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Contributiones ad studia monographica Geoglossacearum. II.[1]

auctore

Sanshi IMAI[2]

I. The genus Pachycudonia.

In 1936, the writer established a new section, Pachycudonia, in the genus *Cudonia*, of which the character was briefly described "Pileus convexo-hemiglobosus vel depresso-convexus, crassus", basing on *Cudonia constrictospora*. After that time, however, the writer had the opportunity to examine two North American specimens belonging to the genus *Cudonia*, through the kindness of the staff of the Herbarium of the University of California, and came to the conclusion that the Pachycudonia must be treated as a valid genus. The writer reported it at the 15th general meeting of the Botanical Society of Japan held on 3-5th of September in 1950.

The present genus is mainly distinguished from the genus *Cudonia* by the long tailed asci, the spores which being constricted at the middle portion but not perfectly acicular, and the circinate paraphyses at the apices.

Pachycudonia IMAI

Cudonia sect. *Pachycudonia* IMAI, Bot. Mag. Tokyo, 50: 673. 1936; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 255. 1941.

Pachycudonia IMAI, Bot. Mag. Tokyo, 63: 235. 1950.

Ascoma pileatum vel raro spathulatum, stipitatum, rectum, carnosum, terrestris. Pileus convexo-peltatus vel raro spathulatus, varie sulcato-plicatus, supra ascigerens, margine liber et involutus. Asci clavati, basi admodum longe attenuati, inoperculati, octospori. Sporae leviter clavato-filiformes, non vere aciculares, sed medio constrictae, hyalinae, multiseriatae vel fasciculatae. Paraphyses filiformes, apicibus circinatae vel curvatae.

Typus: *Cudonia constrictospora* S. ITO et IMAI.

Key to the species of *Pachycudonia*.

I. Pileus always convex-peltate, non spathulate.

1) The first report was published in the Botanical Magazine, Tokyo, Vol. 56: 523-529, 1942.

2) The writer wishes to express his indebtedness to the Ministry of Education for the grant of funds for carrying out the study.

1. Spores 20–27.5×2μ, conspicuously constricted at the middle. Japanese species. ..... *P. constrictospora.*
2. Spores 18–22.5×2μ, not or slightly constricted. North American species. ..... *C. monticola.*

II. Pileus usually spathulate, rarely convex-peltate. Spores 17.5–24×2μ, slightly constricted at the middle. North American species..... ..... *P. spathulata.*

As to the distribution of the species, the present genus has been restricted within narrow limited areas confined to Japan and Pacific coast of North America. The fact is an interesting and noteworthy one for the distribution of the fungus and represents a rather juvenile generic condition in view of evolution of the genus.

1. **Pachycudonia constrictospora** (S. Ito et Imai) Imai

Cudonia convoluta [non in Geogloss. (mai.)] Lloyd. Myc. Writ. **5**: Letter No. **63**: 15. 1916.

Cudonia constrictospora S. Ito et Imai, in Imai, Trans. Sapporo Nat. Hist. Soc. **13**: 183. *pl. 7. f. 28-31.* 1934; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, **45**: 255. *f. 6. pl. 10. f. 20.* 1941.

Pachycudonia constrictospora Imai, Bot. Mag. Tokyo, 63: 235. 1950.

Hab. ad terram in silvis, autumno.
Typus: in Imai Herb., atque in Imai Herb. Univ. Hokkaido.
Loc. typ.: Nopporo, Prov. Ishikai, Hokkaido, Japonia.
Area distr.: Endemica.

2. **Pachycudonia spathulata** (Imai) Imai

Cudonia spathulata Imai, Bot. Mag. Tokyo, **56**: 524. *f. 2-3.* 1942.
Pachycudonia spathulata Imai, Bot. Mag. Tokyo, **63**: 235. 1950.

Hab. ad terram.
Typus: in Herb. Univ. California., Amer. bor. (No. 439652).
Loc. typ.: Big Basin, California, Amer. bor.
Area distr.: Endemica.

