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On *Julella, Delacourea,* and *Decaisnella,* three dictyosporous genera described by J. H. FABRE

MARGARET E. BARR

Department of Botany, University of Massachusetts, Amherst, MA 01003, USA

The great naturalist and entomologist, J. H. FABRE, presented his studies on pyrenomycetous fungi in "Essai sur les Sphériacées du Département de Vaucluse" in two parts (FABRE, 1879; 1883). These dates cannot be considered as exact. The first part is dated "1878" on the cover page of the volume, but FABRE's introduction ends with "Sérignan, 20 Octobre 1879", and SACCARDO (1882) gave 1880 as the date of publication. LUCAS & SUTTON (1971) concluded that publication could not have been earlier than the latter part of 1879, and probably was in 1880. Aside from this problem another exists, for several of the genera that FABRE erected have been ignored or reduced to synonymy with other genera, without reappraisal of their important characteristics.

Four dictyosporous genera were described by FABRE (1879). *Verlotia* is predated by *Heptameria* REHM & THÜMEN (LUCAS & SUTTON, 1971). I have been privileged to examine authentic specimens of *Julella buxi, Delacourea insignis,* and *Decaisnella spectabilis,* the types of their respective genera, from the herbarium of J. H. FABRE at L'Harmas. It seems appropriate to submit an interpretation of these genera to honor Dr. Emil MÜLLER. One of his many contributions to mycology is his study of *Stuartella* FABRE (MÜLLER, 1962), a revision that re-established this phragmosporous taxon as a viable member of the Loculoascomycetes. I thank Dr. P. TÉOCCHI for his kindness in facilitating the loan of collections from FABRE's herbarium at L'Harmas. The curators of the Farlow Herbarium, the Field Museum, the Kew Herbarium, and the New York Botanical Garden also graciously permitted study of specimens in their keeping that are of interest in this discussion.

Julella FABRE

Ann. Sci. Nat. Bot., 6 Sér., 9: 113 (1879)

1. *Julella buxi* FABRE, Ann. Sci. Nat. Bot., 6 Sér., 9: 113 (1879). – Figs. 1–4

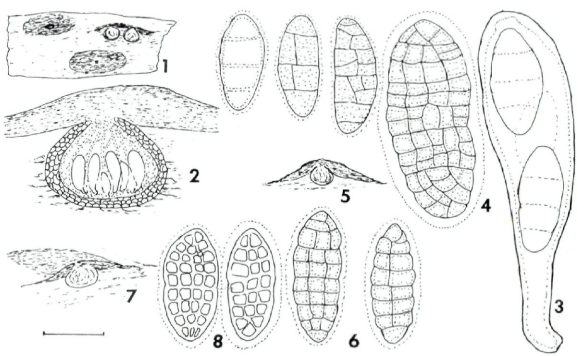
Ascomata 275–300 µm diam, 220–330 µm high, immersed in scarcely altered wood, globose or sphaeroid, shielded above by thin,

dark grayish or blackish brown, rounded or elongate clypeus over one or two ascomata, or two or three clypei coalescing to 1–1.5(–2) mm long, with apical papilla short and broad, finally appearing as rimmed pore; peridium narrow, 10–15 µm wide, soft, reddish brown, composed of few layers of pseudoparenchymatous cells. – Asci bitunicate, basal, (60–)80–110 × (15–)25–30 µm, broadly oblong clavate, short stipitate, (1–)2–(3–4–)spored. – Pseudoparaphyses cellular, 2–2.5 µm wide, somewhat branched and in gelatinous matrix above asci. – Ascospores (26–)40–50 × (10–)16–20 µm, hyaline, oblong or obovoid, ends obtuse, often inequilateral; (3–5–7–)15-septate, (1–)3–4 longitudinal septa; wall smooth, surrounded by narrow gel coating, 2.5 µm wide; contents granular.

On decorticated branches of *Buxus sempervirens*. – FRANCE: Sérignan, Jun. 1879, J. H. FABRE, 2 sheets, isotype (L'Harmas).

