apical, 15-25μm, cells around ostiole dark brown and thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from inner wall layer, discrete, hyaline, ampulliform, 8-10 x 2-3μm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, cylindrical, 0-1(-2) septate, straight, rarely curved, 8-17 x 1-1.5μm, with truncate base and rounded apex.

Host: *Lonicera caprifolium* L.

Distribution: New South Wales.

The identity of this taxon is uncertain. There are no similar species of *Septoria* or closely related genera described from *Lonicera*. *Septoria obscurata* Thuem. described from *L. periclymenum* has condia 12 x 4μ and *S. xylostei* Sacc. & G. Wint. described from *L. xylostei* has conidia 40-60 x 1.5μm. This taxon is associated with marginal leaf lesions and shows a remarkable similarity to the taxon seen on a diverse range of hosts such as *Stephanotis*, *Hedera*, *Prunus* and *Rosa* with short narrow conidia in the range of 10-20 x 1-1.5μm and associated with incubated, dead or dying leaves.

Specimen examined: on *Lonicera caprifolium*; **New South Wales**; Baulkham Hills, 10 June 1962, J. Walker (DAR 6980).

CARYOPHYLLACEAE

Four taxa of *Septoria* are recognised on hosts in the Caryophyllaceae in Australia being, *S. cerastii* on *Cerastium glomeratum*, *S. dianthi* on *Dianthus* spp., *S. silenicola* on *Silene gallica* and *S. stellariae* on *Stellaria media* and the native host *Drymaria diandra*.

Key to Australian species of *Septoria* on Caryophyllaceae

1 Conidia mostly less than 40μm long.....2

1: Conidia mostly more than 40μm long.....3

2 Conidia 22-42 x 1-1.5μm, 2-4 septate, on *Cerastium*.....**S. cerastii**

2: Conidia 17-40 x 2.5-3μm, 0-1 septate, on *Dianthus*.....**S. dianthi**

3 Conidia (34-)48-65(-85) x 2-2.5μm, 3-5 septate, on *Silene*.....**S. silenicola**

3: Conidia (35-)45-60(-85) x 1.5-2μm, 2-4 septate, on *Stellaria & Drymaria*.....**S. stellariae**

Septoria cerastii Rob. ex Desm., *Ann. Sci. Nat.*(Ser. 3), **11**: 347 (1849)

(Fig. 49)

Leaf lesions absent. *Conidiomata* scattered on leaves, petioles and sepals, separate, immersed, becoming erumpent, globose, dark brown, 85-130(-180)μm diam., pycnidial. *Ostiole* single, apical, 20-25μm, opening at maturity to 60μm. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer dark brown and often covered with elongated hyphal tissue, inner layers pale brown. *Conidiogenous cells* arising from inner wall layer, discrete, hyaline, ampulliform, 6-10 x 3μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 2-4 septate, mostly straight, occasionally slightly curved, 22-42 x 1-1.5(-2)μm, with an obtuse base and slightly tapering to a rounded apex.

Host: *Cerastium glomeratum* Thuill. (Mouse-eared Chickweed).

Distribution: New South Wales, Victoria (Brittlebank 1937-1940, Chambers 1982).

Septoria cerastii was originally described from *Cerastium vulgatum* and *C. trivialis* in Europe with conidia 30-40 x 1μ. Jørstad (1965) described conidia as being 20-43 x 1-1.5(-2)μm and 3-4 septate. Australian collections are morphologically identical with these descriptions and exsiccatus material from Europe and U.S.A. including one from the type host *C. vulgatum* and are placed here. It differs from *S. stellariae* Rob. & Desm. in having shorter conidia than that species.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Cerastium glomeratum*; **New South Wales**; Grose Vale, Sept. 1968 (DAR 12212); **Victoria**; Ringwood, 12 Oct. 1903, C. French Jnr (VPRI 1760); Myrniong, 1903 (VPRI 8822).