3. **Pachycudonia monticola** (Mains) Imai

Cudonia monticola Mains, Am. Jour. Bot. **27**: 322. *f. 1.* 1940.
Pachycudonia monticola Imai, Bot. Mag. Tokyo, **63**: 235. 1950.

Hab. ad folia delapsa acuae coniferis, vere—aestate.
Typus: in Herb. Univ. Michigan., Amer. bor.
Loc. typ.: Lake Crescent, Washington, Amer. bor.
Area distr.: Endemica.

No spores have been illustrated by the auther of the species and any specimen of this fungus has not yet been examined by the writer. Therefore, there is some hesitation felt about this combination. However, MAINS described the microscopic features of *C. monticola* "asci clavate, 90–100×8–10μ, attenuated below, the spores in the upper half or third; ascospores acicular, 20–24 (28)× 2μ, hyaline; paraphyses filiform, hyaline, curved at the apices." The microscopic features are closely allied to those of the new genus, except for non-constriction of the spores.

The writer examined the specimens which were numbered 521118 and labelled as *Cudonia ochroleuca* in the Herbarium of the University of California. The specimens were not identical with *C. ochroleuca* but rather allied to *C. monticola*. The macroscopic features were very like with those of *Cudonia monticola* and the microscopic features were as follows: Asci long clavate, attenuated downwards as a very long tail, narrow at the apex. Spores subcylindrical with an attenuate end or acicular, sometimes narrow at both ends, hardly or slightly constricted at the middle or not constricted, many guttulate, 18–22.5×2μ. Paraphyses filiform, hyaline, branched, usually clavate or capitate at the apices or rarely not thickened, curved or circinate.

The writer identified the present specimens with *C. monticola*, and transferred the species to *Pachycudonia*, lying stress on the allied character of the ascus.

II. The genus Microglossum.

In 1941, the writer discussed the genus *Microglossum* and proposed a genus comprehensive enough to include three sections, Eumicroglossum, Ochroglossum and Melanoglossum. However, it proved too extensive in its scope to explain fully the relation of development, phylogeny and distribution of the genera of this family. Looking over these relations and their morphological characters, these three sections seem to be more adequately treated as genera distinct from one another.

Key to the genera.

1. Ascophores usually olivaceous or green when matured; spores usually shorter than 40μ in length; paraphyses usually straight or slightly curved at the apices. ..... *Microglossum.*
2. Ascophores usually yellow, brown or cinnamon-brown when matured; spores usually longer than 40μ in length; paraphyses usually strongly curved or circinate at the apices. ..... *Ochroglossum.*
3. Ascophores usually purplish-black, brownish-black or dark-bay in color; spores shorter that 50μ in length; paraphyses curved or circinate at the apices. ..... *Corynetes.*

1. **Microglossum** GILL. sens. str.

Geoglossum auct. p. p.

Mitrula (non FR.) KARST. Myc. Fenn. 1: 6. 1871. p. p.; SACC. Syll. Fung. 8: 32. 1889. p. p.; MASS. Brit. Fung. Fl. 4: 480. 1895. p. p.; Ann. Bot. 11: 263. 1897. p. p.

Geoglossum § *Leptoglossum* CKE. Mycogr. 1: 250. 1879.

Microglossum GILL. Disc. Fr. 25. 1879; SACC. Syll. Fung. 8: 39. 1889. p. p.; SCHROET. Pilze Schles. 2: 18. 1893.

Helote HAZSL. Mag. Tud. Akad. Ert. A Termés.-tud. Kör. 11: - 8. 1881 (sec. DURAND); Bot. Centralbl. 10: 14. 1882.

Leptoglossum PHILL. Brit. Disc. 31. 1887.

Typus: *Geoglossum viride* PERS. ex FR.

As far as the writer is aware, the present limited genus comprises four species, viz. *M. viride*, *M. Rickii*, *M. olivaceum* and *M. nudipes*. The last species is rather allied to *M. olivaceum* except the larger size of asci and spores.