Ascomata of the specimens examined were in various stages of maturity, many overmature and empty. FABRE recorded the species from Avignon and Orange as well as Sérignan, so that these specimens are believed to represent isotype material.

Julella is characterized as a genus whose immersed ascomata are medium sized, with a pseudoparenchymatous peridium that is thickened above by clypeal tissues, whose asci are basal and interspersed by cellular pseudoparaphyses that branch above asci in a gelatinous matrix, and whose ascospores are hyaline, with numerous transverse and longitudinal septa, surrounded by a narrow gelatin-



Figs. 1–8. Species of *Julella:* 1–4. *J. buxi:* 1. Habit sketch. – 2 Ascoma in section. – 3. Ascus. – 4. Ascospores. – 5, 6. *J. lactea:* 5. Habit sketch. – 6. Ascospores. – 7, 8. *J. vitrispora:* 7. Habit sketch. – 8. Ascospores. – Standard line = 150 µm for Fig. 2; 15 µm for Figs. 3, 4, 6, 8.

ous coating. These characteristics are those of both the type species of *Peltosphaeria* BERLESE (1888), and the lectotype species of *Polyblastiopsis* ZAHLBRUCKNER (1907). RIEDL (1962b) in his revision of *Peltosphaeria* observed that *Peltosphaeria* and *Polyblastiopsis* were alike in structure of ascomata and in hymenium and that only the presence of a slight thallus in species of *Polyblastiopsis* separated the genera. He later (1971) provided details on *Polyblastiopsis,* and stated that species were not lichenized or at the most facultatively so. HARRIS (1973) observed that species of *Polyblastiopsis* are non-lichenized. Von ARX & MÜLLER (1975) made *Polyblastiopsis* a synonym of *Peltosphaeria.* I believe that both of these genera are synonymous with *Julella* and propose the following new combinations for the types of the two genera. Recent descriptions of these species may be found in RIEDL (1962b; 1971). The number of ascospores that mature within the asci appears to be a specific characteristic; RIEDL (1971) separated *Polyblastiopsis sericea* (MASSAL.) ZAHLBR. from *P. lactea* (MASSAL.) ZAHLBR. on the presence of octosporous asci or less than octosporous asci for the respective species. *Peltosphaeria vitrispora* (COOKE & HARKNESS) BERLESE has octosporous asci.

2. ***Julella vitrispora*** (COOKE & HARKNESS) BARR, comb. nov. – Figs. 7, 8

Bas.: *Pleospora vitrispora* COOKE & HARKNESS, Grevillea 9: 86 (1881)

Teichosporella lonicerina FAIRMAN in MILLSPAUGH & NUTTALL, Field. Mus. Nat. Hist. Bot. Ser. 5: 347 (1923) is an additional synonym according to the holotype (NUTTALL 620; F).

3. ***Julella lactea*** (MASSALONGO) BARR, comb. nov., var. ***lactea***

Bas.: *Blastodesmia lactea* MASSALONGO, Ricerche Auton. Lich. 181 (1852)

4. ***Julella lactea*** var. ***naegelii*** (HEPP) BARR, comb. nov. – Figs. 5, 6

Bas.: *Pyrenula naegelii* HEPP, Flecht. Eur. n. 469 (1857)

LINDAU in ENGLER & PRANTL (1897) had classified *Julella* in the Amphisphaeriaceae. Von HÖHNEL (1919) suggested that *Julella* differed from *Peltosphaeria* only by bisporous asci and removed from *Julella* the other species that had been described at that time. He created *Pleamphisphaeria* to accommodate several of those species, a name that was predated by a few weeks by *Titanella* H. & P. SYDOW (BARR, 1979a; see notes under *Decaisnella*). Recent species assigned to *Julella* but differing in several respects include *J. mankonensis* KERN (1959), a species with large ascomata, thick peridium, and ascospores that become fuscous brown; *J. macrospora* DÖBBELER and

