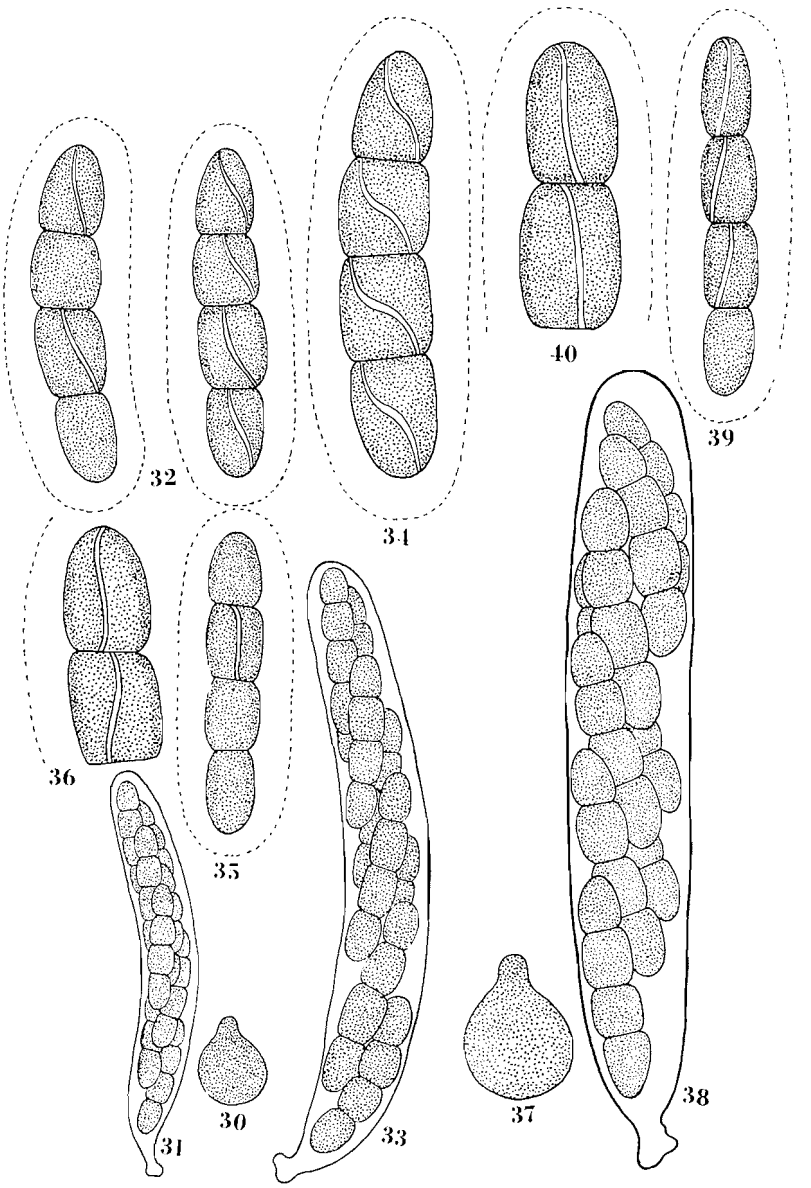
TRTC 37502. UNITED STATES: Idaho: Elmore Co., TRTC 39863. Montana: Prairie Co., TRTC 35757. Oregon: Deschutes Co., TRTC 40179. Wyoming: Teton Co., TRTC 32308. MEXICO: Durango, TRTC 37463.

2. ***Sporormiella alloiomera*** Ahmed & Cain, sp. nov. Figs. 78–80

Peritheciis sparsis, immersis, subglobosis, 250–300 μ diam, atro-brunneis usque nigris, denudatis; collo brevi, papilliformi, nigro denudato.



FIGS. 30–32. *Sporormiella australis* (TRTC 36629). Fig. 30. Perithecium, × 40. Fig. 31. Ascus with ascospores, × 430. Fig. 32. Ascospores, × 920. FIGS. 33, 34. *Sporormiella intermedia* (TRTC 36108). Fig. 33. Ascus with ascospores, × 430. Fig. 34. Ascospore, × 920. FIGS. 35, 36. *Sporormiella teretispora* (LPS 3502). Fig. 35. Ascospore, × 660. Fig. 36. Part of ascospore, × 920. FIGS. 37–40. *Sporormiella cylindrospora* (TRTC 38977). Fig. 37. Perithecium, × 40. Fig. 38. Ascus with ascospores, × 430. Fig. 39. Ascospore, × 660. Fig. 40. Part of ascospore, × 920.

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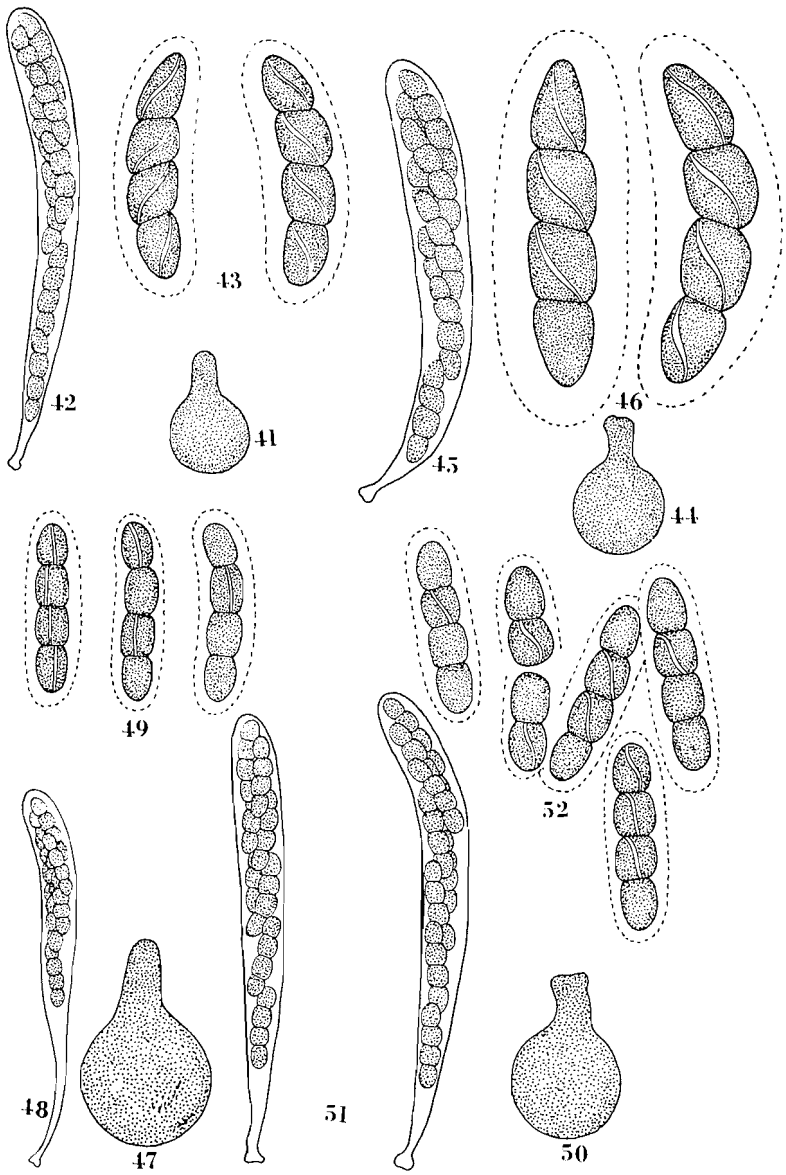
Peridio tenui membranaceo. Ascis octosporis, cylindraceo-clavatis, 130–150 × 20–23 μ, superne late rotundatis, prope mediam partem latissimis, breve stipitatis; stipite 5–10 μ longa. Paraphysibus filiformibus, septatis, copiosis, ramosis, 2.5–3.0 μ crassis, ascos superantibus. Ascosporis superne 2-stichis, inferne 1- aut 2-stichis, 4-cellularibus, plus minus cylindraceo-clavatis, 38–44 × 10–13 μ, demum atro-brunneis opacisque, transverse septatis, profunde constrictis,



FIGS. 41–43. *Sporormiella muskokensis* (TRTC 37526). Fig. 41. Perithecium, × 40. Fig. 42. Ascus with ascospores, × 430. Fig. 43. Ascospores, × 920. FIGS. 44–46. *Sporormiella lageniformis* (TRTC 36610). Fig. 44. Perithecium, × 40. Fig. 45. Ascus with ascospores, × 430. Fig. 46. Ascospores, × 920. FIGS. 47–49. *Sporormiella dakotensis* (Griffiths' type, NY). Fig. 47. Perithecium, × 40. Fig. 48. Ascus with ascospores, × 430. Fig. 49. Ascospores, × 920. FIGS. 50–52. *Sporormiella subtilis* (TRTC 37018). Fig. 50. Perithecium, × 40. Fig. 51. Asci with ascospores, × 430. Fig. 52. Ascospores, × 920.

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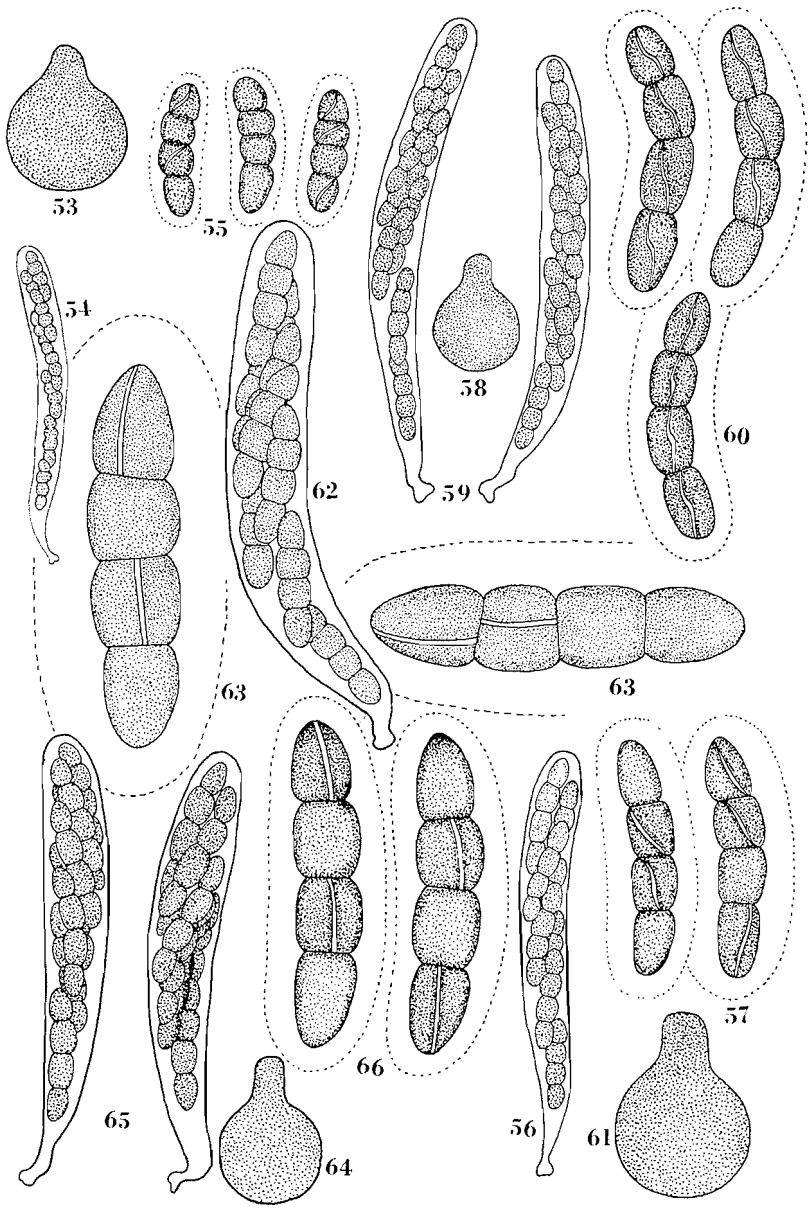
cohaerentibus; superne articulo terminale ovato-conico, 10.0–13.5 × 10.5–11.5 μ; inferne articulo terminale longiore et leviter attenuato, 12.5–15 × 9.0–10.5 μ; superne articulo medio 8.0–9.0 × 12.5–13.0 μ, inferne articulo medio 8.0–10.5 × 11.5–12.5 μ. Stria germinationis obliqua usque diagonali. Strato gelatinoso hyalino late.

HOLOTYPUS: In fimo *Alcis americanae*, Alberta,



FIGS. 53–55. *Sporormiella nigropurpurea* (Ell. & Ev., type, NY). Fig. 53. Perithecium, × 40. Fig. 54. Ascus with ascospores, × 430. Fig. 55. Ascospores, × 920. FIGS. 56, 57. *Sporormiella leporina* (TRTC 38140). Fig. 56. Ascus with ascospores, × 430. Fig. 57. Ascospores, × 920. FIGS. 58–60. *Sporormiella isomera* (TRTC 36241). Fig. 58. Perithecium, × 40. Fig. 59. Asci with ascospores, × 430. Fig. 60. Ascospores, × 920. FIGS. 61–63. *Sporormiella grandispora* (TRTC 39217). Fig. 61. Perithecium, × 40. Fig. 62. Ascus with ascospores, × 430. Fig. 63. Ascospores, × 920. FIGS. 64–66. *Sporormiella dubia* (TRTC 39021). Fig. 64. Perithecium, × 40. Fig. 65. Asci with ascospores, × 430. Fig. 66. Ascospores, × 920.

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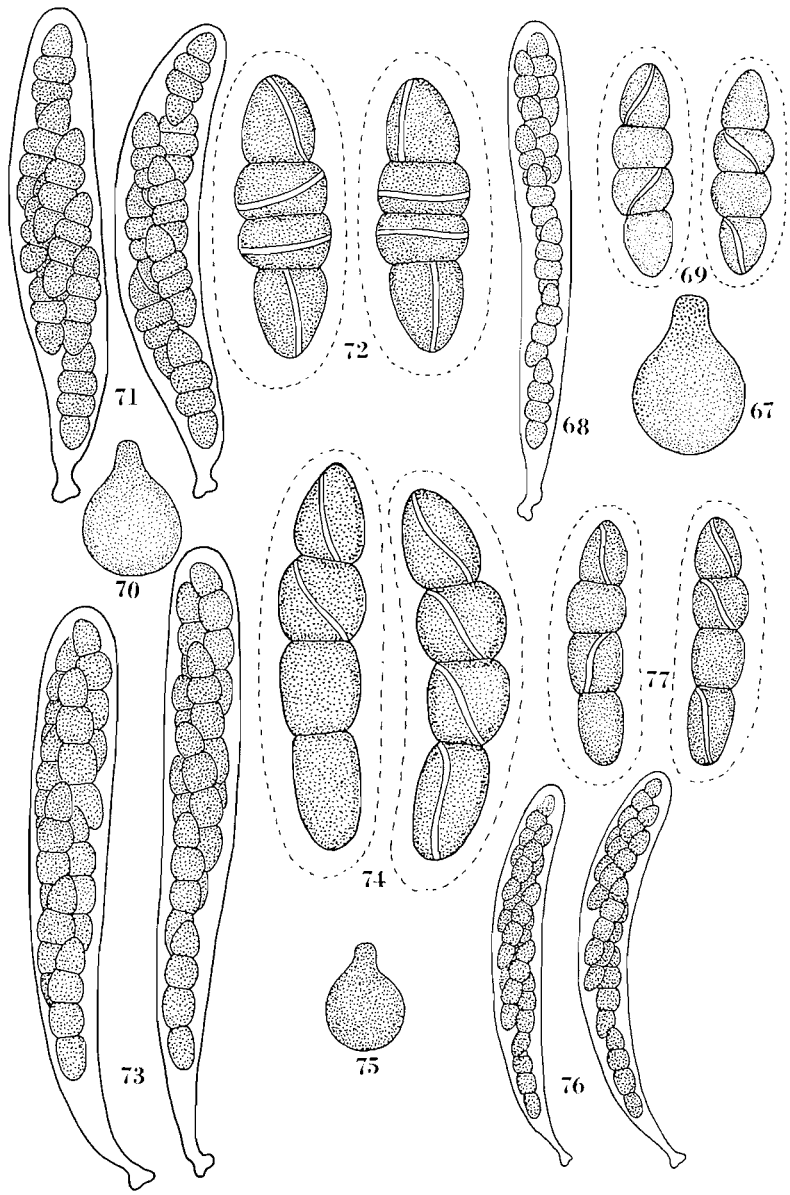
Beaver Mines, 18 July 1962, *Cain*, TRTC 38980. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *alloios* = different, and *meros* = part, referring to the difference in size of the ascospore segments.

Perithecia scattered, immersed, subglobose, 250–300 μ in diam, bare, smooth, dark brown to almost black; neck short, papilliform, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 130–150 × 20–23 μ, broadly rounded above, broadest



FIGS. 67–69. *Sporormiella cymatomera* (TRTC 39428). Fig. 67. Perithecium, × 40. Fig. 68. Ascus with ascospores, × 430. Fig. 69. Ascospores, × 920. FIGS. 70–72. *Sporormiella anisomera* (TRTC 38219). Fig. 70. Perithecium, × 40. Fig. 71. Asci with ascospores, × 430. Fig. 72. Ascospores, × 920. FIGS. 73, 74. *Sporormiella capybarae* (TRTC 36989). Fig. 73. Asci with ascospores, × 430. Fig. 74. Ascospores, × 920. FIGS. 75–77. *Sporormiella tetramera* (TRTC 37447). Fig. 75. Perithecium, × 40. Fig. 76. Asci with ascospores, × 430. Fig. 77. Ascospores, × 920.

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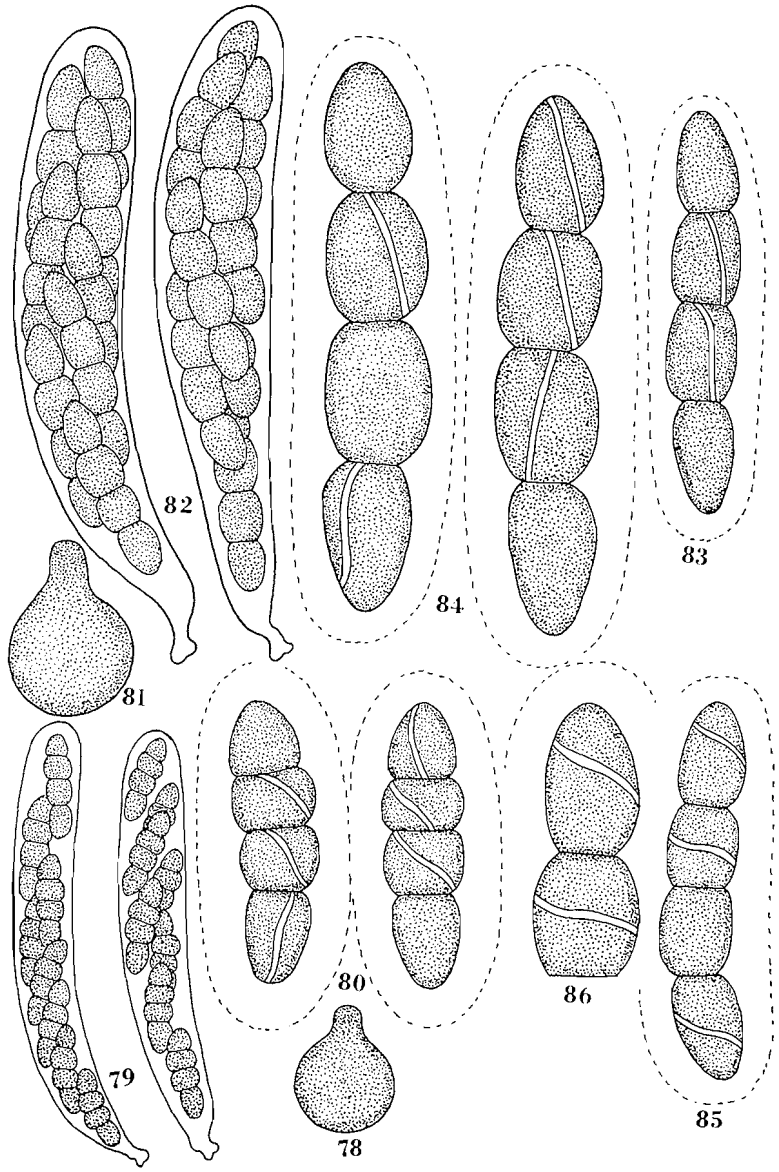
near the upper end, contracted below into a short stipe, measuring 5–10 μ in length. Paraphyses abundant, filiform, septate, branched, guttulate, longer than and mixed with the asci, 2.5–3.0 μ in diam. Ascospores obliquely biseriate above, uni- or bi-seriate below, four-celled, nearly cylindrical-clavate, 38–44 × 11–13 μ, yellowish brown when young, becoming dark brown and opaque when mature; septa transverse; constrictions at septa broad and deep;



FIGS. 78–80. *Sporormiella alloiomera* (TRTC 38980). Fig. 78. Perithecium, × 40. Fig. 79. Asci with ascospores, × 430. Fig. 80. Ascospores, × 920. FIGS. 81–84. *Sporormiella systenospora* (TRTC 36986). Fig. 81. Perithecium, × 40. Fig. 82. Asci with ascospores, × 430. Fig. 83. Ascospores, × 660. Fig. 84. Ascospores, × 920. FIGS. 85, 86. *Sporormiella pyriformis* (with *Sporormia antarctica* Speg. LPS 3500). Fig. 85. Ascospore, × 660. Fig. 86. Part of ascospore, × 920.

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cells not easily separable; apical cell ovoid-conical, about 10.0–13.5 × 10.5–11.5 μ; upper mid-cell widest, 8.0–9.0 × 12.5–13.0 μ; lower mid-cell 8.0–10.5 × 11.5–12.5 μ; basal cell longest of all, 12.5–15 × 9.0–10.5 μ, narrower towards the end; germ slit oblique to diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of moose and sheep.

SPECIMENS EXAMINED: CANADA: Alberta: TRTC 38980 (HOLOTYPE) 38990. UNITED STATES: Wyoming: Albany Co., TRTC 41522.

3. ***Sporormiella americana*** (Griff.) Ahmed & Cain, comb. nov. Figs. 120–123

BASIONYM: *Sporormia americana* Griff., Mem. Torrey Bot. Club, 11: 114. 1901.

Perithecia scattered, immersed, firmly attached to the substrate, subglobose, 200–250 μ in diam, smooth, bare, black; neck small, papilliform, smooth, bare, black. Peridium membranaceous to coriaceous. Asci eight-spored, cylindrical-clavate, 160–220 × 25–30 μ, broadly rounded above, broadest near the apex; gradually narrowing below into a short, rather stout stipe, 10–15 μ in length. Paraphyses abundant, filiform, septate, guttulate, sparingly branched, longer than and mixed with the asci, 3.0–3.5 μ in diameter. Ascospores bi- or tri-seriate, seven-celled, fusiform-cylindrical, 52–63 × 10–13 μ, dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments not easily separable; third cell from the upper end larger than the remainder, cells narrowing gradually toward each end, terminal cells more or less ovoid, longer than broad, remaining cells broader than long; germ slit oblique to diagonal, gelatinous sheath broad, hyaline.

HABITAT: On dung of cow, deer, goat, and rabbit.

TYPE: Gunnison, Colorado, U.S.A.

SPECIMENS EXAMINED: CANADA: Ontario: Brant Co., RFC 6494. UNITED STATES: Colorado: Gunnison Co. (TYPE, NY). Moffat Co., TRTC 33709, 35522. Park Co., TRTC 38093. Saguache Co., TRTC 38055. Kansas: Rooks Co., TRTC 39382. Montana: Prairie Co., TRTC 35739. Nevada: Elko Co., TRTC 35730. N. Dakota: Billings Co., TRTC 36203, 36223. S. Dakota: Meade Co., TRTC 39434. Utah: Duchesne Co., TRTC 36236, 36296. MEXICO: San Luis Potosi, TRTC 39775.

4. ***Sporormiella anisomera*** Ahmed & Cain, sp. nov. Figs. 70–72

Peritheciis sparsis, immersis, subglobosis usque piriformibus, 340–400 × 250–300 μ, nigris, denudatis; collo breve conico, circa 80–90 μ, crasso, nigro, denudato. Peridio coriaceo. Ascis octosporis, cylindraceo-clavatis, 125–175 × 22–26 μ, superne late rotundatis, superne mediam partim latissimis, inferne attenuatis, breve stipitatis; stipite usque ad 15 μ longa. Paraphysibus filiformibus septatis, ascos superantibus. Ascosporis 2- aut 3-seriatis, 4-cellularibus, fusiformibus, 38–43 × 12–15 μ, rectis demum atro-brunneis, transverse septatis, profunde constrictis; articulis terminalibus longioribus et per attenuatis, 12–14 × 10.5 μ; articulis mediis 7.5 × 11–13 μ. Stria germinationis parallela usque leviter obliqua in articulis terminalibus; stria germinationis transversa usque aliquantum obliqua in articulis mediis. Strato mucoso hyaline angusto.

HOLOTYPUS: In fimo vaccino, Mexico, Hidalgo, Zimapan, 21 Aug. 1961, *Cain*, TRTC 38219. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *anisos* = unequal, and *meros* = part, referring to the difference in size of the terminal segments compared to the central ones.

Perithecia scattered, immersed, subglobose to slightly pyriform, 340–400 × 250–300 μ, smooth, bare, black; neck small, conical, about 80–90 μ broad, smooth, bare, black. Peridium coriaceous. Asci eight-spored, cylindrical-clavate, 125–175 × 22–26 μ, broadly rounded above, slightly narrower near the upper end, broadest above the middle, tapering below into a stout stipe, measuring up to 15 μ in length. Paraphyses filiform, septate, slightly longer and mixed with the asci. Ascospores bi- or tri-seriate, four-celled, fusiform, 38–43 × 12–15 μ, straight, light brown when young, becoming dark brown when mature; septa transverse; constrictions at septa broad and deep; terminal cells longer than the mid-cells, conspicuously narrowed toward the ends, almost equal in size, measuring about 12–14 × 10.5 μ; mid-cells measuring 7.5 × 11–13 μ, nearly equal in size; germ slit parallel to slightly oblique in the terminal cells, transverse to obliquely transverse in the mid-cells; gelatinous sheath hyaline, narrow.

HABITAT: On dung of burro and cow.

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SPECIMENS EXAMINED: MEXICO: Hidalgo, TRTC 38219. Jalisco, TRTC 36488. Sinaloa, TRTC 36890.

5. ***Sporormiella antarctica*** (Speg.) Ahmed & Cain, comb. nov. Figs. 168, 169

BASIONYM: *Sporormia antarctica* Speg., Fungi Fuegiana; Bol. Acad. Nac. Cienc. Cordoba, 11: 224. 1887.

= *Sporormia venusta* Cain, Univ. Toronto Stud., Biol. Ser., No. 38: 108. 1934.

Perithecia scattered, subglobose to pyriform, 300–400 × 200–300 μ, dark brown to nearly black; neck small, papilliform to bluntly conical, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 175–220 × 26–32 μ, broadly rounded above, broadest near the middle, abruptly contracted below into a short stipe, measuring 10–15 μ in length. Paraphyses abundant, filiform, septate, branched, longer than and mixed with the asci. Ascospores obliquely biseriate, 13-celled, cylindrical, (44–)48–60 × 9–10 μ, broadly rounded at the ends, dark brown and opaque when mature, septa transverse, constrictions at septa fairly shallow, segments not easily separable; cells broader than long, fifth cell from the upper end abruptly larger, terminal cells hemispherical; germ slit indistinct, transverse to diagonal, gelatinous sheath hyaline, narrow.