Key to the species of *Microglossum*.

I. Stipe squamulose.
  1. Ascigerous portion darker in color than the stipe; spores 14–22 (–37) × 5–6μ. ..... *M. viride*.
  2. Ascigerous portion paller in color than the stipe; spores 10–14 × 4–5μ. ..... *M. Rickii*.

II. Stipe smooth and glabrous.
  1. Spores 11–18 (–20) × 4–6μ. ..... *M. olivaceum*.
  2. Spores 15–30 × 4.5–7μ. ..... *M. nudipes*.

Relating to the distribution of the fungi, *M. viride* and *M. olivaceum* are common in Europe, eastern North America and eastern Asia, while *M. Rickii* is endemic in Brazil and *M. nudipes* in France and Switzerland.

(1) **Microglossum viride** ([SCHRAD.] PERS. ex FR.) GILL.

Clavaria viridis SCHRAD. apud GMEL. in L. Syst. Nat. 2: 1443. 1791.

Geoglossum viride PERS. in ROEMER N. Mag. Bot. 1: 117. 1794 (sec. DURAND); Syn. Fung. 610. 1801.

Geoglossum viride FR. Syst. Myc. 1: 489. 1821; CKE. Mycogr. 1: 9. *pl. 4. f. 14.* 1875.

Leotia geoglossoides CORDA, Icon. Fung. 3: 37. *pl. 6. f. 94.* 1839.

Leotia viridis FUCK. Symb. Myc. 284. 1869.

Mitrula viridis KARST. Myc. Fenn. 1: 29. 1871; SACC. Syll. Fung. 8: 38. 1889; MASS. Brit. Fung. Fl. 4: 482. 1895.

Microglossum viride GILL. Disc. Fr. 25. cum fig. 1979; SCHROET. Pilze Schles. 2: 18. 1893; REHM, Pilze Deut., Hyst. Disc. 1151. cum fig. 1896; DURAND, Ann. Myc. 6: 411. *pl. 5. f. 23–26. pl. 20. f. 208.* 1908; LUIJK, Kruidk. Arch. Jaarg. 1918: 123. *f. 3.* 1919; IMAI, Bot. Mag. Tokyo, 52: 418. 1938; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 181. *pl. 7. f. 1–4.* 1941.

Helote viridis HAZSL. Mag. Tud. Akad. Ert. A Termés.-tud. Kör. 11: - 8. 1881 (sec. DURAND); in JUST Bot. Jahresb. 10: 168. 1884.

Leptoglossum viride PHILL. Brit. Disc. 32. *pl. 2. f. 8.* 1887.
Microglossum lutescens BOUD. Bull. Soc. Myc. Fr. **12**: 14. *pl. 4. f. 1.* 1896; SACC. Syll. Fung. **14**: 742. 1899.
Mitrula serpentina MASS. Ann. Bot. **11**: 268. *pl. 13. f. 68.* 1897.
Mitrula lutescens MASS. Ibid. **11**: 271. *pl. 13. f. 77.* 1897.
Leptoglossum alabamense UNDERW. Bull. Torrey Club, **24**: 82. 1897.

Hab. ad terram in silvis pinguibus et udis, aestate—autumno.
Typus: in Persoon Herb. Rijks Herb., Leiden.
Loc. typ.: Ignotum.
Area distr.: Europa, America bor., Asia orient. et Himaraya.

(2) **Microglossum Rickii** IMAI

Geoglossum viride (non PERS.) RICK, Broteria, ser. Bot. **25**: 73. 1931.
Microglossum Ricki IMAI, Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, **45**: 183. 1941. *nom. nud.*
Microglossum Rickii IMAI, Bot. Mag. Tokyo, **56**: 523. *f. 1.* 1942.

Hab. in graminosis inter arbusta.
Typus: in Imai Herb.
Loc. typ.: Novo Petropolis, Brasilia.
Area distr.: Endemicum.