J. phycophila DÖBBELER (1978), two species from bryophytes with aparaphysate centra, one and possibly both lichenized. RIEDL (1962a) had assigned *Polyblastiopsis* to the Mycoporaceae and (1962b) *Peltosphaeria* to the Pleosporaceae. LUTTRELL (1973) and VON ARX & MÜLLER (1975) accepted *Julella* and *Peltosphaeria* as genera in the Pleosporaceae. LUTTRELL merely noted *Polyblastiopsis* in the Mycoporaceae, whereas VON ARX & MÜLLER reduced the genus to synonymy with *Peltosphaeria*. VON ARX & MÜLLER also placed *Catherinia* (SACC.) SACC. in synonymy with *Julella*. *Catherinia* was lectotypified by *Pleospora hyalospora* SPEGAZZINI, according to CLEMENTS and SHEAR (1931). Neither BERLESE (1897) nor WEHMEYER (1961) was able to examine material of this taxon. A definite resolution of the nature of the species and the status of *Catharinia* must await relocation of the type or authentic specimens. According to my version of families in the Pleosporales (BARR, 1979b), *Julella* belongs in the Arthopyreniaceae (= Xanthopyreniaceae ss. O. ERIKSSON, 1981).

Delacourea FABRE

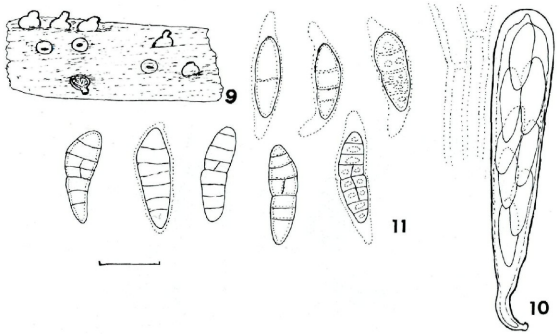
Ann. Sci. Nat. Bot. 6 Sér., 9: 114 (1879)

1. *Delacourea insignis* FABRE, Ann. Sci. Nat. Bot. 6 Sér., 9: 115 (1879). – Figs. 9–11

Ascomata 550–660 µm diam, immersed erumpent becoming ± superficial on decorticated substrate, gregarious, globose, with apical papilla well developed, ± strongly compressed, canal periphysate; peridium broad, 50–60 µm wide at base and sides, thickened to 80 µm wide in upper regions, composed of compressed rows of cells. – Asci bitunicate, peripheral, 100–120(–140) × (10–)13–15 µm, cylindric-clavate. – Pseudoparaphyses trabeculate, in gel matrix. – Ascospores 18–22(–28) × 6–7.5 µm, dark reddish brown, ellipsoid fusoid, ends tapered, obtuse, inequilateral to curved, asymmetric with upper hemispore usually broader than lower; 5–7(–8) transversely septate, one longitudinal septum in one or several mid cells; wall smooth, gel coating narrow around body of ascospore, elongated over ends; lenticular globule in each cell.

On branches of *Genista scorpii*. – FRANCE: Orange, Oct. 1877, J. H. FABRE, 2 sheets, holotype (L'Harmas).

Delacourea has been maintained as a monotypic genus until von ARX & MÜLLER (1975) reduced it to a synonym of *Teichospora*. Oddly enough, FABRE and subsequent investigators overlooked the strongly compressed apical papilla. FABRE was certainly aware of the structure in the species that he separated from *Lophiostoma* into the genera *Navicella* and *Rostrella* and those that he described under



Figs. 9–11. *Platystomum insigne:* 9. Habit sketch. – 10. Ascus and portion of trabeculate pseudoparaphyses. – 11. Ascospores. – Standard line = 15 µm for Figs. 10, 11.

Lophiostoma, *Lophidium* and *Lophiotrema*. The compressed apical papilla and all features of ascomata and centrum are in accord with members of the Lophiostomataceae. *Delacourea* is not separable from *Platystomum* TREVISAN. The species described above is maintained separately from *P. compressum* (PERS.: FR.) TREVISAN by the slightly smaller ascospores, typically seven-septate at maturity, whose gel appendages extend up to 5 µm beyond the tips of the ascospore. The following combination is proposed:

Platystomum insigne (FABRE) BARR, comb. nov.