HABITAT: On dung of goose, horse, and rabbit.

TYPE: Argentina, *Spegazzini*, LPS 3500.

SPECIMENS EXAMINED: ARGENTINA: *Spegazzini*, LPS 3500. CANADA: Ontario: Bruce Co., RFC 6313. Muskoka Dist., RFC 6314. Timiskaming Dist., TRTC 36192. York Co., TRTC 5322, 6312.

According to Spegazzini's type description of *Sporormia antarctica* the spores are 11- to 13-celled and 5–6 μ wide. Except for these two features, the type (*Spegazzini* 3500, LPS) agrees perfectly with the type description. All observed ascospores are 13-celled and 9–10 μ wide. It is our opinion that Spegazzini's type description of *S. antarctica* involved an error regarding the width as well as the 11- and 12-celled condition of the ascospores. *S. venusta* Cain (1934) agreed in all the characters with the type of *S. antarctica*.

6. ***Sporormiella australis*** (Speg.) Ahmed & Cain, comb. nov. Figs. 30–32

≡ *Sporormia australis* Speg., Bol. Acad. Nac. Cienc. Cordoba, 11: 50. 1887.

= *Sporormia intermedia* Auersw. var. *lagopina* Bres., Malpighia, 11: 52. 1897.

Perithecia scattered, embedded when young, becoming superficial when old, subglobose to pyriform, 220–300 × 160–200 μ, smooth, bare, dark brown to nearly black; neck small papilliform, smooth, bare, dark brown to nearly black. Peridium thin, membranaceous. Asci eight-spored, subcylindrical, (120–)136–150 × 17–21 μ, broadly rounded above, broadest below the middle, abruptly contracted below into a very short stout stipe. Paraphyses scanty, filiform, septate, mixed with the asci. Ascospores obliquely bi- or tri-seriate, four-celled, 38–46 × 7–8 μ, broadly rounded at the ends, dark brown and opaque when mature, transversely septate; constrictions at septa broad and shallow, segments easily separable; terminal cells slightly narrowing toward the ends; germ slit slightly to strongly oblique, occasionally almost diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of burro, cow, deer, goat, horse, moose, porcupine, rabbit, and sheep.

TYPE: Argentina.

SPECIMENS EXAMINED: ARGENTINA: with *Sordaria argentinensis* Speg. 6843, *C. Spegazzini* (LPS). CANADA: Ontario: Algoma Dist., TRTC 38281. Bruce Co., TRTC 35990. Haliburton Co., TRTC 36109, 36334. Kenora Dist., TRTC 35822, 38220. Muskoka Dist., TRTC 35895, 36011. Nipissing Dist., RFC 5946, 5947, 5948, 5950, 5952, 5953, TRTC 32224, 34453, 36629, 36686, 36703. Parry Sound Dist., TRTC 39684. Sudbury Dist., TRTC 36012, 36359, 39682. Timiskaming Dist., TRTC 35991, 35999. Thunder Bay Dist., RFC 5944. Quebec: Montmorency Co., TRTC 39734. Saskatchewan: RFC 6626. EUROPE: With *Delitschia minuta* Fuckel (G). UNITED STATES: California: Lassen Co., TRTC 39206. Colorado: Teller Co., TRTC 38881, 39640. Montana: Prairie Co., TRTC 35742. Gallatin Co., TRTC 35727. Nevada: Elko Co., TRTC 35731. Esmeralda Co., TRTC 40669. New Mexico: Otero Co., TRTC 38096, 38123. New York: Cattaraugus Co., TRTC 37375, 37385, 38906. Warren Co., RFC 5961, 5962. Wisconsin: Dane Co., TRTC 32113. Wyoming: Park Co., TRTC 39046. Teton Co., TRTC 32049, 32307, 32333, 32350. MEXICO: Chihuahua, TRTC 36495, 36712, 39778, 39780. Durango, TRTC 36951, 37000, 39776. Jalisco, TRTC

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40627, 36788. Nuevo Leon, TRTC 36721. Oaxaca, TRTC 39839. San Luis Potosi, TRTC 39777, 39636. Tamaulipas, TRTC 36570.

This species is related to *Sporormiella minima* and *Sporormiella intermedia* and possesses asci and ascospores which are intermediate in size between these two species. *S. intermedia* var. *lagopina* possesses ascospores which agree with the specimens of *S. australis* examined.

7. ***Sporormiella bipartis*** (Cain) Ahmed & Cain, comb. nov. Figs. 147–149

BASIONYM: *Sporormia bipartis* Cain, Univ. Toronto Stud., Biol. Ser., No. 38: 106. 1934.

Perithecia scattered, immersed, subglobose to pyriform, 240–350 × 190–240 μ, smooth, bare, dark brown to nearly black; neck short, papilliform, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, clavate, (150–)160–180(–190) × 18–21 μ, broadly rounded above, broadest above the middle, gradually narrowing below into a very short, rather stout stipe. Paraphyses filiform, septate, branched, slightly longer than the asci and mixed with them. Ascospores bi- or tri-seriate, eight-celled, cylindrical, (45–)48–58 × 6–7 μ, rounded at the ends, dark brown when mature, septa transverse, constriction at the central septum deep and the spores readily break into two groups of four cells each, broad and shallow at the remaining septa where the segments are not easily separable; six middle cells more or less square-shaped in the optical section, terminal cells slightly longer and narrower toward the ends; germ slit diagonal, gelatinous sheath hyaline, narrow.

HABITAT: On dung of deer, moose, partridge, and rabbit.

TYPE: On rabbit dung, Ontario, Nipissing Dist., Lake Timagami, TRTC 5320.

SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 37505, 37558, 38147, 39685, 39689. Bruce Co., TRTC 38923, 35950. Haliburton Co., TRTC 36103, 36353. Muskoka Dist., RFC 5976, 5978, TRTC 35754, 35898, 35933. Nipissing Dist., RFC 5964, 5969, 5970, 5972, 5982, 5987, 12013, TRTC 5320 (TYPE). Parry Sound Dist., TRTC 32106. Timiskaming Dist., TRTC 35927, 36016. Quebec: Montmorency Co., TRTC 39735. Portneuf Co., RFC 6884, 6920. Saskatchewan: TRTC 40138. EUROPE: with the type of *Delitschia auerswaldii* Fuckel, Fungi Rhenani Exsiccati 2034 (G). MEXICO: Jalisco, TRTC 37472. UNITED STATES: New Hampshire: Cheshire Co., TRTC 32607, 32649, 32657. New York: Warren Co., RFC 5988, 5989. Vermont: Chittenden Co., TRTC 40628, 40629.

8. *Sporormiella borealis* (I. Egel.) Krug, Trans. Bot. Soc. Edinb. 41(2): 198. 1971.

BASIONYM: *Sporormia borealis* I. Egel., Nytt Mag. Bot. 16: 217. 1969.

Perithecia globose, 300–450 μ diam. Neck short, cylindrical, pale olivaceous, translucent. Asci eight-spored, cylindrical, abruptly narrowed below into a short stipe, 220–280 × 39–44 μ. Ascospores four-celled, cylindrical, 92–114 × 18–21 μ, with second cell slightly broader than others. Germ slit prominent, parallel to the length of the ascospores, but sometimes nearly diagonal.

HABITAT: On cow dung.

TYPE: On cow dung, Norway, *I. Egeland*, 244 (O).

9. ***Sporormiella calomera*** Ahmed & Cain, sp. nov. Figs. 183–186

Peritheciis sparsis, immersis, subglobosis usque piriformibus, 600–700 × 300–350 μ, nigris, denudatis; collo longo, subcylindraceo, 150–200 × 120–140 μ, nigro, denudato. Peridio membranaceo. Ascis octosporis, cylindraceo-clavatis, 230–270 × 26–30 μ, superne late rotundatis, superne mediam partem latissimis, inferne attenuatis, breve stipitatis; stipite usque ad 25 μ longa. Paraphysibus filiformibus, septatis, ramosis, copiosis, ascos superantibus. Ascosporis 2- aut 3-seriatis, fusiformibus plerumque 12-cellularibus, raro 10, 11, vel 13-cellularibus, 65–80–(–90) × (15–)17–20 μ, ad terminales angustioribus, demum atro-brunneis, transverse septatis, mediocriter constrictis. Duobus articulis mediis majoribus, 7.5–10 × 15–20 μ, articulis terminalibus hemisphaericis, 6–10 × 8–10 μ. Sine stria germinationis spectabili in articulis terminalibus; stria germinationis transversa in articulis reliquis. Strato gelatinoso hyalino, angusto.

HOLOTYPUS: In fimo cuniculorum, Louisiana, Livingston Parish, Walker, 23 August 1960, *Cain*, TRTC 36704.

ETYMOLOGY: Greek, *kalos* = beautiful, and *meros* = part, referring to the beauty of the spore segments.

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Perithecia scattered, immersed, subglobose to pyriform, 600–700 × 300–350 μ, smooth, bare, black; neck long, subcylindrical, 150–200 × 120–140 μ, smooth, bare, black. Peridium membranaceous. Asci eight-spored, cylindrical-clavate, 230–270 × 26–30 μ, broadly rounded above, slightly narrow at the upper end, broadest above the middle, gradually narrowing below into a short stipe, measuring up to 25 μ in length. Paraphyses abundant, filiform, septate, branched, longer than and mixed with the asci. Ascospores bi- or tri-seriate, nearly parallel with the ascus, usually 12-celled, occasionally 10, 11, or 13-celled, fusiform, 65–80(–90) × (15–)17–20 μ, narrowly rounded at the ends, yellowish brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa moderately deep, two middle cells larger than the remaining cells, measuring 7.5–10 × 15–20 μ, remaining cells decreasing in width toward each end, terminal cells dome-shaped, measuring 6–10 × 8–10 μ; germ slit apparently nonexistent in the terminal cells, transverse in the remaining cells, gelatinous sheath hyaline.

HABITAT: On dung of cow and rabbit.

SPECIMEN EXAMINED: UNITED STATES: Louisiana: Orleans Parish, TRTC 38295. Livingston Parish, TRTC 36704.

10. ***Sporormiella capybarae*** (Speg.) Ahmed & Cain, comb. nov. Figs. 73, 74
≡*Sporormia capybarae* Speg., Fungi Argentini. Anal. Mus. Nac. Buenos Aires, 6: 279. 1899.

Perithecia subglobose, 250–350 μ diam, with a short neck. Asci eight-spored, cylindrical-clavate, 140–180 × 20–25 μ, straight or slightly curved, broadly rounded above, gradually narrowing below into a stipe, measuring up to 30 μ in length. Paraphyses filiform, septate, longer than and mixed with the asci. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, four-celled, fusiform-cylindrical, 45–53 × 9.5–11.5 μ, dark brown and opaque when mature; septa transverse; constrictions at septa broad and deep; segments not easily separable; cells unequal in size; upper end cell prominently narrowing, measuring 11.5–12.5 × 9.0 μ, second cell from the upper end measuring 8.0–10.5 × 10.0–11.5 μ, third cell 9.0–11.5 × 10.0 μ, basal cell longer than the remaining cells, measuring 13–15 × 8.0–9.0 μ; germ slit nearly oblique to diagonal; gelatinous sheath present.

HABITAT: On dung of burro, cow, goat, rodent, and sheep.

TYPE: Argentina.

SPECIMENS EXAMINED: ARGENTINA: With type of *Sporormia antarctica* Speg., *Spegazzini* 3500 (LPS), *Spegazzini* 5982 (LPS). EUROPE: With *Delitschia moravica* Niessl, *Rehm*, Ascomyceten 746 (G); with *Sporormia ovina* Sacc., *Desmazières*, Plantes Cryptogames de France, 98 (G); with *Delitschia auerswaldii* Fuckel, Fungi Rhenani 2034 (G). UNITED STATES: Colorado: Moffat Co., TRTC 35514. Teller Co., TRTC 3885. New Mexico: Santa Fe Co., TRTC 36473. Wyoming: Albany Co., TRTC 32343. Teton Co., TRTC 39614. MEXICO: Durango, TRTC 36581, 37484. Hidalgo, TRTC 39832. San Luis Potosi, TRTC 36971, 36989. Tamaulipas, TRTC 38882.

11. ***Sporormiella chaetomioides*** (Griff.) Ahmed & Cain, comb. nov. Figs. 21–23
≡*Sporormia chaetomioides* Griff., Mem. Torrey Bot. Club, 11: 113. 1901.

Perithecia scattered or aggregated in small clusters, immersed, subglobose, 300–420 μ in diam, olivaceous brown when young, becoming dark brown to black and opaque when mature; neck long cylindrical, straight or curved, provided with long, flexuous, septate, branched, light brown hairs, which measure about 4–6 μ in diameter. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 150–200 × 13–17 μ, broadly rounded at the upper end, gradually narrowing below into a long slender stipe. Paraphyses abundant, septate, branched, guttulate, longer than and mixed with the asci, measuring 3–5 μ in diameter. Ascospores somewhat obliquely disposed, bi- or tri-seriate above, uniseriate below, four-celled, cylindrical, (26–)28–40 × 5–7 μ, olivaceous brown when young, becoming dark brown and opaque at maturity, transversely septate; constrictions at septa broad and deep; segments easily separable; cells nearly equal in size; germ slit parallel; gelatinous sheath hyaline, narrow.

HABITAT: On dung of cow and deer.

TYPE: Biloxi, Mississippi (NY).

SPECIMENS EXAMINED: CANADA: Ontario: Kenora Dist., TRTC 38420. UNITED STATES: Arizona: Pima Co. (NY). Mississippi: Biloxi, TYPE (NY).

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Griffith's collections from Arizona and Mississippi as well as the one from Ontario were examined and compared. In the Mississippi collections, the ascospores averaged 28–30 μ in length whereas in the Arizona material there was a range from 28 to 40 μ. In addition, the ascospores in the Ontario collections measured 30–55 μ in length and were slightly wider than those of Griffiths. Despite the variation in ascospore dimensions as exhibited in these collections, no other distinguishing feature was found that would warrant a segregation.

12. ***Sporormiella commutata*** (Niessl) Ahmed & Cain, comb. nov. Figs. 175–178

BASIONYM: *Sporormia commutata* Niessl, Oesterr. Bot. Z. 28: 164. 1876.

Perithecia subglobose, 220–250 μ, with short papilliform neck. Asci eight-spored, clavate, 145–200 × 18.5–23.0 μ, broadly rounded above, gradually narrowing from the broadest part near the apex into a short stipe, measuring up to 20 μ in length. Paraphyses filiform, septate, longer than and mixed with the asci. Ascospores triseriate above, uni- or bi-seriate below, cylindrical-clavate, usually nine-celled, occasionally seven- or eight-celled, 50–60(–65) × 8.0–10.5 μ, rounded at the ends, becoming dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments easily separable; third cell from the upper end broadest, cells narrowing gradually toward each end, terminal cells longer than broad, more or less ovoid-conical, remaining cells broader than long; germ slit strongly oblique to diagonal; gelatinous sheath present.

HABITAT: On dung of rabbit.

TYPE: Europe.

SPECIMENS EXAMINED: UNITED STATES: Nevada: Elko Co., TRTC 35760. Esmeraldo Co., TRTC 41449. New Mexico: Otero Co., TRTC 38878.

In certain specimens examined, only nine-celled ascospores were found (TRTC 41449) whereas in a few others, eight- and nine-celled ones were observed (TRTC 38878, 37443). These specimens were similar in all the characters to those possessing seven-, eight-, and nine-celled ascospores (TRTC 35760). The nine-celled condition was invariably found to be dominant in all the collections consisting of a variable number of cells.

13. ***Sporormiella corynespora*** (Niessl) Ahmed & Cain, comb. nov. Figs. 129, 130

BASIONYM: *Sporormia corynespora* Niessl, Oesterr. Bot. Z. 28: 45, 166. 1878.

Perithecia subglobose, 320–400 μ, with short papilliform neck. Asci eight-spored, clavate, 150–200 × 23–26 μ, broadest near the upper end, gradually contracted below into a stipe, measuring 25–35 μ in length. Paraphyses abundant, filiform, septate, longer than and mixed with the asci. Ascospores three- or four-seriate above, uniseriate below, eight-celled, more or less clavate, 50–59 × 10.0–11.5 μ, straight or curved, dark brown and opaque when mature; transversely septate; constrictions at septa broad and fairly shallow, cells not separable; third cell from the upper end abruptly larger than the remainder, cells becoming narrower toward both ends, apical cell conical, more prominently narrower toward the end than the basal cell; germ slit diagonal, gelatinous sheath hyaline, narrow.

HABITAT: On dung of deer and rabbit.

TYPE: Europe.

SPECIMENS EXAMINED: CANADA: Ontario: Victoria Co., TRTC 36405. Saskatchewan: TRTC 38974. EUROPE: *Rehm*, Ascomyceten 748, det. by V. Niessl (NY and G). With *Sordaria maxima* Niessl, Rabenhorst, Fungi Europaei 1528 (NY). With *Sporormia intermedia* Auersw., Flora Exsiccata Austro-Hungarica 3573 (G). With *Sporormia heptamera* Auersw., Herbier Müller 1554/22 (G).

When one of the specimens (*Rehm*, Ascomyceten 748) identified by Niessl was examined, the stipe measured 25–30 μ in length. Some of the asci were found with much longer stipes and in these cases, it was considered to be due to the ectoascus which had slipped downward. Usually the endoascus was found to be slightly constricted at the point where the lower part of the broken ectoascus started. The immature asci were also examined to get some idea of the actual length of the stipe, as there is comparatively less chance for these to expand. Observations made on these asci indicated that the stipe was not very short.

14. ***Sporormiella cylindrospora*** Ahmed & Cain, sp. nov. Figs. 37–40

Peritheciis sparsis, immersis usque semi-immersis, subglobosis usque piriformibus, 350–

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400 × 250–300 μ, atro-brunneis usque nigris, denudatis; collo breve papilliformi, nigro, denudato. Peridio membranaceo. Ascis octosporis, subcylindraceis, 190–240 × 32–36(–38) μ, superne late rotundatis, prope mediam partem latissimis, inferne attenuatis, breve stipitatis. Paraphysibus filiformibus, septatis, ramosis, guttulatis, ascos superantibus. Ascosporis 2- aut 3-stichis, obliquis, 4-cellularibus, cylindraceis (67–)70–80(–90) × 13–16 μ, utrinque late rotundatis, demum atro-brunneis opacisque, transverse septatis, constrictis mediocritor vel profunde; articulis terminalibus leniter attenuatis. Stria germinationis obliqua usque parallelo ordinata. Strato mucoso hyalino, lato.

HOLOTYPUS: In fimo *Odocoilei virginiani*, Saskatchewan, Cypress Hills Prov. Pk., 25 July 1962, *Cain*, TRTC 38977. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *kylindros* = cylinder, and *spora* = seed, referring to the cylindrical spores.

Perithecia scattered, immersed when young, becoming semi-immersed when old, subglobose to slightly pyriform, 350–400 × 250–300 μ, smooth, bare, dark brown to nearly black; neck small papilliform, smooth, bare, black, with a prominent ostiole. Peridium thin, membranaceous. Asci eight-spored, subcylindrical, 190–240 × 32–36(–38) μ, broadly rounded above, broadest below the middle, abruptly contracted below into a very short stipe. Paraphyses filiform, septate, sparingly branched, guttulate, longer than the asci and mixed with them, about 3–4 μ in diameter. Ascospores obliquely bi- or tri-seriate, four-celled, cylindrical, (67–)70–80(–90) × 13–16 μ, broadly rounded at the ends, olivaceous brown when young, becoming dark brown and opaque when mature, transversely septate; constrictions at septa moderate to deep; cells nearly equal in size; terminal cells slightly narrower toward the ends; germ slit oblique to nearly parallel; gelatinous sheath hyaline, broad.

HABITAT: On dung of cow, deer, elk, horse, and moose.

TYPE: On deer dung, Saskatchewan, Cypress Hills Prov. Pk., TRTC 38977.

SPECIMENS EXAMINED: AUSTRALIA: Balir, Warcup A277/1 (TRTC). CANADA: Alberta: TRTC 38988, 39035. British Columbia: TRTC 39225. Saskatchewan: TRTC 38977 (TYPE), 39011. UNITED STATES: Colorado: Larimer Co., TRTC 41616. Montana: Yellowstone Co., TRTC 36854. North Dakota: Meade Co., TRTC 39408. Wyoming: Big Horn Co., TRTC 39604.

Sporormiella cylindrospora seems to be related to *S. intermedia* and *S. teretispora*, as may be indicated by its resemblance to them in several characters. It may be differentiated from them by its overall larger size.

15. ***Sporormiella cymatomera*** Ahmed & Cain, sp. nov. Figs. 67–69

Peritheciis sparsis vel aggregatis immersis, subglobosis usque piriformibus, 350–450 × 250–350 μ, atro-brunneis usque nigris, denudatis; collo breve papilliformi usque cylindraceo, nigro, denudato. Peridio crasso, membranaceo. Ascis octosporis, cylindraceo-clavatis (130–)150–170 × 15–18 μ, superne late rotundatis, inferne attenuatis, breve stipitatis. Paraphysibus filiformibus, septatis, copiosis, 2.5–3.0 μ diam, ascos superantibus. Ascosporis supra 2-seriatis, infra 1-seriatis, 4-cellularibus, fere fusiformibus 27–34(–38) × 7–10 μ, demum atro-brunneis, transverse septatis, mediocriter constrictis; articulis mediis late subglobosis; articulis terminalibus leviter longioribus. Stria germinationis diagonali. Strato gelatinoso angusto.

HOLOTYPUS: In fimo vaccino, South Dakota, Meade Co., Wall, 3 Sept. 1962, *Cain*, TRTC 39428. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *kymas* = pregnancy, and *meros* = part, referring to the subglobose mid-cells of the ascospores.

Perithecia scattered or aggregated in small groups, firmly attached to the substratum, immersed, subglobose to pyriform, 350–450 × 250–350 μ, smooth, bare, dark brown to black; neck papilliform to short cylindrical, with or without an enlarged apex, smooth, bare, black. Peridium thick, membranaceous. Asci eight-spored, cylindrical-clavate, (130–)150–170 × 15–18 μ, broadly rounded above, gradually narrowing below into a short stipe. Paraphyses abundant, filiform, septate, longer than the asci and mixed with them, measuring 2.5–3.0 μ in diameter. Ascospores bi-seriate above uniseriate below, four-celled, nearly fusiform, 27–34(–38) × 7–10 μ, hyaline at first, ranging through yellowish brown to dark brown and opaque; septa trans-

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verse; constrictions at septa broad and moderately deep; mid-cells broader than long, nearly subglobose; terminal cells prominently narrowing toward the ends, longer than the mid-cells; germ slit diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of cow, horse, moose, sheep, and rabbit.

SPECIMENS EXAMINED: CANADA: Alberta: TRTC 39019. Ontario: Bruce Co., RFC 6193. Parry Sound Dist., RFC 6192. Saskatchewan: TRTC 39002. UNITED STATES: Colorado: Teller Co., TRTC 38086, 38875. Montana: Yellowstone Co., TRTC 36857. North Dakota: Billings Co., TRTC 39316. South Dakota: Meade Co., TRTC 39428 (TYPE), 40651. Wyoming: Albany Co., TRTC 39226. Big Horn Co., TRTC 39864. Crook Co., TRTC 39079, 39087, 39115. Park Co., TRTC 39041.

S. cymatomera resembles *S. leporina* in certain respects but it can be distinguished by the broader ascospores, subglobose mid-cells, and strictly diagonal germ slit.

16. ***Sporormiella dakotensis*** (Griff.) Ahmed & Cain, comb. nov. Figs. 47–49
≡ *Sporormia dakotensis* Griff., Mem. Torrey Bot. Club, 11: 114. 1901.

Perithecia scattered or aggregated in small groups, immersed, becoming partially superficial when old, subglobose, 300–450 μ in diam, smooth, bare, dark brown to black; neck narrowly cylindrical, straight or curved, smooth, bare, black, measuring 120–240 × 60–90 μ. Peridium membranaceous. Asci eight-spored, clavate, 100–120 × 9–11 μ, broadly rounded above, broadest near the upper end, gradually narrowing below into a long stipe, measuring up to 45 μ in length. Paraphyses abundant, filiform, septate, longer than and mixed with the asci, 2.5–3.0 μ in diameter. Ascospores biseriate above, uniseriate below, four-celled, cylindrical, 21–27 × 3.0–4.5 μ, broadly rounded at the ends, straight or curved, olivaceous brown when young becoming dark brown at maturity; septa transverse; constrictions at septa broad and deep; segments easily separable; cells nearly equal in length; germ slit parallel; gelatinous sheath hyaline, narrow.

HABITAT: On dung of deer, moose, porcupine, and rabbit.

TYPE: Brookings, S. Dakota, U.S.A. (NY).

SPECIMENS EXAMINED: CANADA: Ontario: Bruce Co., RFC 5995, 5999, 6012. Grey Co., RFC 5355, 5356, 5996, 6000. Haliburton Co., RFC 6004. Manitoulin Dist., RFC 6575. Nipissing Dist., RFC 5357, 6002. Sudbury Dist., RFC 6010. Victoria Co., RFC 6003, 6005. UNITED STATES: New York: Warren Co., RFC 6014, 6015. S. Dakota: Brookings Co. (TYPE, NY).

S. dakotensis is distinguished from *S. leporina* by its smaller asci and strictly parallel germ slits. It may also be differentiated from *S. subtilis* by the distinctly narrower ascospores and parallel germ slits.

17. ***Sporormiella decamera*** Ahmed & Cain, sp. nov. Figs. 162–164

Peritheciis sparsis, immersis, subglobosis, 250–300 μ diam, tenuis, membranaceis usque leniter coriaceis, atro-brunneis usque nigris denudatis; collo breve papilliformi, nigro, denudato. Peridio tenui membranaceo vel leniter coriaceo. Ascis octosporis, cylindraceo-clavatis, 150–170(–180) × 21–23 μ, superne late rotundatis, prope apicem latissimis, inferne in stipitem longum usque ad 20 μ attenuatis. Paraphysibus filiformibus, septatis, guttulatis, ascos superantibus. Ascosporis supra 2- aut 3-seriatis, infra 1-seriatis, 10-cellularibus, fusiformi-cylindraceis, 48–65(–70) × 9–10(–11) μ, utrinque rotundatis, atro-brunneis opacisque, transverse septatis, profunde constrictis, facile secedentibus; articulo quarto majore 5.5–7.0 × 9.0–11.5 μ, articulis terminalibus longioribus et attenuatis, superne articulo conico 5.5–7.5 × 5.5–7.0 μ, inferne articulo 8.0–10.5 × 5.5–7.0 μ. Stria germinationis obliqua usque diagonali. Strato mucoso hyalino, lato.

HOLOTYPUS: In fimo *Cervi canadensis*, Montana, Yellowstone Co., Yellowstone Natl. Park, 18 Sept. 1962, *Luck-Allen*, TRTC 39844. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *deka* = 10, and *meros* = part, referring to its 10-celled ascospores.

Perithecia scattered, immersed, subglobose, 250–300 μ in diam, smooth, bare, dark brown to nearly black; neck small, papilliform, smooth, bare, black. Peridium thin, membranaceous to slightly coriaceous. Asci eight-spored, cylindrical-clavate, 150–170(–180) × 21–23 μ, broadly rounded above, broadest near the upper end,

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gradually narrowing below into a stout, rather persistent stipe, measuring up to 20 μ in length. Paraphyses filiform, septate, guttulate, longer than and mixed with the asci. Ascospores obliquely bi- or tri-seriate above, uniseriate below, 10-celled, fusiform-cylindrical, 48–65-(–70) × 9–10(–11) μ, rounded at the ends, light brown and translucent when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments easily separable; fourth cell from the upper end largest, 5.5–7.0 × 9.0–11.5 μ, cells becoming smaller toward each end, terminal cells longer than the remaining cells, somewhat bluntly conical, apical cell 5.5–7.5 × 5.5–7.0 μ, basal cell 8.0–10.5 × 5.5–7.0 μ; germ slit oblique to nearly diagonal, gelatinous sheath hyaline, broad.