(3) **Microglossum olivaceum** (PERS. ex FR.) GILL.

Geoglossum olivaceum PERS. Obs. Myc. **1**: 40. *pl. 5. f. 7.* 1796; Syn. Fung. 610. 1801.
Geoglossum olivaceum FR. Syst. Myc. **1**: 489. 1821; CKE. Mycogr. **1**: 9. *pl. 4. f. 13.* (p. p.) 1875.
Geoglossum olivaceum b. Dingy-purple BERK. Outl. Brit. Fung. 361. *pl. 22. f. 3.* 1860.
Geoglossum olivaceum var. *purpureum* CKE. Handb. Brit. Fung. 663. 1871; Mycogr. **1**: 9. *pl. 4. f. 13.* (p. p.). 1875.
Microglossum olivaceum GILL. Disc. Fr. 26. 1879; REHM, Pilze Deut., Hyst. Disc. 1153. 1896; DURAND, Ann. Myc. **6**: 409. *pl. 5. f. 19–22. pl. 20. f. 209.* 1908; IMAI, Bot. Mag. Tokyo, **52**: 419. 1938; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, **45**: 184. *pl. 7. f. 5–7,* 1941.
Leptoglossum olivaceum PHILL. Brit. Disc. 33. 1887.
Leptoglossum olivaceum var. *purpureum* PHILL. Ibid. 33. 1887.
Mitrula olivacea SACC. Syll. Fung. **8**: 38. 1889; MASS. Brit. Fung. Fl. **4**: 483. 1895; Ann. Bot. **11**: 270. 1897.
Microglossum contortum PECK, Bull. Torrey Club, **25**: 328. 1898; SACC. Syll. Fung. **16**: 698. 1902.
Microglossum obscurum PECK, Ibid. **26**: 71. 1899; SACC. Ibid. **16**: 698. 1902.
Microglossum fusco-rubens BOUD. Hist. Class. Disc. Eur. 87. 1907; SACC. Ibid. **22**: 602. 1913.

Hab. ad terram udam in silvis, aestate—autumno.
Typus:
Loc. typ.: Ignotum.
Area distr.: Europa, America bor., Asia orient.

(4) **Microglossum nudipes** BOUD.

Microglossum nudipes BOUD. Bull. Soc. Myc. Fr. **33**: 16. *pl. 4. f. 1.* 1917; SACC. Syll. Fung. **24**: 1156. 1928.

Hab. ad terram.
Typus:
Loc. typ.: Ham, Gallia.
Area distr.: Europa (Gallia, Helvetia).

2. **Ochroglossum** IMAI, gen. nov.

Microglossum sect. *Ochroglossum* IMAI, Bot. Mag. Tokyo, **52**: 421. 1938; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, **45**: 186. 1941.

Ascoma carnosum, rectum, stipitatum, clavatum, vulgo flavum, fulvum, cinnamomeo-brunneum. Asci clavato-cylindracei vel subcylindracei, inoperculati, vulgo octospori raro tetraspori; sporae vulgo distichae, hyalinae, leves, longe fusiformes, longe ellipsoideae, subcylindraceae·vel cylindraceae, multicellulatae; paraphyses praesentes, filiformes, apicibus valde curvatae vel circinatae.

Typus: *Geoglossum rufum* SCHW.

As far as the writer is aware, the present genus is composed of five species, viz. *O. rufum*, *O. fumosum*, *O. capitatum*, *O. tetrasporum* and *O. longisporum*. The last species is rather far different from the other species of genus, and may represent a different group.

The distribution of species of this genus is confined to Asia and North America, especially to eastern Asia and eastern North America, but not distributed in Europe. This phenomenon of distribution of the fungus is a noteworthy fact of profound interest, and represents a rather juvenile condition of the genus in view of evolution.

Key to the species of *Ochroglossum*.