Bas.: *Delacourea insignis* FABRE, Ann. Sci. Nat. Bot. 6 Sér., 9: 115 (1879)

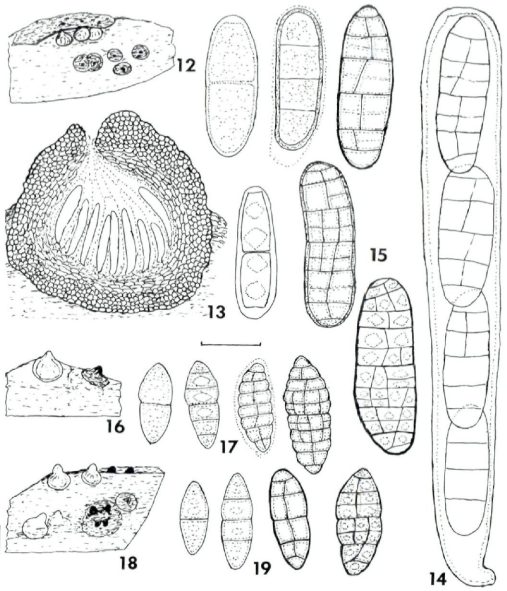
Decaisnella FABRE

Ann. Sci. Nat. Bot. 6 Sér., 9: 112 (1879)

1. *Decaisnella spectabilis* FABRE, Ann. Sci. Nat. Bot., 6 Sér., 9: 112 (1879). – Figs. 12–15

Syn.: *Teichospora spectabilis* (FABRE) SACCARDO, Syll. Fung. 2: 299 (1883)

Ascomata immersed erumpent, separately or two or more beneath slight or well-developed blackened clypeus, globose, 330–550 µm diam, apex short papillate, reaching surface of clypeus or substrate, pore rounded. – Peridium (30–)50–80 µm wide at base and sides, 65–100 µm wide above, two layered, externally dark reddish brown with encrusted pigment, cells pseudoparenchymatous, internally lighter brown, cells more compressed. – Asci bitunicate, ± peripheral, 120–160 × (12–)15–20 µm, broadly cylindric, mostly 4-spored, some 2-spored. – Pseudoparaphyses



Figs. 12–19. Species of *Decaisnella:* 12–15. *D. spectabilis:* 12. Habit sketch. – 13. Ascoma in section. – 14. Ascus. – 15. Ascospores. – 16, 17. *D. amelanchieris:* 16, Habit sketch. – 17. Ascospores. – 18, 19. *D. confluens:* 18. Habit sketch. – 19. Ascospores. – Standard line = 150 µm for Fig. 13; 15 µm for Figs. 14, 15, 17, 19.

trabeculate in matrix. – Ascospores (25–)33–45 × (10)12–16 µm, dark reddish brown, end cells pallid at times, oblong, ends rounded; 7–9–13-septate, 1–2(–3) longitudinal septa, not constricted at septa; wall broad, foveolate or smooth, at times remnants of gel coating visible over ends; contents globular when young, homogenous at maturity.

On old decorticated wood of *Olea*. – France: Sérignan, Apr. 1879, J. H. Fabre (holotype, L'Harmas).

A single sheet bearing several pieces of wood of *Olea* was located in Fabre's herbarium. One of the pieces contained well-developed ascomata and has been designated as the holotype specimen. Two additional collections from Europe are assigned to *D. spectabilis:* Rehm, Ascomycetes 2082, isotype of *Teichospora megalocarpa* Rehm (Ann. Mycol. 12: 166. 1914), on *Rhamnus pumila* (NY); Petrak as *Thyridium moravicum* Petrak (unpublished name), on decorticated branches, Mähr.-Weisskirchen, Apr. 1927 (FH).