HABITAT: On dung of cow, elk, and moose.

SPECIMENS EXAMINED: UNITED STATES: California: Lassen Co., TRTC 39603. Colorado: Larimer Co., TRTC 41615. Montana: Yellowstone Co., TRTC 39844 (TYPE). Nevada: White Pine Co., TRTC 41595. Wyoming: Teton Co., TRTC 32033.

18. ***Sporormiella dodecamera*** Ahmed & Cain, sp. nov. Figs. 165–167

Peritheciis sparsis, immersis, piriformibus, circa 300 × 225 μ, atro-brunneis, denudatis; collo breve papilliformi, nigro, denudato. Peridio membranaceo. Ascis octosporis, cylindraceis usque cylindraceo-clavatis, (150–)160–190(–200) × 30–33(–35) μ, superne late rotundatis, prope mediam partem latissimis, inferne attenuatis, breve stipitatis. Paraphysibus filiformibus, septatis, ramosis. Ascosporis 2- aut 3-stichis, obliquis, 12-cellularibus, cylindraceis usque cylindraceo-clavatis, (51–)54–60(–63) × 11.0–12.5 μ; utrinque late rotundatis, rectis vel leniter curvatis, demum atro-brunneis opacisque, transverse septatis, leniter constrictis, cohaerentibus; articulis tertio quartoque majoribus, 4.5 × 11.0–12.5 μ; articulis terminalibus hemisphaericis. Stria germinationis obliqua. Strato gelatinoso hyalino, lato.

HOLOTYPUS: In fimo equino, Saskatchewan, Cypress Hills Prov. Park, 25 July 1962, *Cain*, TRTC 39003. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *dodeka* = 12, and *meros* = part, referring to its 12-celled ascospores.

Perithecia scattered, immersed, pyriform, about 300 × 225 μ, smooth, bare, dark brown; neck small, papilliform, smooth, bare, black. Peridium membranaceous. Asci eight-spored, cylindrical to cylindrical-clavate, (150–)160–190(–200) × 30–33(–35) μ, broadly rounded above, slightly narrower at the upper end, broadest at the middle, narrowing below into a very short stipe. Paraphyses filiform, septate, branched, equalling the asci and mixed with them. Ascospores overlapping, obliquely bi- or tri-seriate, 12-celled, almost cylindrical to nearly cylindrical-clavate, (51–)54–60(–63) × 11.0–12.5 μ, broadly rounded at the ends, straight or slightly curved, light brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa broad and shallow, segments not easily separable; cells broader than long, third and fourth cell from the upper end larger than the remainder, measuring 4.5 × 11.0–12.5 μ, terminal cells dome-shaped; germ slit oblique; gelatinous sheath hyaline, broad.

HABITAT: On dung of horse.

SPECIMEN EXAMINED: CANADA: Saskatchewan, Cypress Hills Prov. Park, TRTC 39003 (TYPE).

19. ***Sporormiella dubia*** Ahmed & Cain, sp. nov. Figs. 64–66

Peritheciis sparsis vel aggregatis, immersis, erumpentibus, subglobosis, 230–280 μ diam, demum atro-brunneis usque nigris, denudatis; collo breve papilliformi usque cylindraceo vel ad apicem aucto, 100–200 × 80–100 μ, nigro, denudato. Peridio crasso, membranaceo. Ascis octosporis, cylindraceo-clavatis, 140–160(–170) × 17–19 μ, superne late rotundatis, prope apicem latissimis, inferne attenuatis, breve stipitatis, stipite usque ad 20 μ longa. Paraphysibus filiformibus, septatis copiosis, guttulatis, ascos superantibus. Ascosporis supra 2- aut 3-seriatis, infra 1- aut 2-seriatis, 4-cellularibus, fusiformis-cylindraceis, 38–45 × 8–9 μ, demum atro-brunneis opacisque, transverse septatis, profunde constrictis, facile secedentibus; articulis similibus, terminalibus ovoideo-conicis; stria germinationis longitudinale; strato mucoso hyalino mediocriter lato.

HOLOTYPUS: In fimo equino, Alberta, Jasper Natl. Park, Athabasca Falls, 9 Aug. 1962, *Cain*, TRTC 39021. In Cryptogamic Herbarium, University of Toronto.

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ETYMOLOGY: Latin, *dubius* = doubtful.

Perithecia scattered or aggregated in small groups, immersed when young, becoming almost superficial when old, subglobose, 230–280 μ in diam, smooth, bare, olivaceous brown when young, becoming dark brown to black when mature; neck small, papilliform to moderately long cylindrical or somewhat enlarged at the apex, 100–200 × 80–100 μ, smooth, bare, black. Peridium thick, membranaceous. Asci eight-spored, cylindrical-clavate, 140–160(–170) × 17–19 μ, broadly rounded above, broadest near upper end, gradually tapering below into a short stipe, measuring up to 20 μ in length. Paraphyses abundant, filiform, septate, guttulate, longer than the asci and mixed with them. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, four-celled, fusiform-cylindrical, 38–45 × 8–9 μ, narrowing prominently toward the ends, olivaceous brown when young, becoming dark brown and opaque when mature; septa transverse; constrictions at septa deep; segments easily separable; cells about equal in length; terminal cells ovoid-conical; germ slit prominent, parallel; gelatinous sheath hyaline, moderately broad.

HABITAT: On the dung of burro, cow, deer, goat, horse, moose, porcupine, and rabbit.

SPECIMENS EXAMINED: CANADA: Alberta: Jasper Natl. Park, TRTC 39021 (TYPE). Ontario: Algoma Dist., TRTC 39836. Brant Co., RFC 6568, 12388. Haliburton Co., TRTC 36113. Muskoka Dist., RFC 5936, 5937, TRTC 5347. Nipissing Dist., TRTC 5348, 36702. Victoria Co., TRTC 36399. Wellington Co., RFC 5938. Quebec: Montmorency Co., TRTC 36533. Jacques Cartier Co., RFC 12362. MEXICO: Nuevo Leon, TRTC 37457. San Luis Potosi, TRTC 36835. Sinaloa, TRTC 36889. UNITED STATES: Iowa: Johnson Co., RFC 6772. Louisiana: Livingston Parish, TRTC 38084. Wyoming: Crook Co., TRTC 39114.

The Ontario collections of this species were identified by Cain (1934) as *S. ambigua*. It should be pointed out that the description given by Niessl (1878) for *S. ambigua* and the illustration by Berlese (1894) of Niessl's specimen distributed in Rehm, Ascomyceten 988 fit *S. dubia* better than *S. lageniformis*. However the type collections of *S. ambigua* as well as *S. obliquisepta* are the same as Fuckel's *S. lageniformis*. In *S. dubia* the ascospore septa are transverse and the germ slit parallel whereas in *S. lageniformis* the septa are oblique and the germ slit diagonal.

20. ***Sporormiella euryspora*** Ahmed & Cain, sp. nov. Figs. 94–97

Peritheciis sparsis, immersis, subglobosis, 400–500 μ diam, atro-brunneis vel nigris, denudatis; collo breve usque longo, 150–220 × 150–170 μ, nigro, denudato. Peridio membranaceo vel leviter coriaceo. Ascis octosporis, cylindraceo-clavatis, 290–340 × 47–54 μ, superne late rotundatis, superne mediam partem latissimis, inferne attenuatis, stipitatis; stipite usque ad 30 μ longa. Paraphysibus filiformibus, septatis, 3.5–4.5 μ crassis, ascos superantibus. Ascosporis superne 2- aut 3-stichis, inferne 1-stichis, 4-cellularibus, fusiform-cylindraceis, 80–88(–91) × 20–24 μ, rectis vel leviter curvatis, demum atro-brunneis opacisque, transverse septatis, profunde constrictis; articulis similibus, terminalibus leviter attenuatis. Stria germinationis transversa usque leniter obliqua. Strato mucoso hyalino, lato.

HOLOTYPUS: In fimo vaccino, Saskatchewan, Cypress Hills Prov. Park, 26 July 1962, *Cain*, TRTC 39010. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *eurys* = broad, and *sporos* = seed, referring to the broad ascospores.

Perithecia scattered, immersed, subglobose, 400–500 μ in diam, smooth, bare, dark brown to black; neck short to moderately long, stout, 150–170 μ, smooth, bare, black. Peridium membranaceous to slightly coriaceous. Asci eight-spored, cylindrical-clavate, 290–340 × 47–54 μ, broadly rounded above, slightly narrower near the upper end, broadest above the middle, gradually narrowing below into a broad, stout stipe, measuring up to 30 μ in length. Paraphyses abundant, filiform, septate, longer than and mixed with the asci, measuring about 3.5–4.5 μ in diameter. Ascospores bi- or tri-seriate above, uniseriate below, four-celled, fusiform-cylindrical, 80–88(–91) × 20–24 μ, straight or slightly curved, yellowish brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at the septa broad and deep; cells nearly equal in length, terminal cells slightly narrower toward the ends; germ slit transverse to obliquely transverse, gelatinous sheath hyaline, broad.

HABITAT: On cow dung.

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SPECIMEN EXAMINED: CANADA: Saskatchewan, TRTC 39010 (TYPE).

Sporormiella euryspora can be distinguished easily from *Sporormiella ovina* by the difference in the germ slit. In *S. euryspora* the germ slit is obliquely transverse whereas in *S. ovina* it is nearly parallel to oblique, occasionally almost diagonal.

21. *Sporormiella grandispora* (Speg.) Ahmed & Cain in Krug, Trans. Bot. Soc. Edinb. 41(2): 198. 1971. Figs. 61–63
≡ *Sporormia grandispora* Speg., Fungi Copr. Ven. 1: 230. 1878.

Perithecia scattered or aggregated in small groups, immersed when young, becoming semi-immersed when old, subglobose, 300–400 μ in diam, smooth, bare, dark brown to black; neck short and broad, 120–140 × 120–140 μ. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 160–200 × 26–29 μ, broadly rounded above, gradually tapering below into a short stipe. Paraphyses filiform, septate, longer than the asci and mixed with them. Ascospores bi- or tri-seriate above, uniseriate below, four-celled, fusiform-cylindrical, 45–60 × 11.5–14 μ, hyaline at first, ranging through yellowish brown to dark brown and opaque; septa transverse; constrictions at septa broad, more or less shallow; segments not easily separable; cells almost equal in size; terminal cells conspicuously narrower toward the ends; germ slit usually parallel, occasionally slightly oblique, usually curved next to septum; gelatinous sheath hyaline, broad.

HABITAT: On dung of sheep, rabbit, cow, deer, horse.

TYPE: On sheep dung, Conegliano, Italy, Sept. 1877, *Spegazzini* 207 (LPS 3515).

SPECIMENS EXAMINED: CANADA: Ontario: Peel Co., TRTC 38817. York Co., TRTC 39217. UNITED STATES: Utah: Duchesne Co., TRTC 44837. Washington: Olympic Natl. Park, TRTC 45719. Wyoming: Yellowstone Natl. Park, TRTC 42247, 42292. ITALY: Conegliano (LPS 3515, TYPE).

Sporormiella grandispora, *S. dubia*, and *S. megalospora* may be difficult to separate. *S. grandispora* can be delimited from *S. dubia* by its broader asci and ascospores. Though the septa are usually transverse in *S. grandispora*, they occasionally tend to be oblique whereas in *S. dubia* they are strictly transverse. *S. grandispora* can be differentiated from *S. megalospora* by the narrower asci, smaller ascospores, and parallel germ slit.

22. ***Sporormiella heptamera*** (Auersw.) Ahmed & Cain, comb. nov. Figs. 112–114
≡ *Sporormia heptamera* Auersw., Hedwigia, 7: 71. 1868.

Perithecia scattered, immersed, subglobose, 400–570 μ in diam, smooth, bare, black; neck short, papilliform, smooth, bare, black. Peridium membranaceous to slightly coriaceous. Asci eight-spored, cylindrical-clavate, 250–285 × (30–)33–37 μ, broadly rounded above, broadest above the middle, contracted below into a slender stipe, measuring 20–40 μ in length. Paraphyses filiform, septate, equalling the asci and mixed with them. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, seven-celled, 70–80 × 16–18 μ, rounded at the ends, dark brown and opaque when mature, septa transverse, constrictions at septa deep, segments easily separable; third cell from the upper end broadest, cells decreasing in width toward each end, five middle cells broader than long, terminal cells ovoid-conical; germ slit oblique to diagonal, gelatinous sheath hyaline, broad.

HABITAT: On dung of cow, deer, horse, moose, and rabbit.

TYPE: Europe.

SPECIMENS EXAMINED: CANADA: Ontario: Bruce Co., RFC 6018. Simcoe Co., TRTC 36613. Wellington Co., RFC 6016, TRTC 5358. Saskatchewan: RFC 6020, TRTC 38973. UNITED STATES: Iowa: Johnson Co., RFC 6730. Washington Co., RFC 6738. Oregon: Deschutes Co., TRTC 40652. Harney Co., TRTC 40434. S. Dakota: Meade Co., TRTC 39441. Wyoming: Albany Co., TRTC 39742. Crook Co., TRTC 39093. Teton Co., TRTC 32355.

23. ***Sporormiella herculea*** (Ell. & Ev.) Ahmed & Cain, comb. nov. Figs. 170–174
BASIONYM: *Sporormia herculea* Ell. & Ev., North American Pyrenomycetes. p. 135. 1892.

Perithecia scattered, immersed, subglobose, 500–600 μ in diam, smooth, bare, dark brown to nearly black; neck moderately long, cylindrical, 200–300 × 140–150 μ, smooth, bare, black. Peridium membranaceous to slightly coriaceous. Asci eight-spored, clavate to slightly fusiform,

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(225–)250–350 × 45–60 μ, broadly rounded above, slightly narrower near the upper end, broadest near the middle, contracted below into a short, blunt, persistent stipe. Paraphyses abundant, septate, longer than the asci and mixed with them, measuring about 3 μ in diameter. Ascospores obliquely bi- to tetra-seriate, 10- to 16-celled, cylindrical to slightly fusiform, (95–)100–160(–170) × 15–18(–20) μ, broadly or narrowly rounded at the ends, dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments easily separable, second to fifth cell from the upper end of the uppermost spore of each ascus larger than the remainder, measuring 17–21 × 21–25 μ, remaining cells 11–14 × 14–18 μ; germ slit transverse, gelatinous sheath hyaline, moderately narrow.

HABITAT: On dung of burro, cow, and horse.

TYPE: On cow dung, Newfield, New Jersey (NY).

SPECIMENS EXAMINED: CANADA: Ontario: Kent Co., TRTC 5359, 6022. York Co., TRTC 36875. MEXICO: Jalisco, TRTC 36888. Sinaloa, TRTC 36889, 36898. Tepic, TRTC 39595. BRAZIL: *Alfons Theobald*, TRTC 45802, 45803. UNITED STATES: Georgia: Athens Co., RFC 6021, 6023. Louisiana: East Baton Parish, TRTC 38711, 38892. New Jersey: Gloucester Co., TYPE (NY).

Specimens of *Sporormiella herculea* from Mexico and Brazil show certain differences when compared with those from Ontario and the United States. In the Mexican and Brazilian collections, ascospores were comparatively shorter (even as low as 87 μ) and possessed a smaller number of cells. In addition, the perithecial size was often found to be smaller, containing a small number of asci. To provide a better understanding concerning the nature and extent of variations, the following description is given, based on the Mexican and Brazilian collections of *S. herculea*.

Perithecia scattered, immersed, subglobose, 300–400 μ in diam, smooth, bare, black; neck stout, conical to moderately long, 200–240 × 100–120 μ, smooth to slightly tuberculate, black. Peridium thin, membranaceous to coriaceous. Asci eight-spored, clavate to nearly fusiform, 250–300 × 40–50 μ, rounded above, narrower near the upper end, broadest near the middle, contracted below into a very short, stout, persistent stipe. Paraphyses filiform, septate, slightly longer than and mixed with the asci. Ascospores almost parallel with the ascus or slightly oblique, bi- or tri-seriate, 7- to 12-celled, cylindrical to cylindrical-fusiform, (87–)90–125(–140) × 15–18 μ, dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments easily separable; second to fifth cell of the uppermost ascospore very much enlarged, subglobose, 17–18 × 20–25 μ, remaining cells measuring 10–12 × 14–18 μ, germ slit transverse, gelatinous sheath hyaline, narrow.

24. *Sporormiella inaequalis* Ahmed & Asad, Sydowia, 21: 291. 1967.

Perithecia subglobose, glabrous, 200–300 μ diam. Asci eight-spored, cylindrical-clavate, 85–110 × 11–14 μ, gradually tapering below into a short stipe. Ascospores fusiform-cylindrical, 20–30 × 5.5–7.0 μ, with septa transverse and with cells unequal in size. Measurements of apical cell 6–8 × 5.0–6.5 μ, of basal cell 7–10 × 5.0–6.5 μ, of upper mid-cell 4.5–5.5 × 6–7 μ, and of lower mid-cell 6.5–7.5 × 5.0–6.5 μ. Germ slit oblique to diagonal.

HABITAT: On goat dung.

TYPE: On goat dung, Karachi, West Pakistan.

25. ***Sporormiella insignis*** (Niessl) Ahmed & Cain, comb. nov. Figs. 154–157

BASIONYM: *Sporormia insignis* Niessl, Oesterr. Bot. Z. 4: 167. 1878.

Perithecia scattered, immersed, subglobose, 250–300 μ in diam, smooth, bare, black; neck conical to moderately long, cylindrical, smooth, bare, black. Asci eight-spored, nearly clavate, 200–240 × 40–45 μ, broadly rounded above, broadest above the middle, tapering gradually into a very short stipe. Paraphyses abundant, filiform, septate, longer than and mixed with the asci, about 2.5 μ in diameter. Four to five ascospores in a parallel bundle in the upper part of the ascus, remainder overlapping at different levels below, eight-celled, cylindrical, 100–122–(–125) × (13–)14–15 μ, dark brown and opaque when mature, septa transverse, constrictions at septa broad, more or less deep, cells easily separable; terminal cells narrower toward the ends, apical cell prominently narrower than the basal cell, remaining cells nearly equal in size, square-shaped in optical section; germ slit diagonal, gelatinous sheath present.

HABITAT: On dung of rabbit.

TYPE: Europe.

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SPECIMENS EXAMINED: With *S. corynespora* Niessl, *Rehm*, Ascomyceten 748 (NY). With *Delitschia moravica* Niessl, *Rehm*, Ascomyceten, 746 (G).

S. insignis can be distinguished from *S. splendens* by the smaller size of the perithecia, shape of the ascus, arrangement and size of the ascospores, and the shape of the individual cells.

26. *Sporormiella intermedia* (Auersw.) Ahmed & Cain, in Kobayasi, Hiratsuka, Otani, Tubaki, Udagawa, and Soneda, Bull. Natl. Sci. Mus. Tokyo, 12: 311–430. 1969.

Figs. 33, 34

BASIONYM: *Sporormia intermedia* Auersw., Hedwigia, 7: 67. 1868.

Perithecia scattered or aggregated in small groups, embedded when young, becoming more or less superficial when old, subglobose to pyriform, 175–250 × 150–230 μ, smooth, bare, dark brown to black; neck short papilliform, smooth, bare, shining, black. Peridium thin, slightly coriaceous. Asci eight-spored, subcylindrical, 150–180(–200) × 25–28 μ, slightly broader below the middle, abruptly contracted below into a very short stipe. Paraphyses filiform, septate, longer than the asci and mixed with them. Ascospores bi- or tri-seriate throughout, four-celled, cylindrical, 48–59 × 9.5–11.5 μ, broadly rounded at the ends, straight or curved, dark brown and opaque at maturity, septa transverse, constrictions at septa broad and shallow; segments easily separable; terminal cells slightly longer than the mid-cells, tapering slightly toward the ends; germ slit oblique to diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of burro, caribou, cow, deer, goat, horse, moose, partridge, porcupine, rabbit, sheep, and wolf.

TYPE: Europe.

SPECIMENS EXAMINED: ARGENTINA: With *Sordaria hypocoprioides* Speg. 6828 (LPS). CANADA: Alberta: TRTC 38933. British Columbia: TRTC 38942. Ontario: Algoma Dist., RFC 6030, 6043, TRTC 36755, 37534, 38917, 38922, 39690, 40605. Bruce Co., RFC 6032, 6034, 6036, 6041, 6042, 6044, 6050, 6051, TRTC 53603. Grey Co., RFC 6033. Haliburton Co., TRTC 36104, 36108. Manitoulin Dist., RFC 6048, 6064. Muskoka Dist., TRTC 35982, 36085, 36974. Nipissing Dist., RFC 11056, TRTC 36684. Oxford Co., RFC 6049. Parry Sound Dist., RFC 6040. Peel Co., TRTC 38815. Simcoe Co., TRTC 36611. Sudbury Dist., RFC 6047, TRTC 36324, 39691. Timiskaming Dist., TRTC 36988. Thunder Bay Dist., RFC 6038. Victoria Co., TRTC 36397. York Co., RFC 6053, TRTC 38505. Quebec: Gaspé East Co., TRTC 36420, 39744. Portneuf Co., RFC 6870. West Charlevoix Co., TRTC 36371. Saskatchewan: RFC 6055, 6578, 6579, 6756. EUROPE: With *Sporormia corynespora* Niessl, *Rehm*, Ascomyceten 748 (G). With *Sordaria maxima* Niessl, *Rehm*, Ascomyceten 744 (FH). Flora Exsiccata Austro-Hungarica 3573 (G). With *Delitschia moravica* Niessl, *Rehm*, Ascomyceten 746 (FH). With *Sordaria leporina* Niessl, Fungi Gallici Exsiccati 3539 (G). With *Hypocopra fimicola* (Rab.) Sacc., Fungi Selecti Exsiccati 6637 (G). With *Sporormia fimetaria* De Not., *Fuckel* (G). With *Sordaria macrospora* Auersw., Mycotheca Marchica, *Sydow*, 281 (NY). MEXICO: Chihuahua, TRTC 36496, 39778. Durango, TRTC 36804. San Luis Potosi, TRTC 39777. UNITED STATES: Arizona: Coconico Co., TRTC 32064. Colorado: Park Co., TRTC 38089. Saguache Co., TRTC 38106. Florida: Alachua Co., TRTC 31241. Georgia: Athens Co., RFC 6055. Idaho: Elmore Co., TRTC 39856. Fremont Co., TRTC 39918. Iowa: Washington Co., RFC 6742. Kansas: Rooks Co., TRTC 39340, 39374. Montana: Prairie Co., TRTC 35738. Nevada: Elko Co., TRTC 35729, 39865, 40665. White Pine Co., TRTC 40666. New Hampshire: Cheshire Co., TRTC 32646. North Dakota: Billings Co., TRTC 36222. Oklahoma: Delaware Co., TRTC 38139. Wisconsin: Dane Co., TRTC 32116. Wyoming: Albany Co., TRTC 32317. Big Horn Co., TRTC 40402. Crook Co., TRTC 39133, 39333, 39334, 39809. Park Co., TRTC 39044. Teton Co., TRTC 31896, 32321.

27. ***Sporormiella irregularis*** (I. Egel.) Ahmed & Cain, comb. nov.

BASIONYM: *Sporormia irregularis* I. Egel., Nytt Mag. Bot. 16: 218. 1969.

Perithecia 230–260 × 200–220 μ. Peridium thin, yellowish brown, translucent, glabrous. Asci clavate, eight-spored, 170–195 × 35–42 μ, tapering gradually into a short stipe. Ascospores four-celled, nearly cylindrical, definitely tapered toward upper end, 50–58 × 10–13.5 μ. Septa irregularly oblique. Germ slit parallel to length of ascospore.

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HABITAT: On cow dung.

TYPE: On cow dung, Norway, *I. Egeland*, 244 (O).

28. ***Sporormiella isomera*** Ahmed & Cain, sp. nov. Figs. 58–60

Peritheciis sparsis, immersis usque semiimmersis, subglobosis, 200–250 μ diam, nigris, denudatis; collo breve papilliformi usque longe cylindraceo, usque ad 100 μ longo, nigro, denudato. Peridio tenue membranaceo. Ascis octosporis, cylindraceo-clavatis, 120–160 × 13–15 μ, superne late rotundatis, inferne attenuatis, breve stipitatis. Paraphysibus filiformibus, septatis, ramosis, circa 2.5 μ crassis, ascos superantibus. Ascosporis supra 2-seriatis, obliquis, infra 1-seriatis, 4-cellularibus, cylindraceis, 32–38-(–40) × 5.5–7.0(–8) μ, utrinque rotundatis, rectis vel leviter curvatis, demum atro-brunneis, transverse septatis, ad septe profunde constrictis, facile secedentibus; articulis prope similibus; strato mucoso hyalino, midiocriter lato obductis; stria germinationis parallela usque obliqua.

HOLOTYPUS: In fimo perdrigis, Ontario, Algoma Dist., Twp. 5F, 17 June 1960, *Cain*, *J. Reid*, and *W. Obrist*, TRTC 36241. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *isos* = equal, and *meros* = part, referring to the equal size of the ascospore segments.

Perithecia scattered, immersed when young, becoming semi-immersed when old, subglobose, 200–250 μ in diam, smooth, bare, black; neck small, papilliform to cylindrical, up to 100 μ in length, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 120–160 × 13–15 μ, broadly rounded above, broadest above the middle, gradually narrowing below into a short stipe, measuring up to 15 μ in length. Paraphyses filiform, septate, branched, longer than the asci and mixed with them, about 2.5 μ in diameter. Ascospores obliquely bi-seriate above, uniseriate below, four-celled, cylindrical, 32–38(–40) × 5.5–7.0(–8) μ, rounded at the ends, straight or slightly curved, light brown when young, becoming dark brown when mature; septa transverse; constrictions at septa broad and fairly deep; segments easily separable; cells nearly equal in size; second cell from the upper end slightly broader than the remainder; terminal cells slightly narrower toward the ends; germ slit parallel to oblique, with a kink near the middle; gelatinous sheath hyaline, moderately broad.

HABITAT: On dung of moose, partridge, porcupine, and rabbit.

SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 36241 (TYPE). Haliburton Co., TRTC 36101. Muskoka Dist., TRTC 36053. Nipissing Dist., TRTC 2225. Sudbury Dist., TRTC 5371.

S. isomera may be separated from *S. leporina* by the less pointed ascospores, by the more readily separable segments, by the kink in the germ slit, and by the shorter stipe (measuring up to 15 μ in length instead of 20–35 μ). It may be distinguished from *S. minima* by the larger perithecia, larger asci, the gradual tapering toward the lower end of the asci, and the length of the ascospores.

29. ***Sporormiella kansensis*** (Griff.) Ahmed & Cain, comb. nov. Figs. 87–89

BASIONYM: *Sporormia kansensis* Griff., Mem. Torrey Bot. Club, 11: 113. 1901.

Asci eight-spored, cylindrical-clavate, 230–280 × 28–34 μ, broadly rounded above, broadest part above the middle, contracted below into a stout, persistent stipe. Paraphyses abundant, filiform, septate, branched, longer than the asci and mixed with them. Ascospores bi- or triseriate, four-celled, cylindrical, (68–)72–77 × 10–12 μ, broadly rounded at the ends, hyaline when young, ranging through yellow to dark brown and opaque; septa transverse; constrictions at septa broad and deep; segments easily separable; cells about equal in length; terminal cells very slightly narrowed toward the ends; germ slit parallel; gelatinous sheath hyaline, broad.