I. Spores uniform.
  1. Ascus usually eight spored.
    a. Ascophores bright yellow; stipe squamulose. ..... *O. rufum.*
    b. Ascophores tawny or yellowish-clay in color; stipe slightly squamulose or subglabrous. ..... *O. fumosum.*
  2. Ascus usually four spored.
    a. Ascophores smoky yellow; stipe glabrous; spores 69–87×4–5μ. ..... *O. capitatum.*
    b. Ascophores dark beaver; spores 49–72×4.3–5.7μ. ..... *O. tetrasporum.*

II. Spores dimorphous: the larger 40–100μ long, the shorter 7–18μ long; ascophores cinnamon-brown. ..... *O. longisporum.*

(1) **Ochroglossum rufum** (SCHW.) IMAI, comb. nov.

Geoglossum rufum SCHW. Trans. Amer. Phil. Soc. 4: 181. 1834; CKE. Mycogr. 1: 205. *pl. 96. f. 346.* 1879.

Mitrula lutea MONT. Ann. Sci. Nat., Bot. IV. 3: 91. 1855; CKE. Mycogr. 1: 103. *pl. 46. f. 179.* 1876; SACC. Syll. Fung. 8: 37. 1889.

Geoglossum luteum PECK, N. Y. State Mus. Rep't. 24: 94. *pl. 3. f. 20-24.* 1872; CKE. Mycogr. 1: 8. *pl. 3. f. 12.* 1875.

Mitrula lutescens BERK. in CKE. Hedwigia, 14: 9. 1875; CKE. Mycogr. 1: 102. *pl. 45. f. 178.* 1876; SACC. Syll. Fung. 8: 37. 1889.

Geoglossum pistillaris BERK. et CKE. Mycogr. 1: 206. *pl. 96. f. 348.* 1879.

Mitrula pistillaris SACC. Syll. Fung. 8: 38. 1889.

Mitrula rufa SACC. Ibid. 8: 38. 1889; MASS. Ann. Bot. 11: 275. *pl. 12. f. 28-30.* 1879.

Leptoglossum luteum SACC. Ibid. 8: 48. 1889; HONE, Minn. Bot. Stud. 3: 317. *pl. 3. f. 2. pl. 5. f. 16-19.* 1904.

Microglossum luteum SCHROET. in ENGLER et PR. Nat. Pfl.-Fam. 1 (1): 164. 1894.

Microglossum pistillare SCHROET. Ibid. 164. 1894.

Microglossum rufum UNDERW. Minn. Bot. Stud. 1: 496. 1896; DURAND, Ann. Myc. 6: 406. *pl. 5. f. 9-14. pl. 19. f. 207.* 1908; IMAI, Bot. Mag. Tokyo, 52: 421. 1938; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 186. *f. 2. pl. 7. f. 8-9.* 1941.

Leptoglossum lutescens REHM, Ann. Myc. 2: 32. 1904.

Leptoglossum lutescens var. *mitruloides* REHM, Ibid. 2: 32. 1904.

Hab. ad terram inter muscos vel ad truncos putridos, aestate—autumno.
Typus: in Herb. Acad. Nat. Sci., Philadelphia, Pa., Amer. bor.
Loc. distr.: Hope, New Jersey, Amer. bor.
Area distr.: Amer. bor. et austr., Asia orient. (Japonia, Sina).

(2) **Ochroglossum fumosum** (PECK) IMAI, comb. nov.

Leptoglossum luteum var. *fumosum* PECK, N. Y. State Mus. Rep't 43: 40. 1890.

Leptoglossum fumosum PECK, N. Y. State Mus. Bull. 116: 25. 1907; SACC. Syll. Fung. 22: 604. 1913.

Microglossum fumosum DURAND, Ann. Myc. 6: 408. *pl. 5. f. 15-16. pl. 19. f. 203-205.* 1908; IMAI, Bot. Mag. Tokyo, 52: 422. 1938; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 190. *pl. 7. f. 10-12.* 1941.