SACCARDO (1883) transferred *D. spectabilis* to *Teichospora,* and other authors have also considered *Decaisnella* to be synonymous with *Teichospora.* The differences between the two genera are several: not only ascospore size and septation, as FABRE remarked, but shape of ascomata, structure of peridium, and type of pseudoparaphyses. In my classification (BARR, 1979b) *Decaisnella* and *Teichospora* are sufficiently distinctive to be arranged in different orders. On the bases of shape of ascomata and large ascospores that are distoseptate (visible best in immature ascospores), *Decaisnella* is placed in the Massariaceae (BARR, 1979a) where it replaces *Titanella* in part. After discussion with R. C. HARRIS and re-examination of *Titanella luzonensis* (P. HENN.) H. & P. SYDOW (*Julella luzonensis* P. HENN., *Pleamphisphaeria luzonensis* (P. HENN.) v. HÖHNEL), I am convinced that it is a lichenized fungus. Both the genus and species belong in *Anthracothecium.*

Species of *Decaisnella* may have a slight or well-developed clypeus over medium sized to large ascomata and the asci may contain two, four, or eight ascospores. Two series of species are recognizable, varying in ascospore shape. Oblong ascospores with obtuse or rounded ends are typical of *D. spectabilis* and *D. macrospora* (SPEG.) BARR, comb. nov. (bas.: *Lophiostoma macrosporum* SPEG., Michelia 1: 466. 1878). This species has larger ascospores than does *D. spectabilis*, and the ascomata bear an abruptly compressed apex (BARR, 1979a). Fusoid-ellipsoid ascospores with tapered ± acute ends set apart another series of species. *Decaisnella amelanchieris* FABRE (1883) has erumpent ascomata that lack a definite clypeus and fusoid-ellipsoid ascospores with tapered ends. These measure 22–30(–43) × 10–11 µm and develop seven to eleven transverse and one to two (rarely three) longitudinal septa. Figures 16 and 17 are drawn from the holotype (FABRE, Sérignan, France, Jun. 1876, L'Harmas). Several North American species belong in this series, including the large-spored species that was described as *Titanella pelorospora* (DEARNESS) BARR. BOISE (1984) discovered an earlier epithet, *Coniosphaeria peniophora* COOKE. The combination ***Decaisnella peniophora*** (COOKE) BARR & BOISE, comb. nov. (bas.: *Coniosphaeria peniophora* COOKE, Grevillea 8: 119. 1880) is proposed. The syntype collection is on wood [Poughkeepsie, New York, W. R. GERARD 236 (K)]. The apical papilla in this species may vary from rounded to compressed within a single collection. *Decaisnella ephedrae* (FABRE) FABRE has ascospores much like those of *D. amelanchieri,* but the apical papilla of ascomata is conspicuous, often bent, rounded or slightly compressed, and the peridium is composed of small sclerotial cells. This species would be better disposed in *Strickeria.*

Another North American species that is related to *D. amelanchieri* was originally described as *Cucurbitaria confluens* PLOWRIGHT.

The ascomata are erumpent separately or in small groups and are covered by a narrow clypeus. The rounded apical papilla is conspicuous, ca. 250 µm diam and high. Asci measure 130–160 × 15–17 µm and are quadrisporous or octosporous. Ascospores are dark brown with paler end cells, 20–27 × 8–10 µm, with five to seven transverse and one or two longitudinal septa in all but the end cells (Figs. 18, 19). The ascospores are scarcely constricted at the septa, differing from *D. amelanchieris,* where constricted septa form early in unpigmented ascospores. In both of these species, as well as in others of the genus, three or more sets of A-septa are formed before B-septa develop. *Cucurbitaria confluens* is transferred to *Decaisnella* as ***D. confluens*** (PLOWRIGHT) BARR, comb. nov. (bas.: *Cucurbitaria confluens* PLOWRIGHT, Grevillea 5: 74. 1876). An additional synonym is *Gibberidea confluens* (PLOWRIGHT) KUNTZE, Rev. gen. Pl. 3: 481 (1898). The isotype collection is on oak bark (California, HARKNESS, NY); another collection also from *Quercus* is listed under *Teichospora megastega* ELLIS & EVERH. (Lake Forest, Illinois, 14 Dec. 1892, R. A. HARPER, NY).

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