HABITAT: On dung of cow and horse.

SPECIMENS EXAMINED: UNITED STATES: Kansas: Rooks Co., Stockton, 3 Aug. 1960, *Cain*, TRTC C1273. Florida: Alachua Co., TRTC 31529. Wyoming: Niobrara Co., TRTC 45371.

Griffiths' slides of *Sporormia kansensis* (from Rooks Co., Kansas) were examined. These slides were not in a very good condition; however, it was possible to determine the ascospore measurements. The ascospores on these slides measured 80–100 × 12.5–14.5 μ whereas the dimensions given by Griffiths in his description of *S. kansensis* are 72–77 × 10–12 μ. Several collections have been found which fit this

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measurement. One of these is from Stockton, Rooks Co., Kansas, the type locality for *S. kansensis*. Unfortunately, it is not adequate to serve as a neotype. The slides left by Griffiths are evidently not the ones used by him in writing his description. A species does exist which fits the Griffiths description and the name *S. kansensis* is here applied to it. A suitable collection should be obtained on rabbit dung from the type locality to serve as neotype.

30. ***Sporormiella lageniformis*** (Fuckel) Ahmed & Cain, comb. nov. Figs. 44–46
≡*Sporormia lageniformis* Fuckel, Symbol. Mycol. Jahrb. Nass. ver. Naturk. 23–24: 242. (1869) 1870.
=*Sporormia ambigua* Niessl, Oesterr. Bot. Z. 28: 97. 1878.
=*Sporormia obliquisepta* Speg., Bol. Acad. Nac. Cienc. Cordoba, 11: 48. 1887.

Perithecia scattered or loosely aggregated, immersed, becoming partially superficial when old, subglobose, 190–250 μ in diam, smooth, bare, dark brown to nearly black; neck small, papilliform to short cylindrical or somewhat enlarged at the apex, 100–150 × 90–100 μ, smooth, bare, nearly black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 125–180 × 16–19 μ, broadly rounded above, tapering gradually below into a stipe, measuring about 20 μ in length. Paraphyses abundant, filiform, septate, longer than the asci and mixed with them. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, four-celled, cylindrical-fusiform, 37–42 × 7.5–8.5 μ, straight or curved, dark brown and opaque when mature; septa oblique; constrictions at septa broad and deep; segments easily separable; terminal cells ovate-conical, narrower toward the ends, longer than the more or less rhomboidal mid-cells; germ slit diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of cow, deer, horse, moose, partridge, porcupine, and rabbit.

TYPE: Germany.

SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 32613, 36186, 38148. Bruce Co., RFC 6200, 6201, 6212, 6216, TRTC 35916, 36000. Brant Co., RFC 6199, 6217, 6472. Haliburton Co., TRTC 5382, 36336. Manitoulin Dist., RFC 6214. Muskoka Dist., TRTC 35921, 35931. Nipissing Dist., RFC 6203, 6204, 6210, 6213, 9070, TRTC 36538, 39703. Norfolk Co., RFC 6198. Simcoe Co., TRTC 36610, 36612, 38912, 38916, 39623. Victoria Co., RFC 6205. Quebec: Gaspé East Co., TRTC 39747, 36425, 39750. Jacques Cartier Co., RFC 12360. Montmorency Co., TRTC 36527, 39749. Portneuf Co., RFC 6893. Quebec Co., TRTC 39748. EUROPE: As *Sporormia ambigua* Niessl, *Niessl*, 823 (NY). As *Sporormia ambigua* Niessl, *Rehm*, Ascomyceten 988, *Niessl* (NY, G). With *Delitschia moravica* Niessl, *Rehm*, Ascomyceten 746 (G). With *Sordaria appendiculata* Auersw., *Rehm*, Ascomyceten 138 (NY); *Fuckel* 693, 2034, 2270 (G). UNITED STATES: Colorado: Custer Co., TRTC 39800. Wyoming: Crook Co., TRTC 39105.

Authentic specimens of *S. ambigua*, determined by Niessl, and *S. lageniformis*, determined by Fuckel, show no essential difference and these agree with the description of *S. obliquisepta*.

31. ***Sporormiella lata*** (Griff.) Ahmed & Cain, comb. nov. Figs. 11–13
≡*Sporormia lata* Griff., Mem. Torrey Bot. Club, 11: 110. 1901.

Perithecia scattered, immersed, firmly attached to the substrate, subglobose, 250–385 μ in diam, smooth, bare, olivaceous brown when young, becoming dark brown and finally black; neck small, papilliform, smooth, bare, black. Peridium membranaceous to coriaceous. Asci eight-spored, cylindrical, 250–330 × 30–55 μ, broadly rounded above, narrowing below into a short, stout, rather persistent stipe. Paraphyses abundant, filiform, septate, branched, longer than the asci and mixed with them. Ascospores uniseriate, four-celled, more or less broadly cylindrical, (40–)43–49(–54) × 16–20 μ, broadly rounded at the ends, olivaceous brown when young, becoming dark brown and opaque when mature, transversely septate; constrictions at septa broad and deep; segments not easily separable; cells nearly equal in size, broader than long; terminal cells semispherical; mid-cells oblong to oval; germ slit diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of porcupine and rabbit.

TYPE: Decorah, Winneshiek Co., Iowa (NY).

SPECIMENS EXAMINED: CANADA: Ontario: Bruce Co., RFC 6068, 6069, 6078. Manitoulin Dist., RFC 6075, 6077. Muskoka Dist., RFC 6073. Nipissing Dist., RFC 5366, 5367, TRTC 39695.

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Peel Co., TRTC 40660. Simcoe Co., TRTC 36615. Sudbury Dist., TRTC 39694. Timiskaming Dist., RFC 6071, 6074. Victoria Co., RFC 6072. York Co., RFC 5365, 6079, 6663. Saskatchewan: RFC 6080, 6081, 6560. UNITED STATES: Iowa: Iowa Co., RFC 6734, 6744. Winneshiek Co., TYPE (NY). New York: Cattaraugus Co., TRTC 39695.

32. ***Sporormiella leporina*** (Niessl) Ahmed & Cain, comb. nov. Figs. 56, 57

≡*Sporormia leporina* Niessl, Oesterr. Bot. Z. 28: 44, 96. 1878.

=*Sporormia tuberculata* Griff., Mem. Torrey Bot. Club, 11: 112. 1901.

Perithecia more or less gregarious or scattered, immersed when young, becoming partially superficial when old, subglobose, 180–250 μ in diam, smooth, bare, dark brown to black; neck short, cylindrical, straight or slightly curved, occasionally enlarged at the apex, smooth, bare, black. Peridium membranaceous to more or less coriaceous. Asci cylindrical-clavate, (110–)120–160(–170) × 12–15(–16) μ, broadly rounded above, broadest near the apex, gradually tapering below into a stipe, measuring 20–35 μ in length. Paraphyses filiform, septate, slightly constricted at the septa, branched, guttulate, longer than the asci and mixed with them. Ascospores obliquely biseriate above, uniseriate below, four-celled, cylindrical, 30–35(–37) × 5.5–6.5 μ, upper end distinctly narrowed, olivaceous brown when young, becoming dark brown and opaque when mature; septa transverse, occasionally slightly oblique; constrictions at septa broad and fairly shallow; segments not easily separable; germ slit nearly parallel to strongly oblique, occasionally almost diagonal; gelatinous sheath hyaline, moderately broad.

HABITAT: On dung of burro, carnivore, cow, deer, fox, horse, moose, partridge, porcupine, rabbit, and sheep.

TYPE: Czechoslovakia.

SPECIMENS EXAMINED: ARGENTINA: With *Delitschia sordarioides* Speg., *Spegazzini* 682 (LPS). CANADA: Alberta: TRTC 38963, 40165. Manitoba: RFC 6551. Ontario: Algoma Dist., TRTC 35805, 36743, 36754, 36764, 37504, 37495, 37511, 37521, 37522, 37533, 37544, 37545, 38140, 38895, 38908, 38920, 39386, 39697, 39722, 39723. Brant Co., RFC 6082, 6084, 12339. Bruce Co., RFC 6086, 6087, 6088, 6100, 6104, 6109, 6111, TRTC 35914, 36019. Grey Co., RFC 6085, TRTC 23528. Halton Co., TRTC 52104. Haliburton Co., TRTC 36314. Kenora Dist., TRTC 35800, 35839, 35887. Manitoulin Dist., RFC 6102, 6108, TRTC 35928, 36037, 36086. Nipissing Dist., RFC 6091, 6094, 6103, 6105, 6112, 6118, 6210, TRTC 35995, 39725, 39726. Norfolk Co., RFC 6099, TRTC 39720. Parry Sound Dist., TRTC 36073, 39696. Peel Co., RFC 12191, TRTC 36974, 38914. Peterborough Co., RFC 6101. Sudbury Dist., TRTC 36373, 36514, 36638, 40643. Timiskaming Dist., TRTC 35949, 35961, 36139. York Co., RFC 12156, TRTC 39446. Saskatchewan: RFC 6128. Quebec: Gaspé East Co., TRTC 39762. Montmorency Co., RFC 6885, TRTC 36387, 39756, 39758. EUROPE: As *Perisporum typharum* Sacc., *Petrak* 963 (PBI). With *Sporormia corynespora* Niessl, *Rehm*, Ascomyceten 748 (NY). As *Sporormia notarisii* Carestia, *Rehm*, Ascomyceten 1390 (S). With *S. ambigua* Roumeguere, Fungi Selecti Exs. 6489 (NY); *Kunze*, Fungi Sel. Exs. 273 (NY). UNITED STATES: Georgia: Athens Co., RFC 6124. Iowa: Johnson Co., RFC 6751. Michigan: Linawee Co., RFC 12082. North Carolina: Orange Co., RFC 6125. New Hampshire: Cheshire Co., RFC 6391, TRTC 32608. New York: Cattaraugus Co., TRTC 38904, 38905, 38913. Warren Co., RFC 6123, 6127.

Griffiths' type specimen of *Sporormia tuberculata* was examined and no distinct character was found to retain it as a separate species from *S. leporina*. The tuberculate neck, which, according to Griffiths, is the distinguishing character of *S. tuberculata* has occasionally been observed in *S. leporina*.

33. ***Sporormiella longispora*** (Cain) Ahmed & Cain, comb. nov. Figs. 102–105

BASIONYM: *Sporormia longispora* Cain, Univ. Toronto Stud., Biol. Ser., No. 38: 100. 1934.

Perithecia scattered, immersed to semi-immersed, becoming nearly superficial when old, subglobose to pyriform, 500–800 × 300–425 μ, smooth, bare, dark brown to black; neck short to elongate, cylindrical, smooth, bare, black. Peridium membranaceous to coriaceous. Asci eight-spored, clavate, (170–)180–230 × 41–45 μ, broadly rounded above, gradually narrowing below into a short, rather stout stipe, measuring 15–20 μ in length. Paraphyses abundant, septate,

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branched, longer than the asci and mixed with them. Ascospores almost parallel with the ascus, four of them nearly at an equal level in the upper part of the ascus, remainder at different levels below, four-celled, cylindrical, (80–)90–100(–108) × 12–14 μ, straight or slightly curved, light brown when young, becoming dark brown and opaque when mature, septa usually transverse, occasionally almost oblique, constrictions at septa narrow and deep, segments occasionally separable; terminal cells longer and narrower than the mid-cells, tapering toward the ends; germ slit parallel to oblique; gelatinous sheath hyaline, narrow.

HABITAT: On dung of burro, deer, goat, moose, and rabbit.

TYPE: On rabbit dung, Ontario, Bruce Co., Port Elgin.

SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 32384. Bruce Co., TRTC 5318 (TYPE), RFC 6129, 6139. Brant Co., RFC 6134. Grey Co., RFC 5373, 6131. Haliburton Co., TRTC 36347. Huron Co., RFC 6138. Muskoka Dist., RFC 6136, TRTC 35890, 35925, 35970, 36029, 36018, 36051, 36129, 36547. Nipissing Dist., RFC 5372, 6707, TRTC 32386. Parry Sound Dist., RFC 6135. Sudbury Dist., TRTC 36630. Timiskaming Dist., RFC 6133, TRTC 35987. Victoria Co., TRTC 36401. York Co., RFC 6143. Quebec: Montmorency Co., TRTC 39769. Portneuf Co., RFC 6869. Quebec Co., TRTC 40640. Saskatchewan, RFC 6559. MEXICO: Durango, TRTC 39628. Nuevo Leon, TRTC 36723. Oaxaca, TRTC 38891, 38931. San Luis Potosi, TRTC 36476. UNITED STATES: Montana: Prairie Co., TRTC 35741. Wyoming: Teton Co., TRTC 32311, 32332.

34. ***Sporormiella longisporopsis*** Ahmed & Cain, sp. nov. Figs. 106–109

Peritheciis sparsis, immersis, subglobosis, 400–500 μ diam, atro-brunneis usque nigris, denudatis; collo breve usque longo cylindraceo, usque ad 400 μ longo, nigro, denudato. Peridio tenui membranaceo. Ascis octosporis, cylindraceo-clavatis 230–270 × 35–40 μ, superne late rotundatis, superne mediam partem latissimis, inferne in stipitem 20–25 μ longis attenuatis. Paraphysibus filiformibus, septatis, copiosis, ascos superantibus. Ascosporis 2- aut 3-stichis, 4-cellularibus, cylindraceis, (75–)80–100(–104) × 14–17 μ, utrinque late rotundatis, rectis vel curvatis, demum atro-brunneis opacisque, transverse septatis, profunde constrictis, perfacile secedentibus; articulis terminalibus leviter longioribus et attenuatis. Stria germinationis parallela usque leviter obliqua. Strato gelatinoso hyalino, lato.

HOLOTYPUS: In fimo cuniculorum, Ontario, Peel Co., Palgrave, 17 Oct. 1962, *Cain*, TRTC 38816. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Latin, *longispora*, and the suffix *-opsis*, referring to the resemblance to the species *S. longispora*.

Perithecia scattered, immersed, subglobose, 400–500 μ in diam, smooth, bare, dark brown to nearly black; neck short cylindrical to considerably long, measuring up to 400 μ in length, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 230–270 × 35–40 μ, broadly rounded above, broadest above the middle, gradually contracted below into a persistent stipe, measuring 20–25 μ in length. Paraphyses abundant, filiform, septate, longer than the asci and mixed with them. Ascospores somewhat obliquely bi- or tri-seriate, four-celled, cylindrical, (75–)80–100(–104) × 14–17 μ, broadly rounded at the ends, straight or curved, light brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa deep, cells very easily separable; terminal cells very slightly narrower toward the ends, slightly longer than the mid-cells; germ slit parallel, occasionally slightly oblique; gelatinous sheath hyaline, broad.

HABITAT: On dung of burro, cow, goat, rabbit, rodent, and sheep.

SPECIMENS EXAMINED: ARGENTINA: With the type of *Delitschia sordarioides* Speg. 5980 (LPS). CANADA: Ontario: Peel Co., TRTC 38816 (TYPE). MEXICO: Durango, TRTC 36803, 36964, 37046, 39782. Hidalgo, TRTC 38791. Jalisco, TRTC 36970, 37011, 37035, 36452. San Luis Potosi, TRTC 36589, 36823, 36990, 37434. Sinaloa, TRTC 36887, 36897. UNITED STATES: Colorado: Saguache Co., TRTC 38053. Georgia: Athens Co., RFC 6063. Kansas: Rooks Co., TRTC 39379. Louisiana: Orleans Parish, TRTC 37389. North Dakota: Billings Co., TRTC 39309.

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This species resembles *S. longispora* in a number of ways but can be distinguished from it by certain important and characteristic differences. The arrangement of ascospores in these two species is different. In *S. longispora* four ascospores are arranged in a parallel fashion, more or less at an equal level in the upper part of the ascus, the remaining four are at different levels below the level of the uppermost group. In *S. longisporopsis* the ascospores are somewhat obliquely arranged, one spore at the highest level, then the second, third, and fourth overlapping in succession. The ascospores of *S. longispora* spread easily when the asci are mounted on a slide in lactophenol while those of *S. longisporopsis* possess a tendency to stick together. The ascospore cells of *S. longispora* are rectangular in an optical section and separate less readily, whereas in *S. longisporopsis* the corners of the cells are distinctly rounded. The ascospore septation may be slightly oblique in *S. longispora* but in *S. longisporopsis* it is strictly transverse.

35. ***Sporormiella megalospora*** (Auersw.) Ahmed & Cain, comb. nov. Figs. 90–93

BASIONYM: *Sporormia megalospora* Auersw., Hedwigia, 7: 68. 1868.

Perithecia scattered or aggregated in small groups, immersed when young, becoming more or less superficial when old, subglobose, 300–450 μ in diam, smooth, bare, dark brown to black; neck short cylindrical or occasionally elongated, smooth, bare, black. Peridium thin, slightly coriaceous. Asci eight-spored, cylindrical-clavate, 180–220(–250) × 30–40 μ, broadly rounded above, broadest near the apex, gradually narrowing below into a short, stout stipe. Paraphyses abundant, filiform, septate, constricted at the septa, guttulate, longer than the asci and mixed with them. Ascospores bi- to tetra-seriate, four-celled, fusiform-cylindrical, 65–80(–85) × 15–18 μ, hyaline at first, ranging through yellowish brown to dark brown and opaque; septa transverse; constrictions at septa broad and deep; segments easily separable; terminal cells nearly ovoid, slightly longer than the mid-cells, which are barrel-shaped, germ slit diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of carnivore, cow, horse, moose, rabbit, and sheep.

TYPE: Europe.

SPECIMENS EXAMINED: CANADA: Alberta, TRTC 38989, 39018. Ontario: Algoma Dist., TRTC 35863. Bruce Co., RFC 6152. Brant Co., RFC 5378, 6147, 6569. Haliburton Co., RFC 6157. Halton Co., RFC 6348. Manitoulin Dist., RFC 6155. Muskoka Dist., TRTC 35899, 35907. Nipissing Dist., RFC 6153, 6154, TRTC 5367. Oxford Co., RFC 6156, TRTC 5375. Timiskaming Dist., TRTC 36095. York Co., RFC 6145, 6146, TRTC 39218. Quebec: Gaspé East Co., TRTC 36430. Montmorency Co., TRTC 36372. EUROPE: With *Sporormia ambigua* Niessl, *Niessl* 823 (G). MEXICO: San Luis Potosi, TRTC 39826. UNITED STATES: Arizona: Coconico Co., TRTC 32020. Colorado: Chaffee Co., TRTC 38052, 38118. Teller Co., TRTC 37404. Iowa: Washington Co., RFC 6720. Kansas: Rooks Co., TRTC 39341, 39343, 39345. Montana: Yellowstone Co., TRTC 36856. Nevada: Elko Co., TRTC 35732. South Dakota: Meade Co., TRTC 39424, 39430, 40151. Wyoming: Big Horn Co., TRTC 40631. Crook Co., TRTC 39067. Park Co., TRTC 39054.

A large number of collections of this species were examined from Ontario, United States, and Mexico. A pronounced variation was found in the ascospore dimensions of specimens collected from Ontario (70–85 × 15.5–18.0 μ) as compared with those of United States and Mexico (65–70 × 15–17 μ). There was no other difference observed.

36. ***Sporormiella minima*** (Auersw.) Ahmed & Cain, comb. nov. Figs. 24–26

≡*Sporormia minima* Auersw., Hedwigia, 7: 66. 1868.

=*Sporormia evallata* Pass., Nuovo Giorn. Bot. Ital. 7: 190. 1875.

=*Sphaeria multifera* Berk. & Rav., Grevillea, 4: 143. 1876.

≡*Philocopra multifera* (Berk. & Rav.) Sacc., Syll. Fung. 1: 251. 1882.

Perithecia scattered or loosely aggregated, immersed when young, becoming nearly superficial when old, subglobose to nearly pyriform, 100–200 × 90–120 μ, smooth, bare, dark brown to nearly black; neck small, papilliform, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, short and broad, more or less cylindrical, (80–)90–100 × 13–18 μ, broadly

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rounded above, broadest part below the middle, abruptly contracted below into a very short stipe. Paraphyses scanty, filiform, septate, equalling the asci and mixed with them. Ascospores obliquely bi- or tri-seriate, four-celled, cylindrical, 28–32(–34) × 5–6 μ, broadly rounded at the ends, straight or curved, ranging from hyaline when young through yellowish brown to dark brown and opaque, transversely septate; constrictions at septa broad and deep; segments readily separable at the central septum, easily separable at the other septa; cells nearly equal in size; terminal cells very slightly narrower toward the ends; germ slit nearly parallel with a kink near the middle; gelatinous sheath hyaline, narrow.

HABITAT: On dung of bear, carnivore, cow, deer, fox, goat, horse, moose, rabbit, and sheep.

TYPE: Europe.

SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 37550, 37562, 36761, 38907, 38915, 39697. Brant Co., RFC 5380, 6162, 6164, 6168. Bruce Co., RFC 6184, TRTC 5379. Kent Co., RFC 6175, 6180. Leeds Co., RFC 6167. Middlesex Co., RFC 6174, 6176. Muskoka Dist., RFC 6172, TRTC 36035. Nipissing Dist., RFC 6171, 6178, 6182, TRTC 36657, 36645, 36681. Norfolk Co., RFC 6181. Sudbury Dist., TRTC 36231, 39715. Wentworth Co., RFC 6179. York Co., RFC 6158, TRTC 12175, 22793, 36951. Quebec: Gaspé East Co., TRTC 36436. Kamourkash Co., RFC 6943. Montmorency Co., TRTC 36431. West Charlevoix Co., TRTC 36370, 39746. EUROPE: Editae Museum Hist. Nat. Vindobonensis 2620 (G); C. Roumeguere: Fungi Selecti Exsiccati 2167 (G); with *Sporormia fimetaria* De Not., Fuckel 997 (G); G. L. Rabenhorst: Fungi Europaei Exsiccati 1339 (G). MEXICO: Durango, TRTC 37469, 39794. Hidalgo, TRTC 39677, 39790, 39791, 39799. San Luis Potosi, TRTC 36591, 37446, 37479, 39798. Sinaloa, TRTC 36777. Nayarit, TRTC 39795. Tamaulipas, TRTC 36715, 37479, 38923, 38929, 39634, 39784, 39787. UNITED STATES: Colorado: Fremont Co., TRTC 38098. Florida: Bay Co., RFC 1291. Iowa: Eureka, RFC 6759.

37. ***Sporormiella minimoides*** Ahmed & Cain, sp. nov. Figs. 27–29

Peritheciis sparsis vel aggregatis, semiimmersis, erumpentibus subglobosis usque piriformibus, 180–240 × 100–150 μ, atro-brunneis usque nigris, denudatis; collo breve papilliforme, 50–80 × 40–50 μ, nigro, denudato. Peridio tenui membranaceo. Asci octosporis, subcylindraceis, 90–105(–110) × 16–19(–20) μ, superne late rotundatis, prope mediam partem latissimis inferne attenuatis, breve stipitatis; stipite circa 4–6 μ longa. Paraphysibus filiformibus, septatis, 2.0–2.5 μ crassis, ascos superantibus. Ascosporis 2- aut 3-stichis, obliquis, 4-cellularibus, cylindraceis, 28–36 × 6–7 μ, utrinque late rotundatis, rectis vel curvatis, demum atro-brunneis opacisque, transverse septatis, profunde constrictis, facile secedentibus; articulis similibus. Stria germinationis per obliqua usque diagonali. Strato mucoso hyalino angusto.

HOLOTYPUS: In fimo lupi. Ontario, Algoma Dist., Aubinadong R., Twp. 3F, 9 Aug. 1960, *Cain*, TRTC 36242. In University of Toronto Cryptogamic Herbarium.

ETYMOLOGY: Latin, *minima*, and the suffix *-oides*, referring to the resemblance to *S. minima*.

Perithecia scattered or loosely aggregated, semi-immersed, becoming nearly superficial when old, subglobose to nearly pyriform, 180–240 × 100–150 μ, smooth, bare, dark brown to nearly black; neck small, papilliform, measuring 50–80 × 40–50 μ, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, subcylindrical, 90–105(–110) × 16–19(–20) μ, broadly rounded above, broadest near the middle, abruptly contracted below into a very short stipe, measuring about 4–6 μ in length. Paraphyses filiform, septate, longer than the asci and mixed with them, measuring 2.0–2.5 μ in diameter. Ascospores obliquely bi- or tri-seriate, four-celled, cylindrical, 28–36 × 6–7 μ, broadly rounded at the ends, straight or curved, olivaceous brown when young, becoming dark brown and opaque when mature, transversely septate; constrictions at septa narrow and deep; segments easily separable; cells more or less equal in length; terminal cells very slightly narrower toward the ends; germ slit prominent, very strongly oblique to diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of carnivore, fox, rabbit, and wolf.

SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 36110, 36242 (TYPE), 39838. Muskoka Dist., TRTC 35895. Sudbury Dist., TRTC 36012. MEXICO: Durango, TRTC 39781. Tamaulipas, TRTC 39792.

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This species resembles *Sporormiella minima* in several characters but may be differentiated from it by the width of the ascospore, the separability of the segments, and the nature of the germ slit. In *S. minimoides* the ascospores are comparatively broader and the segments are equally separable at all the septa whereas in *S. minima* the segments are readily separable at the central septum. The germ slit in *S. minimoides* is strongly oblique to diagonal, without a kink near the middle while in *S. minima* it is nearly parallel, with a kink.

38. ***Sporormiella minipascua*** Ahmed & Cain, sp. nov. Figs. 142–144

Peritheciis sparsis vel aggregatis, immersis, subglobosis, 180–220 μ diam, atro-brunneis usque nigris, denudatis; collo breve cylindraceo, nigro, denudato. Peridio tenui membranaceo. Ascis octosporis, cylindraceo-clavatis, 120–140 × 14–16(–17) μ, latissimis prope apicem, inferne attenuatis, breve stipitatis. Paraphysibus filiformibus, septatis, ramosis, 2–3 μ crassis, ascos superantibus. Ascosporis supra 2- aut 3-seriatis, infra 1-seriatis, 8-cellularibus, fusiformi-cylindraceis, 32–36 × 5.5–6.5 μ, utrinque late rotundatis, demum atro-brunneis opacisque, septatis, septis non obliquis, leniter constrictis, cohaerentibus, articulo quarto majore. Stria germinationis obliqua usque diagonali. Strato mucoso angusto.

HOLOTYPUS: In fimo cervino, Ontario, Nipissing Dist., Pickerel Lake Portage from Lake Timagami, 10 Aug. 1933, *Cain*, TRTC 5390. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Latin, *minus* = smaller, and the species name *pascua*, referring to the smaller ascospores.

Perithecia scattered or loosely aggregated, immersed, subglobose, 180–220 μ in diam, smooth, bare, dark brown to nearly black; neck short, cylindrical, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 120–140 × 14–16(–17) μ, broadest near the upper end, gradually tapering below into a short stipe. Paraphyses filiform, septate, branched, longer than the asci and mixed with them, measuring 2–3 μ in diameter. Ascospores bi- or tri-seriate above, uniseriate below, eight-celled, fusiform-cylindrical, 32–36 × 5.5–6.5 μ, rounded at the ends, dark brown when mature, septa transverse, constrictions at septa broad and shallow, segments not easily separable; fourth cell from the upper end largest, cells becoming narrower toward each end; germ slit strongly oblique to almost diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of deer.

SPECIMENS EXAMINED: CANADA: Ontario: Nipissing Dist., TRTC 5390 (TYPE), RFC 6266. UNITED STATES: New York: Warren Co., RFC 6267, 6268. Wyoming: Teton Co., TRTC 32027, 32322.