Geoglossum fumosum LLOYD, Geogloss. 7. 1916.

Hab. ad truncos putridos, vel in humo. aestate—autumno.
Typus: in Herb. New York State Museum, Albany, N. Y., Amer. bor.
Loc. typ.: Adirondack Mts., N. Y., Amer. bor.
Area distr.: America borealis et Asia orientalis.

(3) **Ochroglossum capitatum** (TAI) IMAI, comb. nov.

Microglossum capitatum TAI, Lloydia, 7: 147. *f. 2. 17.* 1944.

Hab. ad terram, aestate.
Typus: in Herb. Tsing Hua Univ., Kunming, Yunnan, Sina.
Loc. typ.: Cheli, Yunnan.
Area distr.: Endemicum.

(4) **Ochroglossum tetrasporum** (TAI) IMAI, comb. nov.

Microglossum tetrasporum TAI, Lloydia, 7: 147. *f. 1. 16.* 1944.

Hab. ad terram, aestate.
Typus:
Loc. typ.: Cheli, Yunnan.
Area distr.: Endemicum.

(5) **Ochroglossum longisporum** (DURAND) IMAI, comb. nov.

Microglossum longisporum DURAND, Ann. Myc. 6: 409. *pl. 5. f. 17-18. pl. 19. f. 260.* 1908; SACC. Syll. Fung. 22: 602. 1913; IMAI, Bot. Mag. Tokyo, 52: 423. 1938; Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 191. *pl. 7. f. 13-14.* 1941.
Geoglossum longisporum LLOYD, Geogloss. 7. 1916.

Hab. ad terram inter folia dejecta, autumno.
Typus: in Durand Herb. in Herb. Univ. Cornell., N. Y., Amer. bor.
Loc. typ.: 6-mile Cr., Ithaca, N. Y., Amer. bor.
Area distr.: America bor. et Asia orient.

3. **Corynetes** HAZSL.

Corynetes HAZSL. Mag. Tud. Akad. Ert. A Termés.-tud. Kör. 11: 19. p. 8. 1881 (sec. NANNFELDT); Bot. Centralbl. 10: 14. 1882; in JUST Bot. Jahresb. 10: 168. 1884; DURAND, Ann. Myc. 6: 412. 1908; NANNF. Arch. Bot. 30A: 8. 1942.
Leptogossum sect. *Euleptoglossum* SACC. Syll. Fung. 8: 47. 1889.
Microglossum sect. *Melanoglossum* IMAI, Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 192. 1941.

Typus: *Geoglossum atropurpureum* PERS. ex FR.

As far as the writer is aware, the present genus is composed of five species, viz. *C. atropurpureus, C. robustus, C. arenarius, C. globosus* and *C. Berterii.* The last species, however, is transferred with some doubts into the present genus, because the microscopic features are rather different from the other species of this genus, and may represent a different group. The former three species are common in Europe, eastern North America and eastern Asia, and the first extends to Canary Island of northern Africa. *C. globosus* is endemic in Scandinavian Peninsula, and *C. Berterii* distributes in sourthern countries in the Southern Hemisphere, namely Chili, Tasmania and New Zealand. This represents the fact that the last species occurred in the Southern Hemisphere.

Key to the species of *Corynetes.*

I. Paraphyses hyaline or slightly purplish at the apices.
1. Asci and paraphyses agglutinated at the apices into a conspicuous vinous-brown epithecium. ..... *C. atropurpureus.*

2. Epithecium lacking or inconspicuous; ascophores robust. ...*C. robustus.*

II. Paraphyses colored at least at the apices, not agglutinated.

1. Paraphyses dark-brown; asci 100–150×12–18μ; ascophores black, stipe rather thick. .....*C. arenarius.*
2. Paraphyses pale fuligineous at the apices; asci 70–100×7–10μ; ascigerous portion globose and dark-bay color; stipe long and slender. .....*C. globosus.*
3. Paraphyses brownish or reddish at the apices; asci 70–80×5μ; ascophores blackish-brown tinged with purple hue. .....*C. Berterii.*

(1) **Corynetes atropurpureus** (PERS. ex FR.) DURAND

Geoglossum purpurascens PERS. Comm. Fung. Clav. 39. 1797.