Cain (1934) provided a description of *S. pascua* Niessl, based on examinations of Ontario collections. At that time he was unable to examine the European collections of *S. pascua* but stated that there was some doubt whether Ontario specimens should be referred as *S. pascua*, which was described with ascospores measuring considerably broader. Since that time these authors have been able to examine some of the European collections of *S. pascua* Niessl, and it is clearly evident that Ontario and European collections determined as this species are distinctly different from each other.

39. ***Sporormiella muskokensis*** (Cain) Ahmed & Cain, comb. nov. Figs. 41–43

≡ *Sporormia muskokensis* Cain, Univ. Toronto Stud., Biol. Ser. No. 38: 96. 1934.

Perithecia scattered, immersed, subglobose, 170–250 μ in diam, smooth, bare, dark brown to black; neck moderately long, cylindrical, smooth, bare, dark brown to black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, (140–)145–150(–168) × 13–15 μ, broadly rounded above, narrowing gradually from the broadest part near the apex into a fairly long, rather persistent stipe, measuring about 27–30 μ in length. Paraphyses fairly abundant, filiform, septate, slightly longer than the asci and mixed with them. Ascospores bi- or tri-seriate above, uniseriate below, four-celled, cylindrical-fusiform, 27–32 × 5.5–6.0 μ, straight or slightly curved, hyaline at first, ranging through olivaceous brown to dark brown and opaque, obliquely septate; constrictions at septa broad and deep; cells nearly equal in length; terminal cells prominently narrowing toward the ends; germ slit diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of deer, moose, partridge, porcupine, and rabbit.

TYPE: On rabbit dung, Ontario, Muskoka Dist., Gravenhurst, *Cain*, TRTC 5317.

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SPECIMENS EXAMINED: CANADA: Ontario: Bruce Co., RFC 6189. Haliburton Co., TRTC 36335. Muskoka Dist., TRTC 5317 (TYPE), 6186, 6187. Nipissing Dist., TRTC 39701. Thunder Bay Dist., TRTC 37526. Quebec: Portneuf Co., RFC 6892. UNITED STATES: New York: Warren Co., RFC 6190.

40. *Sporormiella nigropurpurea* Ell. & Ev., North American Pyrenomycetes, p. 136. 1892. Figs. 53–55

Perithecia aggregated into small groups, embedded when young, becoming semiembedded at maturity, subglobose, 300–350 μ in diam, smooth, bare, dark brown to black; neck short papilliform, smooth, bare, black. Asci eight-spored, cylindrical-clavate, 95–125 × 10–12 μ, broadly rounded above, broadest near the upper end, gradually narrowing below into a short stipe, measuring up to 20 μ in length. Paraphyses abundant, filiform, septate, longer than the asci and mixed with them. Ascospores more or less obliquely disposed, biseriate above, uniseriate below, four-celled, subcylindrical, 16–22 × 4.5–5.5 μ, nearly straight, light brown and translucent when young, becoming dark brown and opaque when mature; septa transverse; constrictions at septa moderately broad and deep; terminal cells subovate, slightly narrower toward the ends, 4.5–5.5 μ in length; mid-cells nearly subglobose, 3.5–4.5 μ in length; germ slit diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On cow dung.

TYPE: Newfield, New Jersey.

SPECIMEN EXAMINED: UNITED STATES: New Jersey: Gloucester Co. (TYPE) (NY).

S. nigropurpurea resembles *S. pulchella* in many respects but it may be distinguished from the latter on the basis of ascospore arrangement. The ascospores in *S. nigropurpurea* are biseriate in the upper part of the ascus and uniseriate in the lower part, whereas in *S. pulchella* the ascospores are uniseriate throughout. *S. nigropurpurea* may also be confused with *S. dakotensis*, from which it is separable by its broader and comparatively shorter ascospores as well as its diagonal germ slit.

41. *Sporormiella octomera* (Auersw.) Ahmed & Cain in Kobayasi, Hiratsuka, Otani, Tubaki, Udagawa, and Soneda, Bull. Natl. Sci. Mus. Tokyo, 12: 311–430. 1969. Figs. 134–135

≡ *Sporormia octomera* Auersw., Hedwigia, 7: 70. 1868.

Perithecia scattered, immersed, subglobose to nearly pyriform, 360–550 × 300–350 μ, smooth, bare, black; neck small, papilliform, smooth, bare, black. Peridium thin, membranaceous to slightly coriaceous. Asci eight-spored, clavate, (140–)148–171 × 16–18 μ, broadly rounded above, broadest near the upper end, gradually tapering below into a long, crooked stipe, measuring 35–50 μ in length. Paraphyses filiform, septate, slightly longer than the asci and mixed with them. Ascospores bi- or tri-seriate, eight-celled, fusiform-cylindrical, (37–)40–48(–50) × 7–8 μ, rounded at the ends, light brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa deep, segments easily separable; third cell from the upper end largest, cells becoming smaller toward each end, terminal cells slightly longer and somewhat bluntly conical, measuring 8–9 × 5.0–5.5 μ; germ slit oblique to diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of elk, goat, grouse, horse, moose, partridge, porcupine, and rabbit.

TYPE: Europe.

SPECIMENS EXAMINED: CANADA: Alberta: TRTC 40421. Manitoba: RFC 6545. Ontario: Algoma Dist., TRTC 36763, 38282, 38884, 39626. Brant Co., RFC 6494, 12386, TRTC 35831, 36048. Bruce Co., RFC 6224, 6225, 6227, 6229, 6246, 6249, TRTC 35924. Grey Co., RFC 6223, 6232. Haliburton Co., RFC 6236, TRTC 36348, 36352. Kenora Dist., TRTC 35825. Muskoka Dist., TRTC 35891, 35957, 35958, 36023, 36054. Nipissing Dist., RFC 5386, 6222, 12008, TRTC 39707, 32403, 39703. Norfolk Co., TRTC 36175, 39706. Ontario Co., TRTC 39708. Oxford Co., RFC 6245. Simcoe Co., TRTC 36616, 38926, 39704. Sudbury Dist., TRTC 38911, 39619, 39622. Victoria Co., RFC 6233, TRTC 36402. York Co., RFC 6230, 6250, 6672. Quebec: Gaspé East Co., TRTC 39753. Montmorency Co., TRTC 39751. Portneuf Co., RFC 6891. West Charlevoix Co., TRTC 36268. Saskatchewan: RFC 6252, 6553, 6555. UNITED STATES: Kansas: Rooks Co., TRTC 39376. North Dakota: Billings Co., TRTC 36219. Nevada: Elko Co., TRTC 39606. New York: Cattaraugus Co., TRTC 37367, 37378, 37602. Warren Co., RFC 6253, 6254. Utah: Duchesne Co., TRTC 36300. Wyoming: Crook Co., TRTC 39111. Teton Co.,

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TRTC 32327. EUROPE: with *Sordaria rabenhorstii* Niessl, *Rabenhorst*: Fungi Europaei 1528 (NY); with *Sporormia intermedia* Auersw., Flora Exsiccata Austro-Hungarica 3573 (G).

42. ***Sporormiella octonalis*** Ahmed & Cain, sp. nov. Figs. 131–133

Peritheciis sparsis, immersis usque semiimmersis, erumpentibus, 200–250 μ diam, atro-brunneis usque nigris, denudatis; collo breve papilliformi, nigro, denudato. Peridio tenui membranaceo. Ascis octosporis, cylindraceo-clavatis, 160–185 × 28–34 μ, superne late rotundatis, abrupte in stipitem brevissimum attenuatis. Paraphysibus filiformibus, septatis, fines ascorum egressis. Ascosporis 2- aut 3-seriatis, 8-cellularibus, oblongo-ellipsoideis, 48–58 × 12–14 μ, utrinque late rotundatis, demum atro-brunneis opacisque, septis transversis non obliquis praeditis, leniter constrictis, cohaerentibus, strato mucoso angusto hyalino obductis; articulis terminalibus hemisphaericis, articulo teritio majore. Stria germinationis obliqua usque diagonali.

HOLOTYPUS: In fimo vaccino, Ontario, Bruce Co., Hepworth, 11 July 1930, *Cain*, TRTC 5354. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Latin, *octonalis* = consisting of eight, referring to the eight-celled ascospores.

Perithecia scattered, immersed, becoming superficial when old, subglobose, 200–250 μ in diam, smooth, bare, dark brown to black; neck short, papilliform, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, 160–185 × 28–34 μ, broadly rounded above, abruptly contracted below into a very short stipe. Paraphyses filiform, septate, slightly longer than the asci and mixed with them. Ascospores obliquely bi- or tri-seriate, eight-celled, somewhat oblong-elliptical, 48–58 × 12–14 μ, broadly rounded at the ends, yellowish brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa broad and shallow, segments not easily separable; third cell from the upper end broadest, cells broader than long, terminal cells hemispherical; germ slit strongly oblique to diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of arctic hare, cow, partridge, rabbit, and wapiti.

SPECIMENS EXAMINED: CANADA: Ontario: Bruce Co., TRTC 5354. Haliburton Co., RFC 5993. Muskoka Dist., TRTC 36098. Peterborough Co., RFC 5994. Quebec: West Charlevoix Co., TRTC 36267. UNITED STATES: Idaho: Fremont Co., TRTC 40636. Oregon: Harney Co., TRTC 40187. Wyoming: Park Co., TRTC 39135.

As a result of examination made on the authentic European collections of *Sporormia corynespora* (Rehm Ascomyceten 748) it was found that the Ontario specimens, previously interpreted as *S. corynespora* and reported as such by Cain (1934), were distinctly different from the European specimens and could be retained as a separate entity.

Sporormiella octonalis may be distinguished from *S. corynespora* by the broader asci which are abruptly narrowed below into a very short stipe. It may further be differentiated from *S. corynespora* by the broader ascospores with hemispherical terminal cells.

43. ***Sporormiella ontariensis*** (Cain) Ahmed & Cain, comb. nov. Figs. 139–141

BASIONYM: *Sporormia ontariensis* Cain, Univ. Toronto Stud., Biol. Ser. No. 38. p. 104. 1934.

Perithecia scattered, immersed, pyriform, 340–400 × 200–250 μ, smooth, bare, dark brown to black; neck small, conical, smooth, bare, black. Peridium membranaceous to slightly coriaceous. Asci eight-spored, cylindrical, 175–200 × 22–24 μ, broadly rounded above, broadest near the base, abruptly contracted below into a very short, stout stipe. Paraphyses filiform, septate, slightly longer than the asci and mixed with them. Ascospores somewhat obliquely bi- or tri-seriate, eight-celled, more or less cylindrical, 49–58(–60) × 9–10 μ, broadly rounded at the ends, dark brown and opaque when mature, septa transverse, constrictions at septa broad and shallow, segments not easily separable; terminal cells and fourth cell from the upper end slightly longer than the rest, fourth cell larger than the remaining cells, about 8 × 10 μ, remaining cells slightly narrower; germ slit strongly oblique to diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of bear, goose, porcupine, and rabbit.

TYPE: On rabbit dung, Ontario, York Co., West Hill, TRTC 5319.

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SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 37561. Brant Co., RFC 6261. Bruce Co., RFC 6256, 6257. Muskoka Dist., RFC 6258, 6260. Nipissing Dist., RFC 6262. Parry Sound Dist., RFC 5388, 6259. Sudbury Dist., TRTC 36256, 36326. York Co., RFC 6255, 6263, TRTC 5319 (TYPE). MEXICO: Durango, TRTC 39802. UNITED STATES: Massachusetts: Middlesex Co., RFC 6409.

44. ***Sporormiella ovina*** (Desm.) Ahmed & Cain, comb. nov. Figs. 98–101

BASIONYM: *Hormospora ovina* Desm., In Ann. Sci. Nat., 3e Ser. (Bot.), 16: 317. 1851.

= *Sporormia ovina* (Desm.) Sacc., Syll. Fung. 2: 127. 1883.

= *Sporormia gigantea* Hansen, Vidensk. Meddel. 1876: 319. 1877.

Perithecia scattered, immersed to semi-immersed, subglobose, 350–400 μ in diam, smooth, bare, dark brown to nearly black; neck short conical to long cylindrical, smooth, bare, black. Peridium membranaceous to slightly coriaceous. Asci eight-spored, cylindrical-clavate, 240–320 × 45–52(–55) μ, broadly rounded above, broadest above the middle, gradually narrowing below into a short stipe. Paraphyses abundant, filiform, septate, longer than the asci and mixed with them. Ascospores nearly parallel to somewhat obliquely bi- to tetra-seriate, four-celled, cylindrical to fusiform-cylindrical, (92–)95–118(–122) × 18–20 μ, straight or slightly curved, light brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments easily separable; cells nearly equal in length, mid-cells oblong-cylindrical, terminal cells narrowing toward the ends; germ slit nearly parallel to oblique, occasionally almost diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of goose and sheep.

TYPE: Europe.

SPECIMENS EXAMINED: EUROPE: Plantes Cryptogames de France, *J.B.H.J. Desmazières* 98 (G, NY).

45. ***Sporormiella pascua*** (Niessl) Ahmed & Cain, comb. nov. Figs. 145, 146

BASIONYM: *Sporormia pascua* Niessl, Oesterr. Bot. Z. 28: 165. 1878.

Perithecia subglobose, 200–220 μ in diam, smooth, bare, dark brown to nearly black; neck short, papilliform, smooth, bare, black. Asci eight-spored, nearly cylindrical, 140–160 × 18–21 μ, broadly rounded above, slightly broader near the base, more or less abruptly contracted below into a short stipe. Paraphyses filiform, septate, longer than the asci and mixed with them. Ascospores bi- or tri-seriate, eight-celled, nearly cylindrical, (37–)40–49 × (7–)8–9 μ, broadly rounded at the ends, dark brown and opaque when mature, septa transverse, constrictions at septa shallow, segments not easily separable; fourth cell from the upper end larger than the remainder, 5–6 × 8–9 μ; germ slit oblique; gelatinous sheath present.

HABITAT: On dung of cow.

TYPE: Europe.

SPECIMENS EXAMINED: Det. by *G. Winter*, Fungi Helvetici Supplement 90 (NY). With *Sporormia fimetaria* DeNot. Nassau's Flora (G).

46. ***Sporormiella pentamera*** (Oud.) Ahmed & Cain, comb. nov. Figs. 110, 111

BASIONYM: *Sporormia pentamera* Oud., Nederl. Kruid. Arch. 2, 4: 276. 1885.

Perithecia subglobose, 300–400 μ in diam, smooth, bare, black; neck short, papilliform. Asci eight-spored, clavate, 180–220 × 35–40 μ, broadly rounded above, broadest near the middle, gradually narrowing below into a short stipe. Paraphyses filiform, septate, longer than the asci and mixed with them. Ascospores bi- or tri-seriate, five-celled, fusiform-cylindrical, (65–)70–80 × 17–19 μ, narrowly rounded at the ends, becoming dark brown and opaque, septa transverse, constrictions at septa broad and shallow, segments not easily separable, terminal cells more or less conical, measuring about 16.0–19.5 × 14–15 μ, second cell from the upper end broader than the remaining cells, measuring 11.5–13.5 × 16.0–18.5 μ; germ slit diagonal; gelatinous sheath present.

HABITAT: On the dung of rabbit.

TYPE: Europe.

SPECIMENS EXAMINED: ARGENTINA: With the type of *Sporormia pyriformis* Speg. 3559 (LPS). With the type of *Sporormia antarctica* Speg. 3500 (LPS). EUROPE: With *Sordaria maxima* Niessl, *Rehm*, Ascomyceten 744 (FH).

47. ***Sporormiella pilosa*** (Cain) Ahmed & Cain, comb. nov. Figs. 14–17

≡ *Sporormia pilosa* Cain, Univ. Toronto Stud., Biol. Ser. No. 38. p. 91. 1934.

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Perithecia scattered or loosely aggregated, immersed to semi-immersed when young, becoming nearly superficial when old, subglobose to pyriform, 400–700 × 250–350 μ, slightly coriaceous, dark brown to black, upper part covered with long, septate, brown hairs; neck short to considerably elongated, cylindrical, stout, thickly covered with short, septate, light brown hairs. Asci eight-spored, clavate, 260–340 × 28–31 μ, broadly rounded above, broadest near the apex, gradually tapering below into a broad, stout stipe, measuring up to 35 μ in length. Paraphyses abundant, filiform, septate, slightly longer than the asci and mixed with them. Ascospores bi- or tri-seriate above, uni- or biseriate below, four-celled, fusiform-cylindrical, 56–63 × 12.0–14.5 μ, dark brown and opaque at maturity, transversely septate, and very deeply constricted; cells about equal in length; terminal cells ovoid-conical, tapering toward the ends; mid-cells slightly broader than the terminal cells; germ slit usually diagonal; gelatinous sheath hyaline, broad.

HABITAT: On dung of burro, deer, horse, porcupine, rabbit, and rodent.

TYPE: On porcupine dung, Ontario, Nipissing Dist., Lake Timagami, TRTC 5315.

SPECIMENS EXAMINED: CANADA: Ontario: Brant Co., RFC 6270. Bruce Co., RFC 6269. Grey Co., RFC 6273. Kent Co., RFC 6806. Manitoulin Dist., RFC 6279. Middlesex Co., RFC 6272. Muskoka Dist., RFC 6280. Nipissing Dist., RFC 6274, TRTC 5315 (TYPE), 36532, 36533. Oxford Co., RFC 6271. Peterborough Co., RFC 6275. Timiskaming Dist., RFC 6276. Thunder Bay Dist., TRTC 40661. Victoria Co., RFC 5391. Wellington Co., RFC 6277. York Co., RFC 6810, 12235. UNITED STATES: Iowa: Washington Co., RFC 6739.

48. ***Sporormiella pilosella*** (Cain) Ahmed & Cain, comb. nov. Figs. 18–20
≡*Sporormia pilosella* Cain, Univ. Toronto Stud., Biol. Ser. 38: 93. 1934.

Perithecia scattered or aggregated in small groups, almost immersed to semi-immersed when young, becoming nearly superficial when old, subglobose to pyriform, 450–550 × 300–450 μ, covered on the exposed parts with flexuous, light brown, sparingly septate hairs, olivaceous brown when young, becoming dark brown when mature; neck short, papilliform or conical, stout, hairy, black. Peridium moderately thick, membranaceous. Asci eight-spored, cylindrical-clavate, (160–)190–230 × 17.0–20.5 μ, broadest near the upper end, gradually narrowing below into a stipe, measuring 20–30 μ in length. Paraphyses filiform, septate, occasionally branched, slightly longer than the asci and mixed with them, measuring 2–3 μ in diameter. Ascospores biseriate above, uniseriate below, four-celled, fusiform-cylindrical, (29–)32–37 × 8–9 μ, curved, dark brown and opaque when mature, transversely septate; constrictions at septa broad and moderately shallow; terminal cells ovoid-conical, comparatively longer and narrower than the middle cells; germ slit diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of cow, deer, moose, porcupine, and rabbit.

TYPE: On porcupine dung, Stoneleigh, Muskoka Dist., Ontario, TRTC 5316.

SPECIMENS EXAMINED: CANADA: Ontario: Kenora Dist., TRTC 35885. Muskoka Dist., TRTC 5316 (TYPE), RFC 6280. Saskatchewan: RFC 6281, 6282, 6624. UNITED STATES: Colorado: Teller Co., TRTC 38079. Wyoming: Teton Co., TRTC 32354.

This species seems to be related to *Sporormiella pilosa*, which it resembles in several respects, but is distinguishable by the smaller size of asci and ascospores.

49. ***Sporormiella platymera*** Ahmed & Cain, sp. nov. Figs. 158–161

Peritheciis sparsis, immersis, globosis, 350–500 μ diam, crassis, atro-brunneis usque nigris, denudatis; collo breve papilliformi vel ad apicem aucto, circa 200 × 200 μ, nigro denudato. Peridio membranaceo vel leniter coriaceo. Ascis octosporis, clavatis, usque leniter fusiformibus, (210–)225–263 × 35–42 μ, superne late rotundatis, in mediam partem latissimis, inferne attenuatis, breve stipitatis. Paraphysibus filiformibus, septatis, copiosis, ascos superantibus. Ascosporis 2- aut 3-seriatis, 8-cellularibus, fusiformi-cylindraceis, 79–95(–99) × 14–16 μ, utrinque rotundatis, rectis vel curvatis, demum atro-brunneis opacisque, transverse septatis, profunde contrictis, facile secedentibus, articulis terminalibus angustioribus, ovoideis, 14–18 × 11.5–12.5 μ, articulis reliquis latioribus. Stria germinationis parallela in articulis terminalibus, aliquantum obliqua usque plus minus trans-

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versa in articulis reliquis. Strato gelatinoso hyalino, lato.

HOLOTYPUS: In fimo cuniculorum, Mexico, Tamaulipas, Reynosa, 20 Aug. 1960, *Cain*, TRTC 36568. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *platys* = broad, and *meros* = part, referring to the broad segments of the ascospores.

Perithecia scattered, immersed, subglobose, 350–500 μ in diam, smooth, bare, dark brown to nearly black; neck small papilliform or with an enlarged apex, measuring about 200 × 200 μ, smooth, bare, dark brown to black. Peridium thick, membranaceous to slightly coriaceous. Asci eight-spored, clavate to slightly fusiform, (210–)225–265 × 32–42 μ, broadly rounded above, slightly narrower near the upper end, broadest near the middle, contracted below into a short, stout, rather persistent stipe. Paraphyses abundant, filiform, septate, longer than the asci and mixed with them. Ascospores parallel to somewhat obliquely bi- or triseriate, eight-celled, fusiform-cylindrical, 79–95 (–99) × 14–16 μ, rounded at the ends, straight or slightly curved, light brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa broad and deep, segments easily separable; six middle cells broader than long, terminal cells longer than broad, more or less ovoid, measuring 14–18 × 11.5–12.5 μ; germ slit parallel in the terminal cells, obliquely transverse in the remaining cells, gelatinous sheath hyaline, broad.

HABITAT: On dung of rabbit.

SPECIMEN EXAMINED: MEXICO: Tamaulipas: Reynosa, TRTC 36568.

S. platymera resembles *S. herculea* in several respects, for example, the shape of the asci and ascospores as well as the transverse orientation of the germ slits. However, it can be distinguished from *S. herculea* by the absence of a large cell in the uppermost ascospore in the ascus and the distinctly smaller ascospores with a constant and smaller number of cells.

50. ***Sporormiella polymera*** (Cain) Ahmed & Cain, comb. nov. Figs. 179–182

BASIONYM: *Sporormia polymera* Cain, Can. J. Bot. 35: 263. 1957.

Asci eight-spored, clavate, 180–260 × 20–27 μ, broadly rounded above, broadest part below the apex, gradually narrowing below into a long stipe, measuring 28–60 μ in length. Paraphyses filiform, septate, with rather long cells, rarely branched, more or less equalling the asci in length and mixed with them, measuring 4–8 μ in diameter. Ascospores nearly parallel with the ascus tri- or tetra-seriate above, with a single ascospore at the base, 14- or 15-celled, fusiform-cylindrical, 63–82 × 9.5–11.0 μ, broadly rounded at the ends, dark brown and opaque when mature; septa transverse, constrictions at septa broad and deep, segments easily separable; seventh cell (in 15-celled ascospore) or fifth and sixth (in 14-celled ascospore) from the upper end abruptly larger, cells gradually decreasing in size toward both the ends; germ slit transverse to diagonal, gelatinous sheath hyaline, narrow.

HABITAT: On dung of caribou.

TYPE: On dung of caribou, Quebec, Ungava, TRTC 32264.

SPECIMEN EXAMINED: CANADA: Quebec, Ungava, esker east of George River, 55°9′ N lat., TRTC 32264.

51. ***Sporormiella pulchella*** (Hansen) Ahmed & Cain, comb. nov. Figs. 8–10

≡*Sporormia pulchella* Hansen, Vidensk. Meddel. 1876: 320. 1877.

=*Sporormia microspora* Plowright, Br. Mycol. Soc. Trans. 1: 63. 1897–1898.

Perithecia scattered or loosely aggregated, immersed, subglobose, 250–300 μ in diam, thin, membranaceous, smooth, bare, black. Asci eight-spored, cylindrical, 120–135 × 10–13 μ, abundant, broadly rounded above, narrowing below into a short, stout stipe. Paraphyses abundant, filiform, septate, equalling the asci in length and mixed with them. Ascospores obliquely uniseriate, four-celled, fusiform-cylindrical, (15–)17–24(–26) × 5–7 μ, straight or slightly curved, dark brown and opaque when mature, transversely septate, constrictions at septa broad and moderately deep; segments separable; terminal cells slightly longer than the mid-cells, bluntly conical, mid-cells oblong to oval; germ slit oblique to diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of cow, deer, goat, porcupine, rabbit, and sheep.

TYPE: Denmark.

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SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 36871. Bruce Co., TRTC 39709. Manitoulin Dist., RFC 6286. Muskoka Dist., RFC 6284. Nipissing Dist., RFC 6283, 6285, 6452, TRTC 36039. EUROPE: as *Hormospora ovina* Desm., C. Roumeguere: Plantes Cryptogames de France 98 (NY). MEXICO: Nuevo Leon, TRTC 37456. Tamaulipas, TRTC 36569, 36718, 39804. UNITED STATES: Colorado: Saguache Co., TRTC 38105, 38107. Teller Co., TRTC 38081. Idaho: Elmore Co., TRTC 40140. Fremont Co., TRTC 40632. Kansas: Rooks Co., TRTC 39346. Montana: Prairie Co., TRTC 35787. Nevada: Elko Co., TRTC 35745. New Mexico: Santa Fe Co., TRTC 36475. South Dakota: Hyde Co., TRTC 39805. Meade Co., TRTC 39412. Utah: Duchesne Co., TRTC 36226, 36235, 36295. Wyoming: Crook Co., TRTC 39075.

The ascospore measurements of *Sporormiella pulchella*, as given in the above description are based on the examination of many specimens. This range of ascospore size covers the measurements given for *Sporormia microspora* (15 × 5 μ) and, because of this similarity, the two are considered identical.

52. ***Sporormiella pyriformis*** (Speg.) Ahmed & Cain, comb. nov. Figs. 85, 86

BASIONYM: *Sporormia pyriformis* Speg., Anal. Mus. Nac. Buenos Aires, 6: 280. 1899.

Perithecia pyriform, 300–540 × 150–360 μ, smooth, bare, black. Asci eight-spored, clavate, tapering below into a long stipe. Ascospores bi- or tri-seriate, four-celled, cylindrical, 70–80 × 15–17 μ, narrowly rounded at the ends, dark brown and opaque when mature; septa transverse; constrictions at septa broad and deep; segments easily separable; cells nearly equal in size; middle cells cuboid, end cells conspicuously narrower toward the ends; germ slit obliquely transverse; gelatinous sheath present.

HABITAT: On dung of goose.

TYPE: Argentina.

SPECIMENS EXAMINED: ARGENTINA: Tierra del Fuego, with *Sporormia antarctica* Speg., *Spegazzini* 3500 (LPS). Type packet, La Plata, *Spegazzini* 3559 (LPS) has drawings but no specimens.

This species overlaps *S. megalospora* in ascospore measurements but may be distinguished from it by means of the more nearly transverse germ slit.

53. ***Sporormiella scandinavica*** (I. Egel.) Ahmed and Cain, comb. nov.

BASIONYM: *Sporormia scandinavica* I. Egel., Nytt Mag. Bot. 16: 219. 1969.

Perithecia globose to pyriform, 230–460 × 200–385 μ, glabrous. Peridium thick, coriaceous, and opaque. Asci eight-spored, clavate to nearly cylindrical, 180–200 × 30–35 μ, tapering gradually into a stipe of variable length. Ascospores four-celled, clavate to nearly cylindrical, tapering toward the ends, 57–70 × 13.0–17.5 μ. Second cell is longer and broader than others and with the germ slit often nearly diagonal. Germ slit in all other cells parallel to the length of the ascospore.

HABITAT: On dung of sheep and cow.

TYPE: On sheep dung, Norway, *I. Egeland*, 262 (O).

54. ***Sporormiella schadospora*** Ahmed & Cain, sp. nov. Figs. 136–138

Peritheciis sparsis, immersis, subglobosis, 250–350 μ diam, atro-brunneis vel nigris, denudatis; collo breve papilliformi vel truncato-conico, nigro, denudato. Peridio membranaceo vel leniter coriaceo. Ascis octosporis, subcylindraceis, (136–)150–180(–190) × 18–21 μ, superne late rotundatis, prope media parte latissimis, inferne attenuatis, per breve stipitatis. Paraphysibus filiformibus, septatis, guttulatis, ascos superantibus. Ascosporis 2- aut 3-seriatis, 8-cellularibus, plus minus cylindraceo-clavatis, (50–)52–57(–60) × 8–9 μ, utrinque late rotundatis, rectis vel curvatis, demum atro-brunneis opacisque, transverse septatis, profunde constrictis, facile secedentibus; articulo tertio majore, 8–9 μ crasso, articulis terminalibus longioribus, 7.0–9.5 × 6–7 μ. Stria germinationis obliqua usque diagonali. Strato mucoso hyalino, lato.

HOLOTYPUS: In fimo animalis rosi, Mexico, San Luis Potosi, Villa Hidalgo, 18 Aug. 1960, *Cain*, TRTC 45734. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *schadon* = larva of a bee or wasp, and *spora* = seed, referring to the larval shape of the ascospores.

Perithecia scattered, immersed, subglobose, 250–350 μ in diam, smooth, bare, dark brown to nearly black; neck small, papilliform, or bluntly conical, smooth, bare, black. Peridium membranaceous to slightly coriaceous. Asci eight-

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spored, subcylindrical, (136–)150–180(–190) × 18–21 μ, broadly rounded above, broadest near the middle, contracted below into a very short crooked stipe. Paraphyses filiform, septate, guttulate, longer than the asci and mixed with them. Ascospores somewhat obliquely bi- or tri-seriate, eight-celled, more or less cylindrical-clavate, (50–)52–57(–60) × 8–9 μ, broadly rounded at the ends, straight or curved, golden brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa narrow and deep, segments easily separable; third cell from the upper end widest, measuring 8–9 μ in diam, cells narrowing slightly toward each end, terminal cells longer than the remaining cells, measuring 7.0–9.5 × 6–7 μ; germ slit usually diagonal, occasionally oblique; gelatinous sheath hyaline, broad.

HABITAT: On dung of burro, goat, porcupine, and rodent.

SPECIMENS EXAMINED: CANADA: Alberta, TRTC 38934. MEXICO: Chihuahua, TRTC 36563. Jalisco, TRTC 39610. San Luis Potosi, TRTC 39611, 45734 (TYPE).

This species resembles *S. octomera* but can be distinguished from it by the larger ascospores, broader asci, and more rectangular shape of the cells.

55. ***Sporormiella schotteriana*** (Breton & Faurel) Ahmed & Cain, comb. nov.

BASIONYM: *Sporormia schotteriana* Breton & Faurel, Bull. Soc. Mycol. Fr. 80: 248. 1964.

Perithecia glabrous, 300–500 μ diam. Asci clavate, 175–200 × 22–28 μ, eight-spored. Ascospores cylindrical, 16-celled (sometimes with one or two cells hyaline and collapsed), 60–80 × (7–)8–9(–10) μ, surrounded with a hyaline gelatinous sheath. Mid-cells nearly equal, discoid, with transverse germ slit. End cells elongate-conical with longitudinal germ slit.

HABITAT: On rabbit dung.

TYPE: Forest of Saint-Ferdinand near Zéralda, western Algeria, *A. Breton*, 30 April 1961.

56. ***Sporormiella septenaria*** Ahmed & Cain, sp. nov. Figs. 117–119

Peritheciis sparsis vel aggregatis, immersis usque semiimmersis, erumpentibus, subglobosis usque piriformibus, 270–310 × 225–250 μ, atro-brunneis usque nigris, denudatis; collo breve papilliformi, nigro, denudato. Peridio tenui membranaceo. Ascis octosporis, clavatis, 130–160 × 18–20 μ, superne late rotundatis, inferne attenuatis, breve stipitatis. Ascosporis superne 2- aut 3-seriatis, inferne 1-seriatis, 7-cellularibus, cylindraceo-clavatis, 43–54(–56) × 8–10 μ, utrinque rotundatis, demum atro-brunneis opacisque, transverse septatis, ad septa mediocriter constrictis; strato mucoso angusto hyalino obductis; articulo tertio majore 7–8 × 8.5–10 μ; articulis secundis-quartis longitudine majore quas latitudinem praeditis; articulis sexis-septis latitudine majore quam longitudinem praeditis; articulo septo longiore, 10–11.5 × 6.5–7.0 μ. Stria germinationis obliqua.

HOLOTYPUS: In fimo capri, Mexico, San Luis Potosi, Villa Hidalgo, 18 Aug. 1960, *Cain*, TRTC 36550. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Latin, *septenarius* = consisting of seven, referring to the seven-celled ascospores.

Perithecia scattered or in small groups, immersed, becoming semi-immersed when old, subglobose to nearly pyriform, 270–310 × 225–250 μ, smooth, bare, dark brown to nearly black; neck small, papilliform, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, clavate, 130–160 × 18–20 μ, broadly rounded above, tapering gradually below into a short stipe. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, seven-celled, cylindrical-clavate, 43–54(–56) × 8–10 μ, rounded at the ends, hyaline at first, ranging through yellowish brown to dark brown when mature, septa transverse, constrictions at septa moderate, segments separable; third cell from the upper end abruptly larger than the remaining cells, measuring 7–8 × 8.5–10 μ; second, third, and fourth cells from the upper end broader than long; first, sixth, and seventh cells longer than broad; lower end cell longer than the other cells, measuring 10.0–11.5 × 6.5–7.0 μ; germ slit oblique; gelatinous sheath hyaline, narrow.

HABITAT: On dung of burro, cow, goat, rabbit, sheep, and wapiti.

SPECIMENS EXAMINED: MEXICO: Durango, TRTC 37063. Hidalgo, TRTC 39177, 39254, 39638, 39827. Nuevo Leon, TRTC 36722. San Luis Potosi, TRTC 36550, 36585, 36787, 37481, 39824. UNITED STATES: Nevada: Elko Co., TRTC 35734. Oregon: Deschutes Co., TRTC 40428. Wyoming: Crook Co., TRTC 39120.

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S. vexans differs from this species in having ascospores with rhomboidal cells and a tendency for oblique septation. It also differs on the basis of the position of cells which are broader than long. In *S. septenaria*, it is the second, third, and fourth cells from the upper end, whereas in *S. vexans* it is the five middle cells which are broader than long.

57. ***Sporormiella splendens*** (Cain) Ahmed & Cain, comb. nov. Figs. 150–153

BASIONYM: *Sporormia splendens* Cain, Univ. Toronto Stud., Biol. Ser. No. 38: 107. 1934.

Perithecia scattered, immersed, pyriform, 550–625 × 350–410 μ, smooth, bare, dark brown; neck short, papilliform, 150–180 × 100–125 μ, roughened with small papillae or bare, dark brown to black. Peridium thin, membranaceous. Asci eight-spored, clavate, 200–270 × (40–)45–55 μ, broadly rounded above, considerably enlarged in the middle, contracted below into a short, broad stipe, measuring 10–15 μ in length. Paraphyses abundant, filiform, septate, sparingly branched, slightly longer than the asci and mixed with them. Ascospores nearly parallel with the ascus, bi- or tri-seriate, all overlapping in the middle, eight-celled, cylindrical, (130–)140–160 (–165) × 9.0–12.5 μ, dark brown when mature, septa transverse, constrictions at septa broad and deep, segments easily separable; terminal cells tapering toward the ends, apical cell more narrowed than the basal cell, remaining cells longer than broad, cylindrical; germ slit oblique to almost diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of rabbit and porcupine.

TYPE: On rabbit dung, Ontario, Nipissing Dist., Lake Timagami, *Cain*, TRTC 5321.

SPECIMENS EXAMINED: CANADA: Ontario: Algoma Dist., TRTC 32385, 35746, 36762, 37561, 40609, 40611. Haliburton Co., TRTC 36102, 36112. Kenora Dist., TRTC 35871. Muskoka Dist., TRTC 5394, 36044. Nipissing Dist., RFC 6288, 6294, 6299, 6300, 6301, 6302, 6303, 6387, 6705, 9081, TRTC 5321 (TYPE), 5393, 5395. Parry Sound Dist., TRTC 39711. Sudbury Dist., TRTC 36361, 39710, 40605. Timiskaming Dist., TRTC 35947, 35968, 35993, 36002. Quebec: Montmorency Co., TRTC 39754, 39755. Quebec Co., RFC 6878. UNITED STATES: New Hampshire: Cheshire Co., TRTC 32654.

58. ***Sporormiella subtilis*** Ahmed & Cain, sp. nov. Figs. 50–52

Peritheciis sparsis, immersis usque semiimmersis, subglobosis, 250–350 μ diam, atro-brunneis usque nigris, denudatis; collo breve cylindraceo, nigro, denudato. Peridio membranaceo tenui. Ascis octosporis, cylindraceo-clavatis, (120–)140–150(–160) × 12–14 μ; numerosis, superne late rotundatis, prope apicem latissimis, inferne attenuatis, breve stipitatis; stipite usque ad 25 μ longa. Paraphysibus filiformibus, septatis, copiosis, 2.5–3.0 μ crassis, ascos superantibus. Ascosporis superne 2- aut 3-stichis, inferne 1- aut 2-stichis, 4-cellularibus, cylindraceis, 23–29 × 5.5–6.5 μ, demum atro-brunneis opacisque, transverse septatis, profunde constrictis, facile secendentibus. Articulis terminalibus leviter longioribus et attenuatis. Stria germinationis obliqua usque diagonali. Strato mucoso hyalino, angusto.

HOLOTYPUS: In fimo burrici, Mexico, San Luis Potosi, Villa Hidalgo, 18 Aug. 1960, *Cain*, TRTC 37018. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Latin, *subtilis* = slender, referring to the slender nature of the asci.

Perithecia scattered, immersed when young, becoming partially superficial when old, subglobose, 250–350 μ in diam, smooth, bare, dark brown to nearly black; neck short cylindrical, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, (120–)140–150(–160) × 12–14 μ, abundant, broadly rounded above, broadest near the apex, gradually narrowing below into a stipe, measuring up to 25 μ in length. Paraphyses abundant, filiform, septate, longer than the asci and mixed with them, measuring about 2.5–3.0 μ in diameter. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, four-celled, cylindrical, 23–29 × 5.5–6.5 μ, light brown when young, becoming dark brown and opaque when mature; septa transverse; constrictions at septa broad and deep; cells about equal in width; terminal cells slightly longer than the mid-cells, very slightly narrower toward the ends, mid-cells with the width about equal to the length; germ slit oblique to diagonal; gelatinous sheath hyaline, narrow.

HABITAT: On dung of burro, partridge, porcupine, and rabbit.

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SPECIMENS EXAMINED: CANADA: Alberta: TRTC 39020. Ontario: Bruce Co., RFC 6308, 6310. Nipissing Dist., RFC 6311. Norfolk Co., RFC 6309. Quebec: Montmorency Co., TRTC 40639. MEXICO: Durango, TRTC 37485. Jalisco, TRTC 39287. San Luis Potosi, TRTC 36919, 37018 (TYPE).

This species can be differentiated from *S. dakotensis* by the broader asci, broader ascospores, and oblique to diagonal germ slit. It can also be distinguished from *S. leporina* by the comparatively shorter ascospores, deeper constrictions at the septa, and the ascospore shape.

59. ***Sporormiella systenospora*** Ahmed & Cain, sp. nov. Figs. 81–84

Peritheciis sparsis, immersis vel semiimmersis, erumpentibus, subglobosis, 350–400 μ diam, atro-brunneis, usque nigris, denudatis; collo breve conico, nigro, denudato. Peridio tenui membranaceo. Ascis octosporis, clavatis, 190–230 × 32–38 μ, superne late rotundatis, superne mediam partem latissimis, inferne attenuatis, breve stipitatis; stipite usque ad 15 μ longa. Paraphysibus filiformibus, septatis, ramosis, ascos superantibus. Ascosporis supra 3- aut 4-seriatis, infra 1- aut 2-seriatis, 4-cellularibus, plus minus cylindraceis, (65–)70–75(–80) × 12–14 μ, demum atro-brunneis opacisque, transverse septatis, profunde constrictis; articulis terminalibus leviter longioribus et attenuatis, 17–20 μ longis; articulis mediis 14–17 μ longis. Stria germinationis obliqua. Strato mucoso hyalino angusto.

HOLOTYPUS: In fimo burrici, Mexico, Durango, N of Durango, 18 Aug. 1960, *Cain*, TRTC 36986. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Greek, *systenos* = tapering to a point, and *spora* = seed, referring to the shape of the ascospores.

Perithecia scattered, immersed or semi-immersed, becoming nearly superficial when old, subglobose, 350–400 μ in diam, smooth, bare, dark brown to nearly black; neck short, conical, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, clavate, 190–230 × 32–38 μ, broadly rounded above, broadest above the middle, gradually narrowing below into a short, stout stipe, measuring up to 15 μ in length. Paraphyses abundant, filiform, septate, branched, longer than the asci and mixed with them. Ascospores somewhat obliquely disposed, bi- or tri-seriate above, uni- or bi-seriate below, four-celled, more or less cylindrical (65–)70–75(–80) × 12–14 μ, narrowly rounded at the ends, straight or slightly curved, yellowish brown and translucent when young, becoming golden brown and finally dark brown and opaque; septa transverse; constrictions at septa broad and deep; terminal cells usually slightly longer than mid-cells, 17–20 μ in length, conspicuously narrowing toward the ends; mid-cells barrel-shaped, 14–17 μ in length; germ slit oblique and distinct; gelatinous sheath hyaline, narrow.

HABITAT: On dung of burro and goat.

SPECIMENS EXAMINED: MEXICO: Durango, TRTC 36986 (TYPE). San Luis Potosi, TRTC 36476.

This species can be distinguished from *S. kansensis* by the broader ascospores and the terminal cells, which are distinctly narrow toward the ends. In addition, the germ slit in *S. systenospora* is oblique whereas in *S. kansensis* it is strictly parallel. *S. systenospora* can also be distinguished from *S. pyriformis* by the narrower ascospores and oblique germ slit.

60. ***Sporormiella teretispora*** Ahmed & Cain, sp. nov. Figs. 35, 36

Peritheciis sparsis, immersis, subglobosis, 250–400 × 150–300 μ, atro-brunneis usque nigris, denudatis; collo breve, papilliformi, nigro, denudato. Peridio membranaceo. Ascis octosporis, cylindraceis, 180–220 × 27–32 μ, superne late rotundatis, breve stipitatis. Paraphysibus filiformibus, septatis, ascos superantibus. Ascosporis bi- aut tri-stichis, obliquis, 4-cellularibus, cylindraceis, 60–66 × 10–13 μ, utrinque late rotundatis, demum atro-brunneis opacisque, transverse septatis, constrictis leniter. Stria germinationis parallelo ordinata. Strato mucoso hyalino.

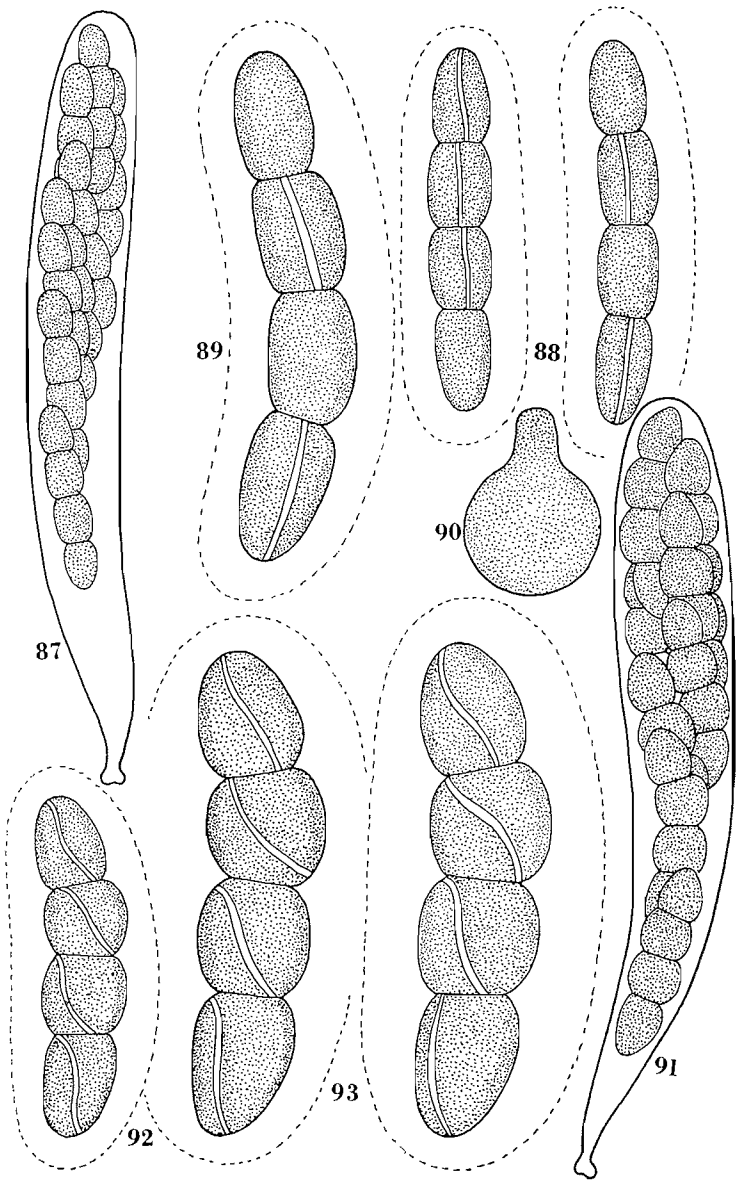
HOLOTYPUS: In fimo cuniculorum, U.S.A., Louisiana, Livingston Parish, Walker, 23 Aug. 1960, *Cain*, TRTC 36705. In Cryptogamic Herbarium, University of Toronto.

ETYMOLOGY: Latin, *teres* = cylindrical, and *spora*, referring to the shape of the ascospores.

Perithecia scattered, immersed, subglobose, smooth, bare, 250–400 × 150–300 μ, dark brown to black; neck short, papilliform, black, bare. Peridium membranaceous. Asci eight-spored, cylindrical, 180–220 × 27–32 μ, broadly rounded

above, abruptly contracted below into a short stipe. Paraphyses filiform, septate, longer than the asci and mixed with them. Ascospores bi- or tri-seriate, four-celled, cylindrical, 60–66 × 10–13 μ, broadly rounded at the ends, upper cell more tapered than lower cell, dark brown and opaque when mature, septa transverse, constrictions at septa broad and shallow, segments nearly equal in size; germ slit nearly parallel; gelatinous sheath present.

HABITAT: On dung of burro, cow, goose, horse, rabbit, and rodent.



FIGS. 87–89. *Sporormiella kansensis* (TRTC 31529). Fig. 87. Ascus with ascospores, × 430. Fig. 88. Ascospores, × 660. Fig. 89. Ascospores, × 920. FIGS. 90–93. *Sporormiella megalospora* (TRTC 39218). Fig. 90. Perithecium, × 40. Fig. 91. Ascus with ascospores, × 430. Fig. 92. Ascospore, × 660. Fig. 93. Part of ascospore, × 920.

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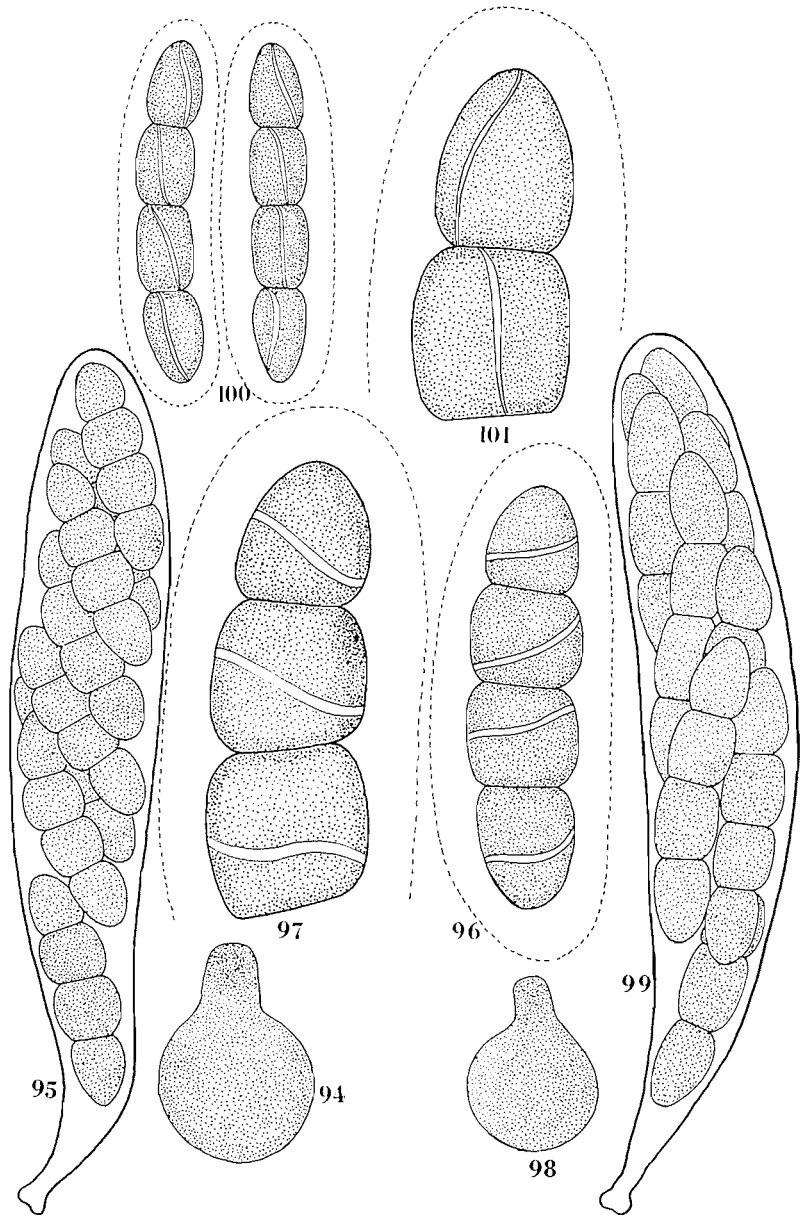
SPECIMENS EXAMINED: ARGENTINA: Tierra del Fuego, *Spegazzini*, LPS 3502. MEXICO: Durango, TRTC 38893, 39812. Hidalgo, TRTC 38873. Puebla, TRTC 39903. San Luis Potosi, TRTC 36548, 36965, 37491. UNITED STATES: Arkansas: Sebastian Co., TRTC 37579. Idaho: Fremont Co., TRTC 39860. Louisiana: Orleans Parish, TRTC 38125. Livingston Parish, TRTC 36705 (TYPE).



FIGS. 94–97. *Sporormiella euryspora* (TRTC 39010). Fig. 94. Perithecium, × 40. Fig. 95. Ascus with ascospores, × 430. Fig. 96. Ascospore, × 660. Fig. 97. Part of ascospore, × 920. FIGS. 98–101. *Sporormiella ovina* (Plantes Cryptogames par J. B. H. J. Desmazières 98 (NY)). Fig. 98. Perithecium, × 40. Fig. 99. Ascus with ascospores, × 430. Fig. 100. Ascospores, × 430. Fig. 101. Part of ascospore, × 920.

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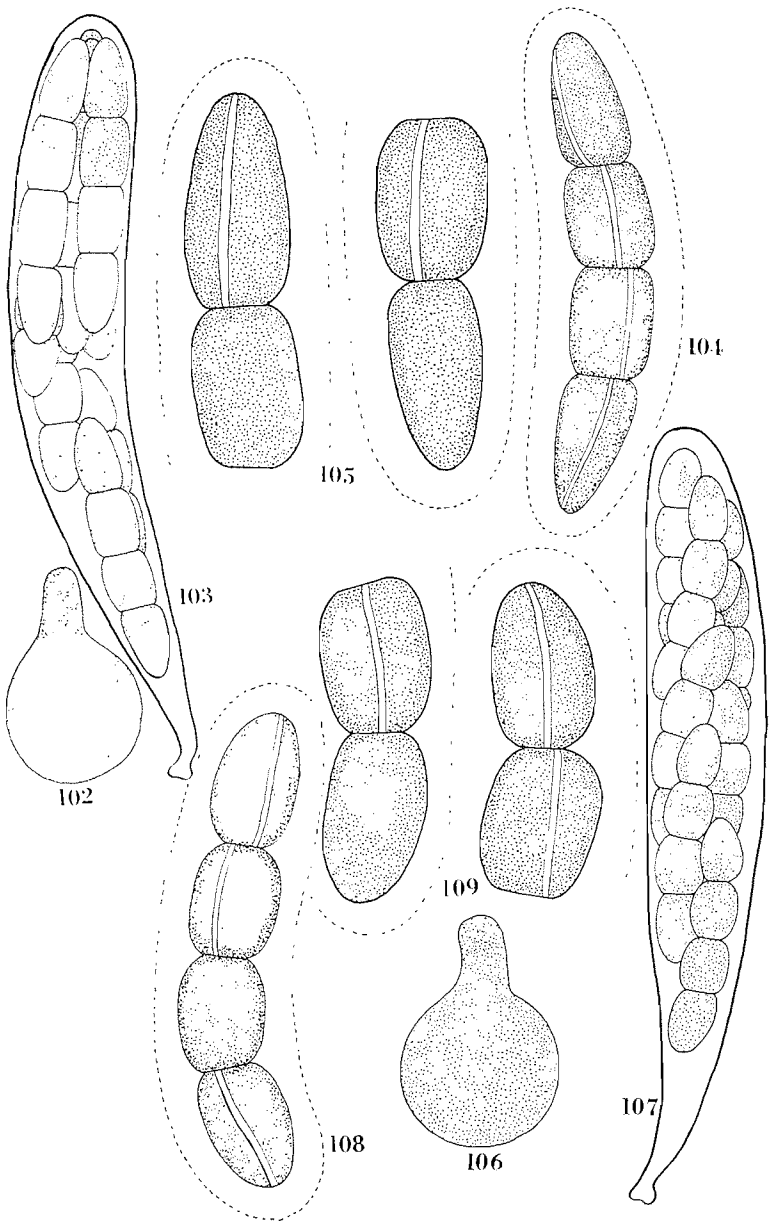
This species differs from *S. intermedia* in the larger dimensions of the asci and ascospores as well as the parallel germ slit. In some collections the germ slit is curved at each end.

The collections from Argentina labeled *Sporormia grandispora* Speg. by Spegazzini are different from the type of this species from Italy and belong to either *S. intermedia* or *S. teretispora*.



FIGS. 102–105. *Sporormiella longispora* (TRTC 5318). Fig. 102. Perithecium, × 40. Fig. 103. Ascus with ascospores, × 430. Fig. 104. Ascospore, × 660. Fig. 105. Parts of ascospore, × 920. FIGS. 106–109. *Sporormiella longisporopsis* (TRTC 38816). Fig. 106. Perithecium, × 40. Fig. 107. Ascus with ascospores, × 430. Fig. 108. Ascospore, × 660. Fig. 109. Parts of ascospore, × 920.