Geoglossum atropurpureum PERS. Obs. Myc. **2**: 62. *pl. 3. f. 6.* 1799; Syn. Fung. 609. 1801.

Geoglossum atropurpureum FR. Syst. Myc. **1**: 490. 1821; Epicr. Myc. 582. 1838; PERS. Myc. Eur. **1**: 195. 1822; LLOYD, Geogloss. 8. 1916.

Leotia atropurpurea CORDA, Icon. Fung. **5**: 79. *pl. 9. f. 71.* 1842.

Mitrula glabra KARST. Myc. Fenn. **1**: 30. 1871.

Geoglossum microsporum CKE. et PECK, N. Y. State Mus. Rep't. **25**: 97. 1873; CKE. Mycogr. **1**: 8. *pl. 3. f. 11.* 1875; PHILL. Brit. Disc. 39. 1887.

Geoglossum Hookeri CKE. Hedwigia, **14**: 9. 1875; Mycogr. **1**: 10. *pl. 4. f. 15.* 1875.

Geoglossum microsporum var. *tremullosum* CKE. Grevillea, **4**: 109. 1876.

Geoglossum tremullosum CKE. Mycogr. **1**: 206. *pl. 96. f. 347.* 1879; PHILL. Brit. Disc. 39. 1887.

Corynetes microsporus HAZSL. Mag. Tud. Akad. Ert. A Termés.-tud. Kör. **11**: 19. p. 8. 1881 (sec. NANNF.).

Microglossum Hookeri SACC. Bot. Centralbl. **18**: 214. 1884; Syll. Fung. **8**: 39. 1889.

Leptoglossum microsporum SACC. Ibid. **18**: 214. 1884: Ibid. **8**: 47. 1889.

Microglossum atropurpureum KARST. Rev. Mon. Asc. 110. 1885; SACC. Syll. Fung. **8**: 40. 1889; SCHROET. Pilze Schles. **2**: 18. 1893; REHM, Pilze Deut., Hyst. Disc. 1152. 1896; IMAI, Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, **45**: 192. *pl. 7. f. 15-16.* 1941.

Leptoglossum tremullosum SACC. Syll. Fung. **8**: 47. 1889; Bull. Soc. Myc. Fr. **12**: 74. 1896.

Microglossum partitum PAT. Rev. Myc. **12**: 135. *pl. 107. f. 2.* 1890; SACC. Syll. Fung. **10**: 2. 1892.

Xanthoglossum microsporum O. K. Rev. Gen. Pl. 875. 1891.

Mitrula microspora MASS. Brit. Fung. Fl. **4**: 483. 1985; Ann. Bot. **11**: 281. *pl. 13. f. 55-57.* 1897.

Mitrula microspora var. *tremullosa* MASS. Ibid. **4**: 484. 1895; Ann. Bot. **11**: 282. 1897.

Mitrula purpurascens MASS. Ann. Bot. **11**: 266. *pl. 12. f. 27.* 1897.

Mitrula partita MASS. Ibid. **11**: 283. 1897.

Corynetes purpurascens DURAND, Ann. Myc. **6**: 413. *pl. 6. f. 36-39.* 1908.

Corynetes atropurpureus DURAND, Ann. Myc. **6**: 414. *pl. 6. f. 27-35.* 1908; IMAI, Ann. Myc. **38**: 273. 1940.

Hab. ad terram in silvis, autumno.

Typus: in Persoon Herb. Rijks Herb., Leiden.

Loc. typ.: ignotus.

Area distr.: Europa, America bor., Asia orient., Ins. Canari.

(2) **Corynetes robustus** DURAND

Corynetes robustus DURAND, Ann. Myc. 6: 416. *pl. 6. f. 40-44. pl. 19. f. 198-202.* 1908.