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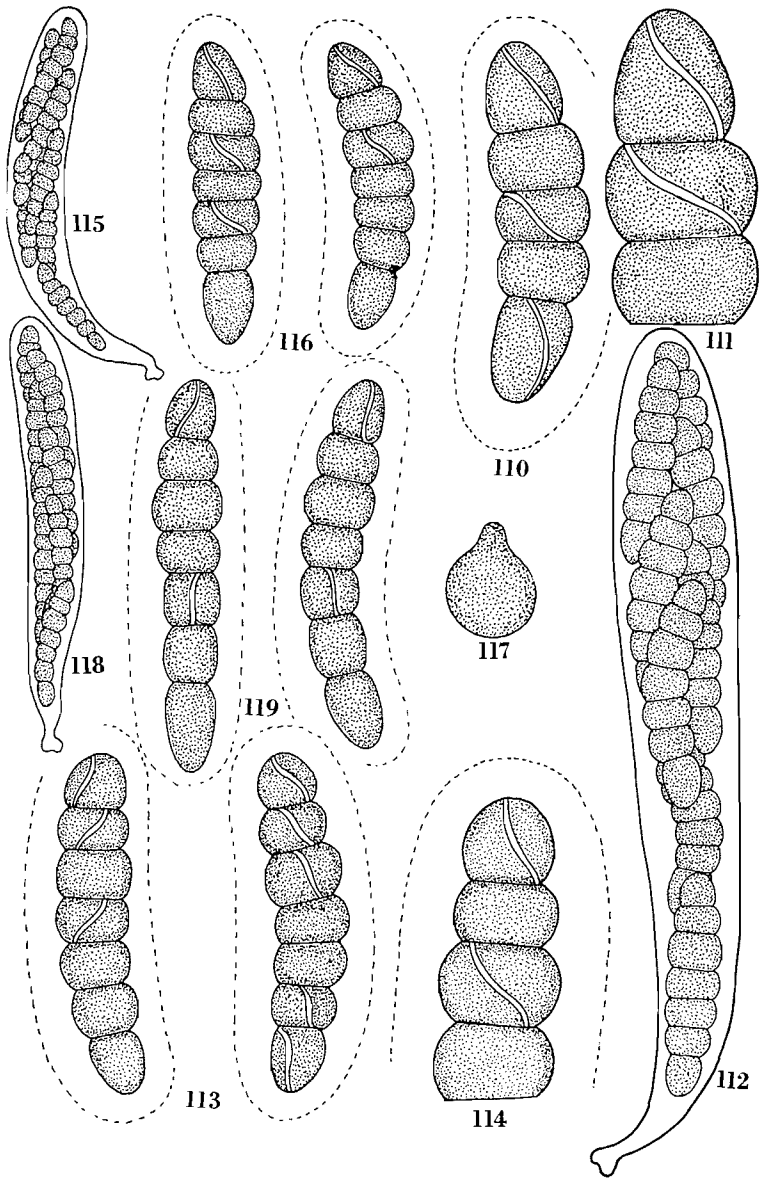
61. ***Sporormiella tetramera*** Ahmed & Cain, sp. nov. Figs. 75–77

Peritheciis sparsis, immersis usque semiimmersis, erumpentibus, subglobosis usque piriformibus, 200–300 × 180–200 μ, atro-brunneis usque plus minus nigris, denudatis; collo breve papilliformi, nigro, denudato. Peridio tenui membranaceo. Ascis octosporis, cylindraceo-clavatis, (110–)120–140(–150) × 13–16 μ, prope apicem latissimis, inferne attenuatis, breve stipitatis; stipite 8–15 μ longa. Paraphysibus filiformibus, septatis, ramosis, ascos superanti-



FIGS. 110, 111. *Sporormiella pentamera* (with *Sordaria maxima* Niessl, Rehm Ascomyceten 744 (FH)). Fig. 110. Ascospore, × 660. Fig. 111. Part of ascospore, × 920. FIGS. 112–114. *Sporormiella heptamera* (TRTC 36613). Fig. 112. Ascus with ascospores, × 430. Fig. 113. Ascospores, × 660. Fig. 114. Part of ascospore, × 920. FIGS. 115, 116. *Sporormiella vexans*. Fig. 115. Ascus with ascospores, × 430. Fig. 116. Ascospores, × 920. FIGS. 117–119. *Sporormiella septenaria* (TRTC 36550). Fig. 117. Perithecium, × 40. Fig. 118. Ascus with ascospores, × 430. Fig. 119. Ascospores, × 920.

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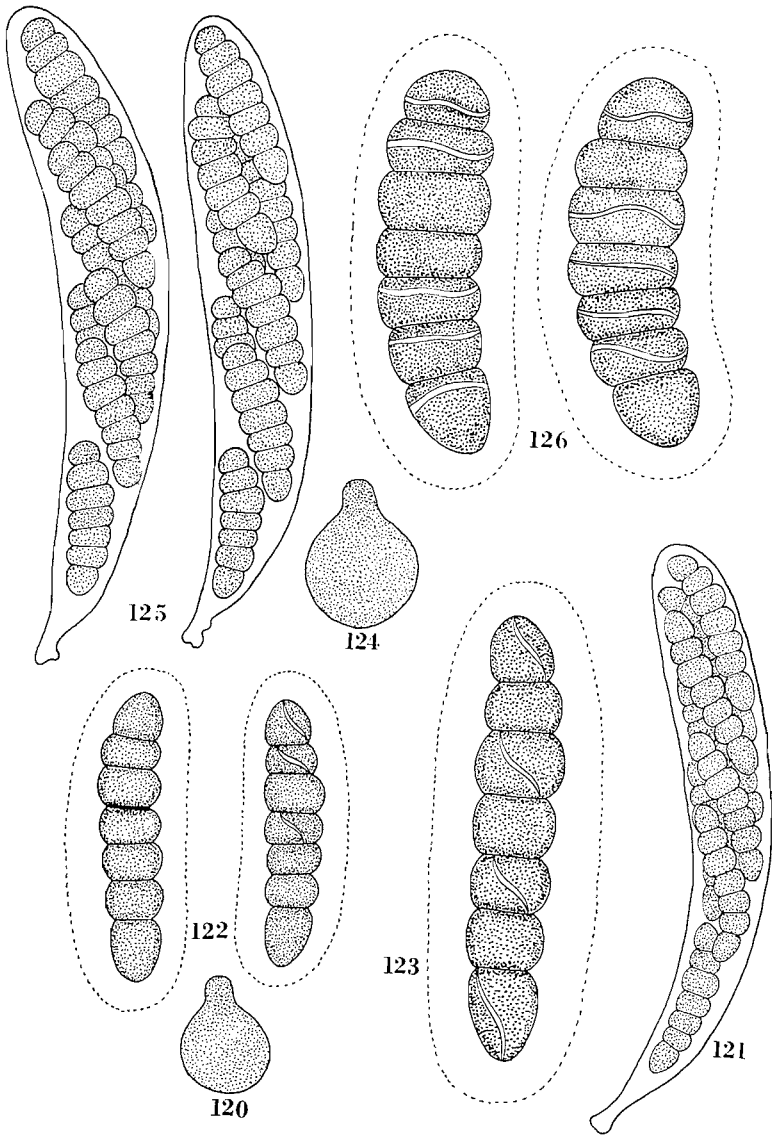
bus. Ascosporis supra 2- aut 3-stichis, infra 1- aut 2-stichis, 4-cellularibus, fusiformi-cylindraceis, 32–38(–40) × 6–8 μ, transverse septatis, constrictis mediocriter profunde, cohaerentibus; articulis non similibus; articulo superiore et terminali angustiore, 8.0–10.5 × 6.5–7.0 μ; articulo inferiore et terminali longiore, 9.0–15 × 6.0–7.5 μ; articulis superioribus mediis 5.5–7.0 × 7.0–8.0 μ; articulis inferioribus mediis 7.0–9.0 × 7.0–7.5 μ. Stria germinationis obliqua usque diagonali. Strato mucoso hyalino, mediocriter lato.

HOLOTYPUS: In fimo ovino, Mexico, San Luis Potosi, Cuidad del Maiz, 19 Aug. 1960, *Cain*, TRTC 37447. In Cryptogamic Herbarium, University of Toronto.



FIGS. 120–123. *Sporormiella americana* (TRTC 36223). Fig. 120. Perithecium, × 40. Fig. 121. Ascus with ascospores, × 430. Fig. 122. Ascospores, × 660. Fig. 123. Ascospore, × 920. FIGS. 124–126. *Sporormiella trogospora* (TRTC 39597). Fig. 124. Perithecium, × 40. Fig. 125. Asci with ascospores, × 430. Fig. 126. Ascospores, × 920.

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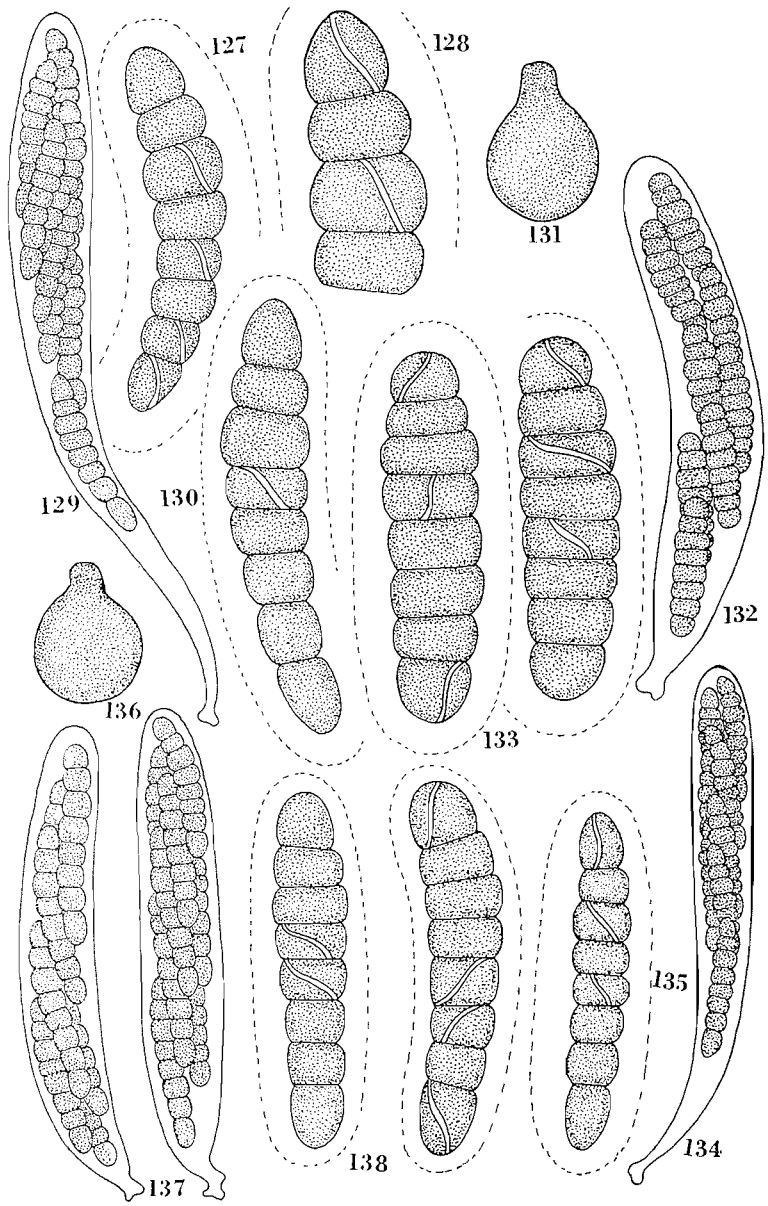
ETYMOLOGY: Greek, *tetra* = four, and *meros* = part, referring to the four-celled nature of the ascospores.

Perithecia scattered, immersed to semi-immersed, becoming nearly superficial when old, subglobose to pyriform, 200–300 × 180–200 μ,



FIGS. 127, 128. *Sporormiella affinis* (TRTC 5345). Fig. 127. Ascospore, × 660. Fig. 128. Part of ascospore, × 920. FIGS. 129, 130. *Sporormiella corynespora* (Rehm Ascomyceten 748, det. by Niessl (NY)). Fig. 129. Ascus with ascospores, × 430. Fig. 130. Ascospores, × 920. FIGS. 131–133. *Sporormiella octonalis* (TRTC 5354). Fig. 131. Perithecium, × 40. Fig. 132. Ascus with ascospores, × 430. Fig. 133. Ascospores, × 920. FIGS. 134, 135. *Sporormiella octomera* (TRTC 36352). Fig. 134. Ascus with ascospores, × 430. Fig. 135. Ascospore, × 920. FIGS. 136–138. *Sporormiella schadospora* (TRTC 45734). Fig. 136. Perithecium, × 40. Fig. 137. Asci with ascospores, × 430. Fig. 138. Ascospores, × 920.

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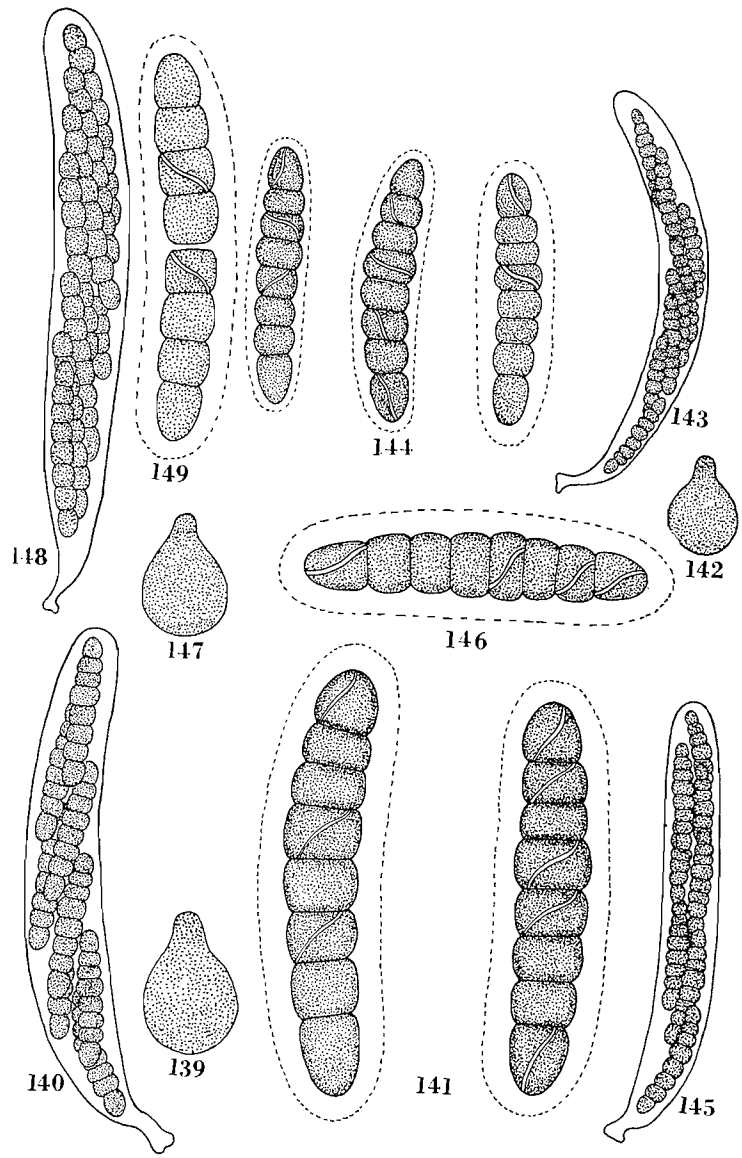
smooth, bare, dark brown to nearly black; neck small, papilliform, smooth, bare, black. Peridium thin, membranaceous. Asci eight-spored, cylindrical-clavate, (110–)120–140(–150) × 13–16 μ, broadest part near the upper end, gradually narrowing below into a short stipe, measuring 8.0–15 μ in length. Paraphyses filiform, septate, branched, longer than the asci and mixed with them. Ascospores bi- or tri-seriate above, uni- or bi-seriate below, four-celled, fusiform-cylindrical, 32–38(–40) × 6–8 μ, narrowly rounded at the ends, golden brown and translucent when



FIGS. 139–141. *Sporormiella ontariensis* (TRTC 5319). Fig. 139. Perithecium, × 40. Fig. 140. Ascus with ascospores, × 430. Fig. 141. Ascospores, × 920. FIGS. 142–144. *Sporormiella minipascua* (TRTC 5390). Fig. 142. Perithecium, × 40. Fig. 143. Ascus with ascospores, × 430. Fig. 144. Ascospores, × 920. FIGS. 145, 146. *Sporormiella pascua* (under Nassau's Flora; labeled *Sporormia fimetaria* De Not. (G)). Fig. 145. Ascus with ascospores, × 430. Fig. 146. Ascospore, × 920. FIGS. 147–149. *Sporormiella bipartis* (TRTC 35933). Fig. 147. Perithecium, × 40. Fig. 148. Ascus with ascospores, × 430. Fig. 149. Ascospore, × 920.

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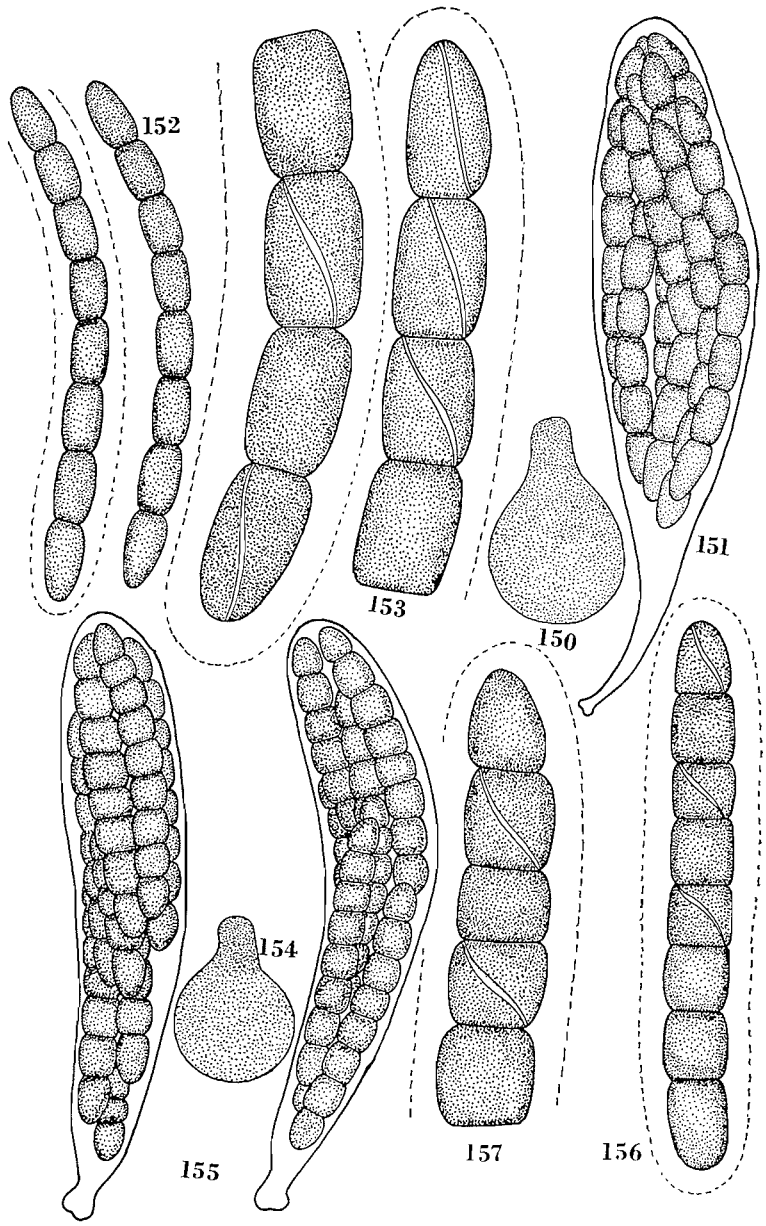
young, becoming dark brown and opaque when mature; septa transverse; constrictions at septa broad and moderately deep; segments not easily separable; cells unequal in size, apical cell prominently narrowed toward the end, measuring 8.0–10.5 × 6.5–7.0 μ, upper mid-cell measuring 5.5–7.0 × 7.0–8.0 μ, lower mid-cell, 7.0–9.0 × 7.0–7.5 μ, basal cell longer than the remaining cells, measuring 9.0–15 × 6.0–7.5 μ, less prominently narrowed than upper cell; germ slit oblique to diagonal; gelatinous sheath hyaline, moderately broad.



FIGS. 150–153. *Sporormiella splendens* (TRTC 35746). Fig. 150. Perithecium, × 40. Fig. 151. Ascus with ascospores, × 430. Fig. 152. Ascospores, × 430. Fig. 153. Parts of ascospore, × 920. FIGS. 154–157. *Sporormiella insignis* (with *Sporormia corynespora* Niessl, Rehm Ascomyceten 748 (NY)). Fig. 154. Perithecium, × 40. Fig. 155. Asci with ascospores, × 430. Fig. 156. Ascospore, × 430. Fig. 157. Part of ascospore, × 920.

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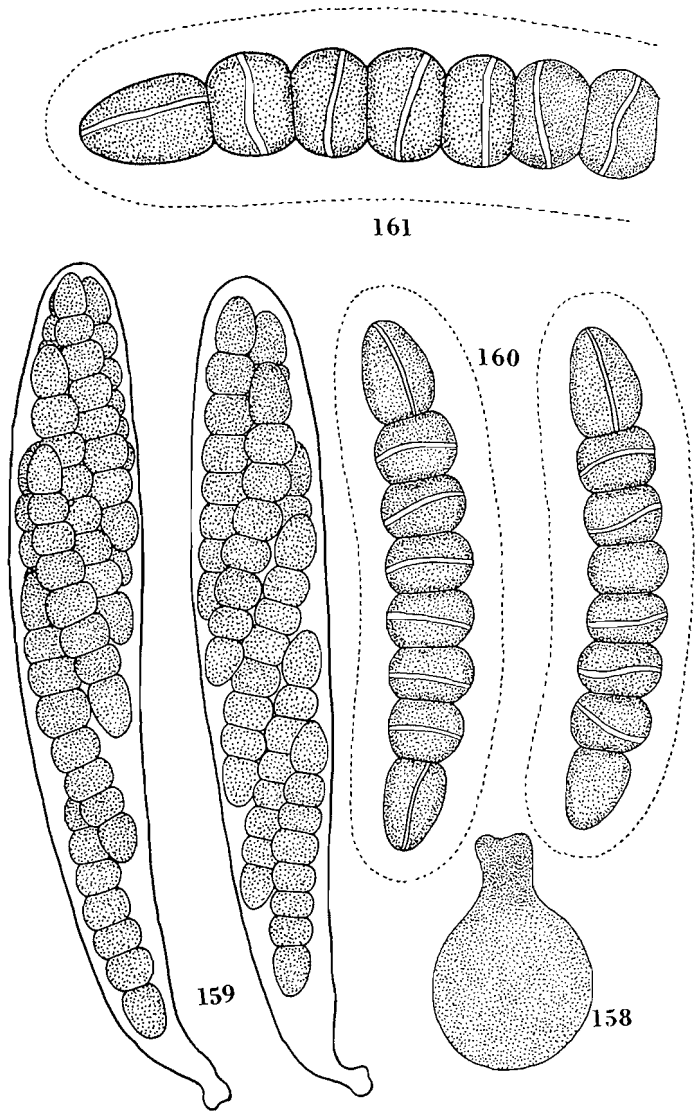
HABITAT: On dung of cow, goat, horse, moose, rabbit, and sheep.

SPECIMENS EXAMINED: MEXICO: Durango, TRTC 36595, 37043, 40646. Jalisco, TRTC 38886, 36906, 37440. Nuevo Leon, TRTC 39830. Oaxaca, TRTC 39841. San Luis Potosi, TRTC 37447 (TYPE). Tamaulipas, TRTC 36719, 39788. UNITED STATES: Colorado: Teller Co., TRTC 38047, 38099. Nevada: Elko Co., TRTC 39602, 39866. Wyoming: Big Horn Co., TRTC 29855, 39829.

This species resembles *S. capybarae* but has distinctly smaller asci and ascospores.

62. ***Sporormiella trogospora*** Ahmed & Cain, sp. nov. Figs. 124–126

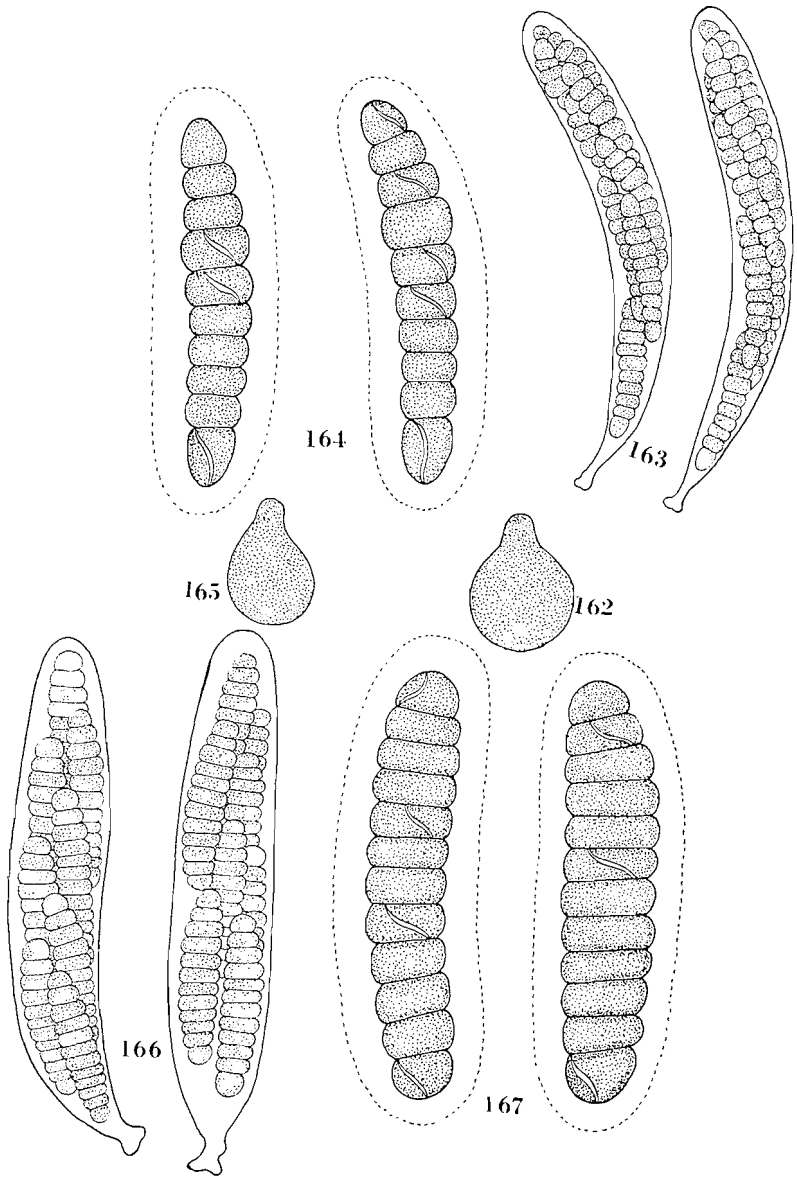
Peritheciis sparsis, immersis, subglobosis, 250–300 μ diam, nigris, denudatis; collo summa breve papilliformi, nigro, denudato. Peridio tenui membranaceo vel leniter coriaceo. Ascis octosporis, cylindraceo-clavatis, 170–210 × 32–38 μ, superne late rotundatis, superne mediam



FIGS. 158–161. *Sporormiella platymera* (TRTC 36568). Fig. 158. Perithecium, × 40. Fig. 159. Asci with ascospores, × 430. Fig. 160. Ascospores, × 660. Fig. 161. Part of ascospore, × 920.

partem latissimis, inferne attenuatis, breve stipitatis; stipite usque ad 15–20 μ longa. Paraphysibus filiformibus, septatis, ramosis, guttulatis, 3.0–3.5 μ crassis, ascos superantibus. Ascosporis supra 2- aut 3-seriatis, obliquis, infra 1-seriatis, 7-cellularibus, plus minus cylindraceo-clavatis, 50–60(–65) × 15–18 μ, demum atro-brunneis opacisque, transverse septatis, mediocriter constrictis, cohaerentibus, articulo tertio majoribus, 8–9 × 15–18 μ, articulo superne hemisphaerico, 7 × 12.5–13.5 μ, articulo inferne ovoideo-conico, 12.0–13.5 × 11.5–13.0 μ. Stria germinationis transversa usque leniter obliqua. Strato mucoso angusto.

HOLOTYPUS: In fimo *Alcis americanae*, Montana, Yellowstone Co., Yellowstone Natl. Park, 1 Sept. 1962, *Luck-Allen*, TRTC 39597. In Cryptogamic Herbarium, University of Toronto.



FIGS. 162–164. *Sporormiella decamera* (TRTC 39844). Fig. 162. Perithecium, × 40. Fig. 163. Asci with ascospores, × 430. Fig. 164. Ascospores, × 920. FIGS. 165–167. *Sporormiella dodecamera* (TRTC 39003). Fig. 165. Perithecium, × 40. Fig. 166. Asci with ascospores, × 430. Fig. 167. Ascospores, × 920.

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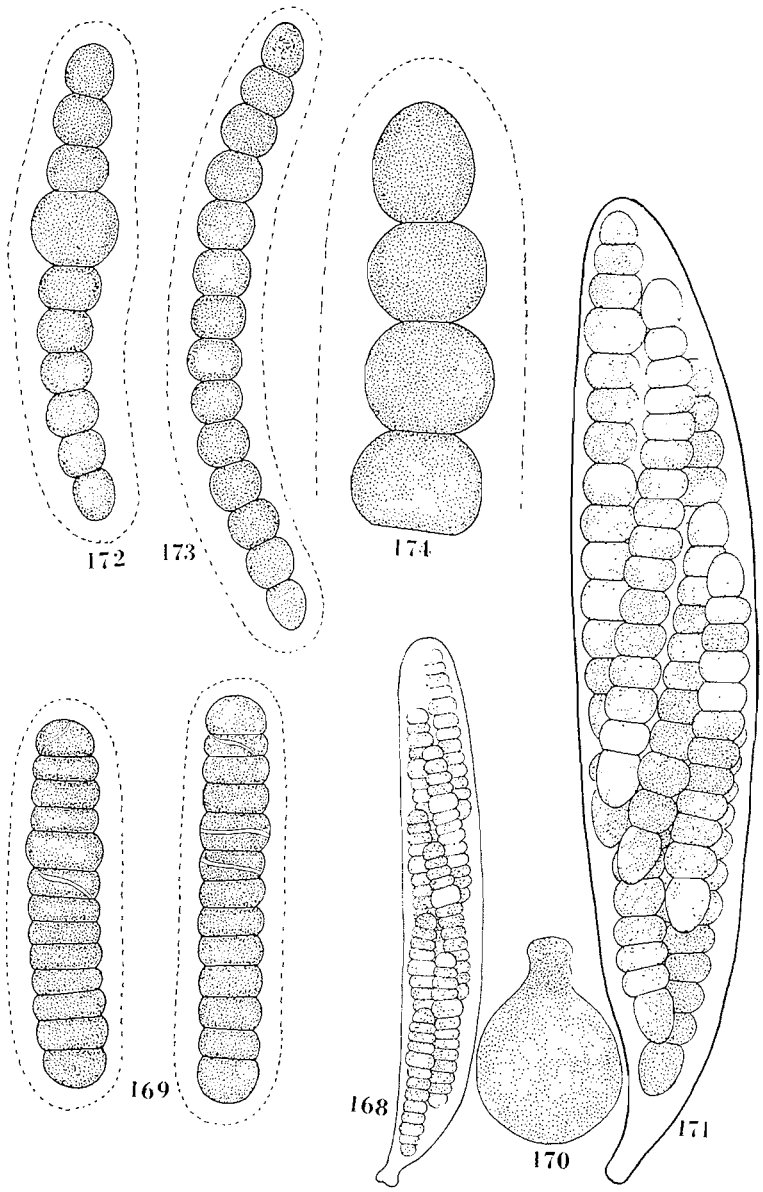
ETYMOLOGY: Greek, *trox* = larval stage (weevil), and *spora* = seed, referring to the larval shape of the ascospores.

Perithecia scattered, immersed, subglobose, 250–300 μ in diam, smooth, bare, black; neck very small, papilliform, smooth, bare, black. Peridium thin, membranaceous to slightly coriaceous. Asci eight-spored, cylindrical-clavate, 170–210 × 32–38 μ, broadly rounded above, broadest above the middle, narrowing below into a short, persistent stipe, measuring 15–20 μ in length. Paraphyses filiform, septate, branched, guttulate, longer than the asci and mixed with them, 3.0–3.5 μ in diameter. Ascospores ob-

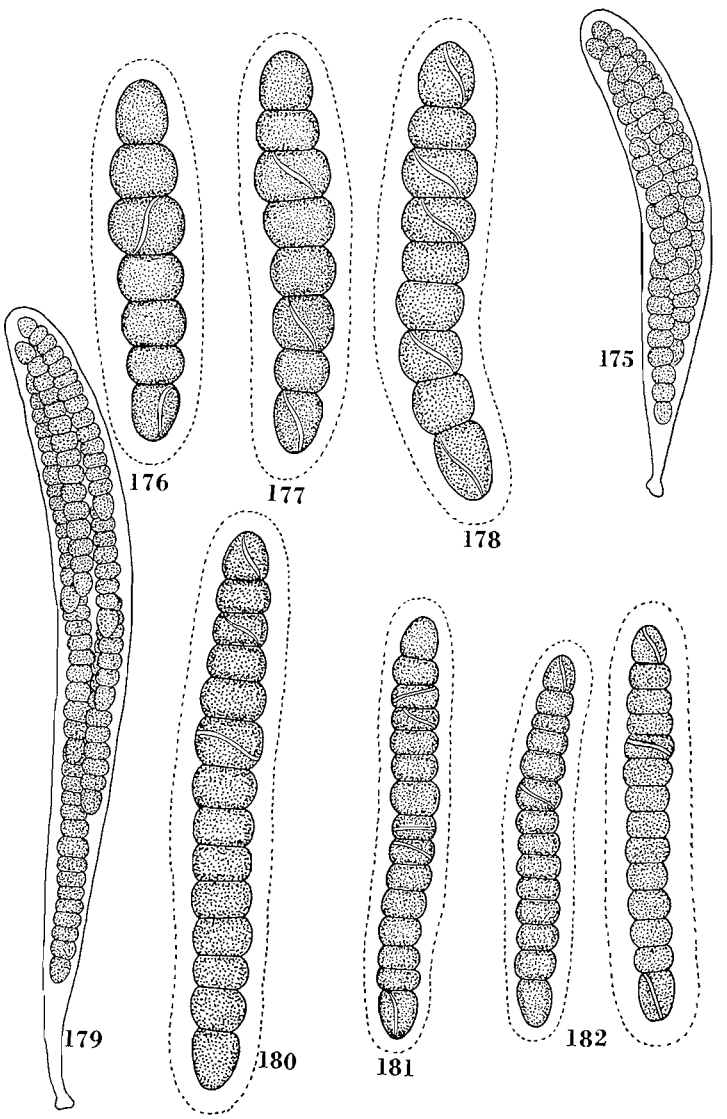


FIGS. 168, 169. *Sporormiella antarctica* (TRTC 5322). Fig. 168. Ascus with ascospores, × 430. Fig. 169. Ascospores, × 920. FIGS. 170–174. *Sporormiella herculea* (TRTC 36875). Fig. 170. Perithecium, × 40. Fig. 171. Ascus with ascospores, × 430. Fig. 172. Uppermost ascospore of the ascus with enlarged cell, × 430. Fig. 173. Ascospore without enlarged cell, × 430. Fig. 174. Part of the ascospore, × 920.

liquely bi- or tri-seriate above, uniseriate below, more or less cylindrical-clavate, seven-celled, 50–60(–65) × 15–18 μ, light brown when young, becoming dark brown and opaque when mature, septa transverse, constrictions at septa broad and moderately shallow, segments not easily separable; upper six cells broader than long, third cell from the upper end largest, 8–9 × 15–18 μ, apical cell hemispherical, about 7 × 12.5–13.5 μ, basal cell ovoid-conical, 12.0–13.5 × 11.5–13.0 μ; germ slit transverse to obliquely transverse, gelatinous sheath hyaline, narrow.

HABITAT: On dung of elk and rabbit.

SPECIMENS EXAMINED: EUROPE: With *Sordaria maxima* Niessl, *Rehm*, Ascomyceten 744 (G). UNITED STATES: Idaho: Fremont Co., TRTC



FIGS. 175–178. *Sporormiella commutata* (TRTC 35760). Fig. 175. Ascus with ascospores, × 430. Fig. 176. Seven-celled ascospore, × 920. Fig. 177. Eight-celled ascospores, × 920. Fig. 178. Nine-celled ascospores, × 920. FIGS. 179–182. *Sporormiella polymera* (TRTC 32264). Fig. 179. Ascus with ascospores, × 430. Fig. 180. Fourteen-celled ascospore, × 920. Fig. 181. Fifteen-celled ascospore, × 660. Fig. 182. Fourteen-celled ascospores, × 660.

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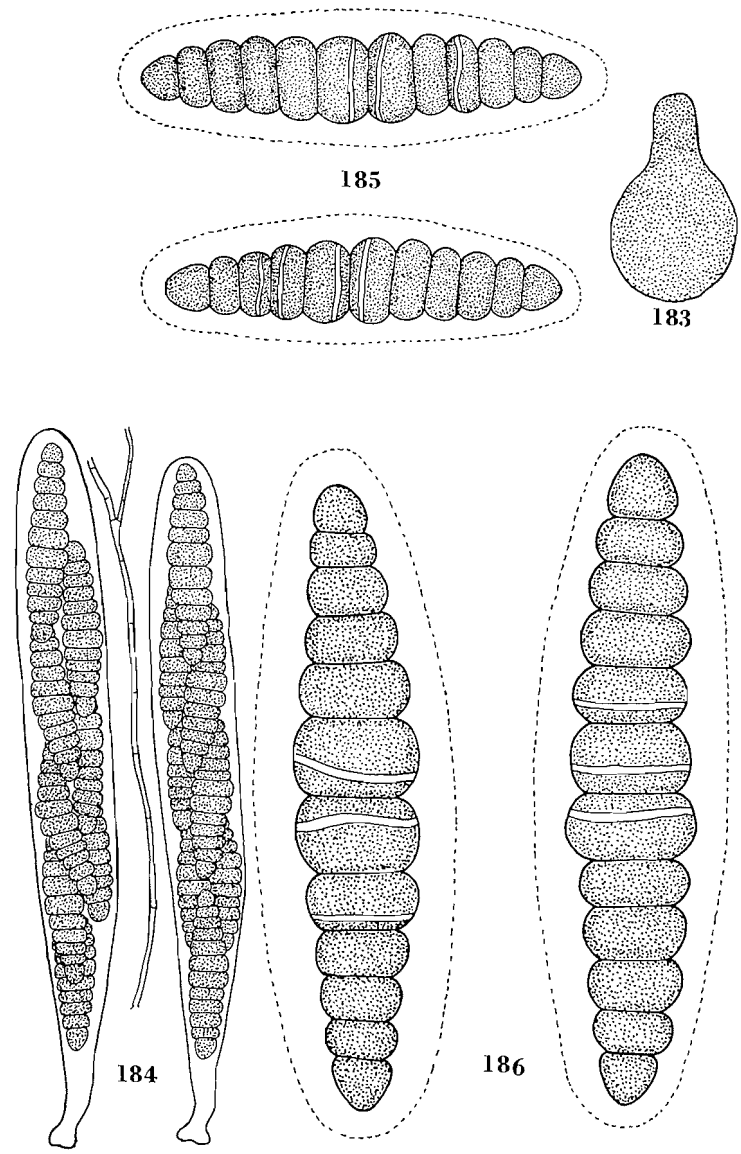
39772. Kansas: Rooks Co., TRTC 39372. Montana: Yellowstone Co., TRTC 39597 (TYPE).

This species can be distinguished from *S. heptamera* by the smaller dimensions of the perithecia, the shorter asci, and the shorter ascospores. In addition, the apical cell in *S. trogospora* is hemispherical and the germ slit transverse, whereas in *S. heptamera* the apical cell is ovoid-conical and the germ slit oblique to diagonal.

63. ***Sporormiella vexans*** (Auersw.) Ahmed & Cain, comb. nov. Figs. 115–116

≡*Sporormia vexans* Auersw. Hedwigia, 7: 137. 1868.

Perithecia scattered or loosely aggregated, immersed, pyriform, 250–325 × 200–250 μ, smooth, bare, light brown when young, becoming dark brown to black when mature; neck papilliform to short cylindrical, measuring up to 125 μ in length, smooth, bare, black. Peridium thin,



FIGS. 183–186. *Sporormiella calomera* (TRTC 36704). Fig. 183. Perithecium, × 40. Fig. 184. Asci with ascospores and paraphyses, × 430. Fig. 185. Ascospores, × 660. Fig. 186. Ascospores, × 920.

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membranaceous. Asci eight-spored, clavate, (125–)130–170 × 17–20 μ, broadly rounded above, gradually narrowing below into a short stipe, measuring up to 15 μ in length. Paraphyses filiform, septate, sparingly branched, longer than the asci and mixed with them, measuring 3.0–3.5 μ in diameter. Ascospores obliquely bi-seriate above, uniseriate below, seven-celled, fusiform-cylindrical, (38–)41–45(–50) × 7–9 μ, straight or curved, light brown when young, becoming dark brown and opaque when mature, septa transverse to slightly oblique, constrictions at septa deep, segments easily separable; third cell from the upper end larger, measuring 5.5–6.0 × 8.5–9.0 μ, terminal cells broadly conical, measuring 7–9 × 5–6 μ, remaining cells ellipsoid to oblong or rhomboidal, broader than long; germ slit strongly oblique to diagonal, occasionally almost transverse; gelatinous sheath hyaline, fairly broad.

HABITAT: On dung of deer, horse, moose, partridge, rodent, and wapiti.

TYPE: Europe.

SPECIMENS EXAMINED: CANADA: Alberta: TRTC 38964. British Columbia: TRTC 39207. Ontario: Algoma Dist., TRTC 37497, 36190, 36745, 37543. Kenora Dist., TRTC 35803, 35827, 35843, 35848, 35857, 35878. Muskoka Dist., TRTC 35795. Manitoulin Dist., TRTC 39716. Nipissing Dist., RFC 3620, 6316, 6321, TRTC 36614, 36669, 39326. Peel Co., TRTC 35718. Simcoe Co., TRTC 39178. Thunder Bay Dist., RFC 6318. Saskatchewan: TRTC 38972, 40136. EUROPE: As *Sporormia heptamera* Auersw., *Rehm*, Ascomyceten 2108 (NY). UNITED STATES: New York: Cattaraugus Co., TRTC 37367, 37371, 37376, 37581, 38903. Wyoming: Teton Co., TRTC 32013, 32035, 32316, 32346, 32352.

Species not Examined or Doubtful

COPROPHILOUS

Sporormia chrysospora Griff., Mem. Torrey Bot. Club, 11: 108. 1901.

On rabbit dung, Decorah, Iowa.

The type specimen of *S. chrysospora* was studied and compared with the type of *Sporormiella nigropurpurea*. These two species are similar in almost all characters except that in the former the ascospores are light yellow whereas in the latter they are dark brown. It is possible that in *S. chrysospora* the ascospores were not fully mature and hence light brown. This species is probably a synonym of *S. nigropurpurea*.

Sporormia elegans Zukal, Verh. Zool. Bot. Ges. Wien, 37: 40. 1887.

On horse dung decoction, Vienna, Austria, *Zukal*.

According to the description and illustrations this appears to be a species of *Preussia*.

Sporormia fuegiana Speg., Bol. Acad. Nac. Cienc. Cordoba, 11: 223. 1887.

On dung of *Auchenia*, Argentina, *Spegazzini*.

Sporormia globosa Bayer, Acta Soc. Sci. Nat. Moravicae, 1: 148. 1924.

On dung of goose (*Anser*), Czechoslovakia, *Bayer*.

Sporormia immersa Zukal, Verh. Zool. Bot. Ges. Wien, 35: 338. 1885.

On rabbit dung, Vienna, Austria, *Zukal*.

Ascospores 13- to 15-celled, 70–90 × 9–11 μ, fusiform, tapering toward each end.

Sporormia longipes Massee & Salmon, Ann. Bot. 15: 346. 1901.

On dung of various kinds, Kew, England.

Similar to *S. leporina* but the asci have a long stipe measuring 50–80 μ.

Sporormia marchaliana Mouton, Bull. Soc. R. Bot. Belg. 25: 155. 1886.

On rabbit dung, Belgium, near Heyst.

Ascospores 12- to 14-celled, 60–75 × 8–9 μ, fusiform-cylindrical, tapering from near the middle toward each end.

Sporormia notarisii Carestia, Rab. Fungi Eur. 976 *b*. 1866.

Specimens of this species from Europe (*Rehm*, Ascomyceten 1390-G, specimen No. 15, Mus. Bot. Stockholm) were examined and found to be similar to *Sporormia leporina* as annotated by Nils Lundqvist.

Sporormia octoloculata H. Fabre, Ann. Sci. Nat. Bot. Ser. 6, 15: 52. 1883.

On sheep dung, Vaucluse, France.

Asci 160–165 × 21 μ. Ascospores eight-celled, 45 × 7 μ.

Sporormia patagonica Speg., Bol. Acad. Nac. Cienc. Cordoba, 11: 49. 1887.

The packet of this species labeled "type" (Spegazzini 3553, LPS) has no material. The il-

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lustrations by Spegazzini on the empty packet show that the ascospores of this species possess shorter mid-cells, longer terminal cells, and pointed apical cells. The measurements of the ascospores given on the same packet are 35–39 × 6.0–6.5 μ. There seems to be information available to separate this species from *Sporormia leporina*. In the absence of type material it is left as a doubtful species.

Sporormia perplexans Nicot & Rouch, C.R. Acad. Sci., Paris, 262: 1694. 1966.

Culture from soil, France.

Perithecia without a distinct ostiole and generally without a neck. Asci cylindrical to subclavate, 150–175 × 30 μ, eight-spored, with short stipe, elongation of inner membrane not observed. Ascospores cylindrical, 75–80 × 10–12 μ, eight-celled. Cells (excepting terminal ones) isodiametric and nearly equal. No germ slit observed.

This appears to be a species of *Sporormiella* but fruiting abnormally in culture. This is a general tendency among the eight-celled species. There is little to distinguish this from *S. subticinensis*.

Sporormia promiscua Carestia in Rabenhorst, Fungi Eur. No. 1236. 1869.

On dung of *Tetrao tetrix*, Italy, *Carestia*.

Sporormia pulchra Hansen, Vidensk. Meddel. Kopenhagen, 1876: 53. 319. 1877.

On dung of cow and sheep, Denmark.

Perithecia pyriform, 320–420 μ in height. Asci cylindrical, eight-spored, abruptly contracted into a short stipe, 160 × 30–38 μ (spore bearing part). Ascospores eight-celled, nearly cylindrical or slightly fusiform, 47–57 × 12–14 μ. End cells shaped like a flattened sphere or slightly conical. Remaining cells barrel-shaped.

Sporormia reticosa Bayer, Acta Soc. Sci. Nat. Moravicae, 1: 146. 1924.

On dung of rabbit and horse, Czechoslovakia, *Bayer*.

Perithecia globose, 300–380 μ. Asci eight-spored, clavate, 45–50 × 18–20 μ (spore bearing part), with stipe measuring 20–30 μ in length. Ascospores four-celled, 23 × 6–7 μ. Mid-cells nearly globose, 5.5–6.5 μ diam. Terminal cells a little longer, 7–8 × 6 μ, oblique-ovoid with a truncated base and conical apex.

Sporormia spegazzinii Pirotta, Nuovo Giorn. Bot. Ital. 10: 147. 1878.

On sheep dung, Conegliano, Italy, *Spegazzini*. Also on horse and cow dung, Argentina, *Spegazzini*.

Perithecia subglobose, 300–400 μ diam. Asci cylindrical to slightly clavate, eight-spored, 210–230 × 45–50 μ. Ascospores four-celled, cylindrical, 95–100 × 22–25 μ. Cells nearly equal in size excepting the slightly conical end ones, separable.

Sporormia stercoris (Desm.) Pirotta, Nuovo Giorn. Bot. Ital. 10: 142. 1878.

On cow dung, France, *Desmazières*.

According to Bayer (1924) this is a synonym of *S. minima* Auersw.

Sporormia transvaalensis Doidge, Bothalia, 4: 210. 1941.

On cow dung, Transvaal, South Africa, *Doidge* 30235.

Ascospores cylindrical, four-celled, 40–50 × 6–7 μ, biseriate, deeply constricted, and easily separable.

Sporormia variabilis Winter, Hedwigia, 13: 50. 1874.

On rabbit dung, Thuringia, Germany, Aug. 1871, *Winter*.

Perithecia subglobose, glabrous, 500 × 420 μ. Asci broad, cylindrical, eight-spored, 280–290 × 31–40 μ, with a short stipe. Ascospores cylindrical, five-, six-, seven-, or eight-celled, 62–75 × 14–19 μ. Mid-cells variable in size, usually broader than long; end cells longer, ovate.

Species not Examined

NON-COPROPHILOUS

Sporormia aemulans (Rehm) v. Arx, in von Arx & Storm, Persoonia, 4: 410. 1967.

Similar to *Sporormiella leporina* (Niessl) Ahmed & Cain.

Sporormia aenulans var. *ostiolata* v. Arx in von Arx & Storm, Persoonia, 4: 410. 1967.

We have been unable to distinguish this from *Sporormiella leporina*.

Sporormia articulata Viegas, Bragantia, 3: 155. 1943.

On man, Brazil.

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Sporormia brassicae Grove, J. Bot. 24: 132. 1886.
On decaying stalks of *Brassica oleracea*, England.

Sporormia cannabina Karsten, Hedwigia, 28: 367. 1889.
On pieces of *Cannabis*, Finland, *O. Karsten.*

Sporormia carpinea Fautrey, Rev. Mycol. 16: 162. 1894.
On wood of *Carpinus.*

Sporormia dilabens Karsten, Hedwigia, 28: 366. 1889.
On pieces of *Cannabis*, Finland, *O. Karsten.*

Sporormia disjuncta (Ahmad) Petrak, Sydowia, 9: 489. 1955.
=*Lasiosphaeria disjuncta* Ahmad, Sydowia, 7: 267. 1953.
On dead wood, India.

Sporormia gigaspora Fuckel, Symbol. Mycol. Nacht. 1. Jahrb. Nassau. Ver. Naturk. 25–26. 325. 1871.
On decayed wood in ammonical liquid, Germany.

Sporormia indica Mathur & Thirum., Sydowia, 16: 50. (1962) 1963. Isolated from soil, India.
From the description and illustrations this species clearly belongs in the genus *Preussia.*

Sporormia leguminosa Fairman, Proc. Rochester Acad. Sci. 4: 216. 1906.
On wood of *Robinia pseudo-acacia*, Lyndonville, New York.

Sporormia leptosphaerioides Speg., Michelia, 1: 459. 1879.
On dung, Italy, Belgium, Germany, and Brazil. Reported by Fairman on nuts of hickory and black walnut from Lyndonville, New York; in Proc. Rochester Acad. Sci. 6: 103. 1912.

Sporormia lignicola Phill. & Plow., Grevillea, 6: 29. 1877.
On decayed wood of *Fraxinus*, King's Lynn, England.

Sporormiella macrospora Nannizi, Atti R. Accad. Fisiocritici Siena Ser. 10, 4: 96. 1929.
Culture from granuloma on conjunctiva of human eye from patient in Florence, Italy.

Sporormia ourasca Fairman, Proc. Rochester Acad. Sci. 6: 128. 1922.
On pine plank, Lyndonville, New York.

Sporormia roumegueri Zimm. in Roum. Rev. Mycol. 1879: 58.
On woven thread, Toulouse, France, *Roumeguere.*
According to Bayer (1924) this is a synonym of *S. minima* Auersw.

Sporormia subticinensis Mouton, Bull. Soc. R. Bot. Belg. 36: 14. 1897.
On wood impregnated with dung. Reported by von Arx and Storm (1967) in culture from soil.
Perithecia globose, glabrous, 150–440 × 230–350 μ, with a short neck. Asci eight-spored, cylindrical-clavate, 140–190 × 19–22 μ, with a short stipe. Ascospores cylindrical, eight-celled, 62–75 × 9–12 μ. Cells nearly uniform, almost isodiametric, separable. *S. perplexans* Nicot & Rouch is probably a synonym.

Sporormia ticinensis Pirotta, Nuovo Giorn. Bot. Ital. 10: 157. 1878.
On decayed wood of *Populus*, Pavia, Italy, *Pirotta.*
Perithecia hemispherical-conical. Asci cylindrical-clavate, eight-spored, 108–120 × 20 μ (spore bearing part), with short stipe. Ascospores cylindrical, eight-celled, 40–44 × 8 μ. Cells uniform, globose-cuboid except terminal ones which are longer and narrowed toward ends.

Sporormia ulmicola Passerini in Winter, Hedwigia, 13: 52. 1874.
On decayed wood of *Ulmus*, Parma, Italy, *Passerini.*
Perithecia subglobose, 500–700 μ diam. Asci cylindrical, 190 × 21 μ, three- to eight-spored. Ascospores three- or four-celled, uniseriate, 38 × 8 μ.

Excluded Species

Sporormia fasciculata Jensen, Bull. Cornell Univ. Agric. Exp. Stn. 315: 473. 1912.
Culture from soil, Ithaca, New York, *Jensen.*
This is a synonym of *Preussia fleischhakii* (Auersw.) Cain.

Sporormia montana Peyronel, Mem. Accad. Sci. Torino, Ser. 2, 66: 21. 1916.
This is a synonym of *Preussia fleischhakii.*

Sporormia petasoniformis C. Moreau, Encycl. Mycol. 25: 285. 1953.
Without Latin diagnosis.
This is a synonym of *Preussia fleischhakii*.

Sporormia pollaccii Elisei, Atti Ist. Bot. Univ. Lab. Crittogam. Pavia, Ser. 4, 11: 267. 1939.
This is a synonym of *Preussia fleischhakii*.

Acknowledgments

We express our thanks to Dr. E. R. Luck-Allen for her assistance in the examination of material and in the preparation of the manuscript. We also thank the Curators of the following herbaria for the loan of specimens: Instituto de Botanica C. Spegazzini (LPS), Conservatoire et Jardin botaniques (G), Farlow Herbarium (FH), New York Botanical Gardens (NY), and Royal Botanic Gardens (K).

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SPEGAZZINI, C. 1887. Fungi fuegiana. Bol. Acad. Nac. Cienc. Cordoba, **11**: 189–192; 215; 222–224.

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