Leptoglossum robustum SACC. et TROTT. in SACC. Syll. Fung. 22: 604. 1913.

Microglossum robustum A. L. SM. et RAMSB. Trans. Brit. Myc. Soc. 4: 320. 1914; IMAI, Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 196. *pl. 7. f. 17-18.* 1941.

Hab. ad terram in silvis, autumno.
Typus: in Durand Herb. Univ. Cornell., Ithaca, N. Y., Amer. bor.
Loc. typ.: Blowing Rock, North Carolina, Amer. bor.
Area distr.: America bor., Europe (Anglia), Asia orient. (Japonia).

(3) **Corynetes arenarius** (ROSTR.) DURAND

Microglossum arenarium ROSTR. Med. om. Grønland, 3: 606. 1891; Beih. Bot. Centralbl. 3: 3. 1893; SACC. Syll. Fung. 11: 392. 1895; REA, Trans. Brit. Myc. Soc. 4: 196. 1913; IMAI, Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 197. *pl. 7. f. 19-21.* 1941.

Leptoglossum latum PECK, Bull. Torrey Club, 22: 210. 1895; SACC. Syll. Fung. 14: 743. 1899.

Mitrula arenaria MASS. Ann. Bot. 11: 283. 1897.

Corynetes arenarius DURAND, Ann. Myc. 6: 417. *pl. 6. f. 45-49. pl. 18. f. 194-197.* 1908; LIND, Dan. Fung. 88. *pl. 1. f. 8-9.* 1913; LUIJK, Kruidk. Arch. Jaarg. 1918: 125. *f. 4.* 1919; Meded. Rijks Herb. Leiden, No. 39: 2. *f. 2.* 1919; IMAI, Ann. Myc. 38: 274. *f. 3.* 1940.

Hab. in arenosis vel ad terram in silvis, autumno.
Typus: in Rostrup Herb. Mus. Bot. Univ. Copenhagen, Dania.
Loc. typ.: Greenland.
Area distr.: Greenland, Europa, America bor., Asia orient.

(5) **Corynetes globosus** (SOMMERF.) DURAND

Mitrula globosa SOMMERF. Suppl. Fl. Lapp. 287. *pl. 3.* 1826; FR. Epicr. Myc. 584. 1838; SACC. Syll. Fung. 8: 35. 1889.

Geoglossum globosum FR. Elench. Fung. 1: 234. 1828.

Corynetes globosus DURAND, Ann. Myc. 6: 417. 1908; IMAI, Ann. Myc. 38: 274. *f. 4.* 1940; NANNF. Ark. Bot. 30A: 9. 1942.

Microglossum globosum IMAI, Jour. Facul. Agr. Hokkaido Imp. Univ., Sapporo, 45: 192. 1941.

Hab. in terra arenosa, autumno.
Typus: in Herb. Bot., Oslo, Nordland.
Loc. typ.: Saltdal, Lappland.
Area distr.: Endemicus.

(5) **Corynetes Berterii** (MONT.) IMAI, comb. nov.

Mitrula Berterii MONT. Ann. Sci. Nat. II. 3: 351. 1835; CKE. Mycogr. 1: 103. *pl. 46.*

f. 180. 1876; SACC. Syll. Fung. **8**: 37. 1889; MASS. Ann. Bot. **11**: 268. *pl. 12. f. 33-35.* 1897.

Mitrula vinosa BERK. Fl. Tasm. **2**: 273. 1860; CKE. Mycogr. **1**: 104. *pl. 46. f. 181.* 1876; Handb. Austr. Fung. 250. *pl. 19. f. 141.* 1892; SACC. Syll. Fung. **8**: 37. 1889.

Hab. ad truncos putridos vel ad cortices arborum.

Typus:

Loc. typ.: Juan Fernandez, Chili.

Area distr.: Chili, Nova Zealand, Tasmania.