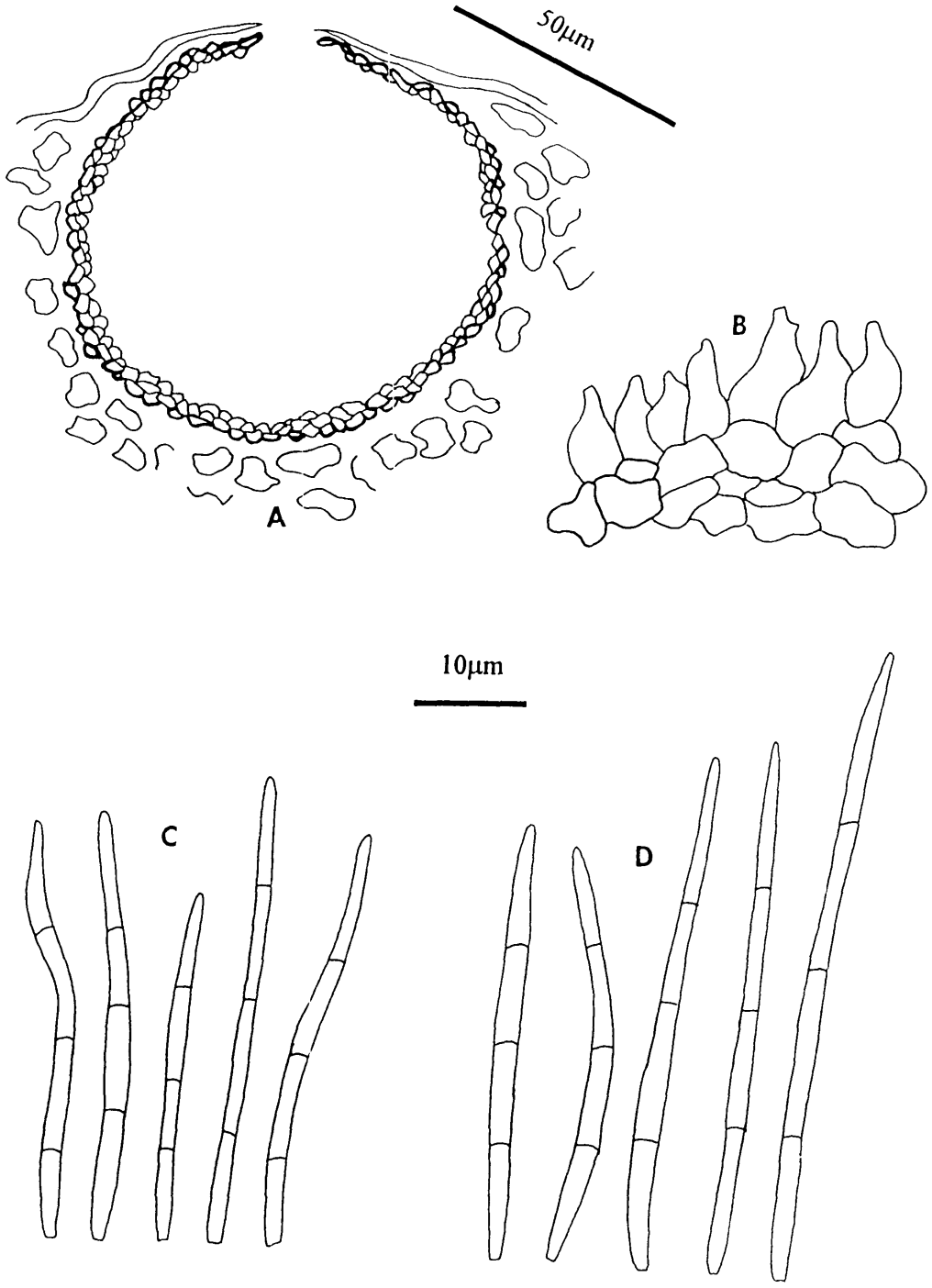

Fig.49 *Septoria cerastii* (A) v.s conidioma VPRI 1760; (B) conidiogenous cells VPRI 1760; (C) conidia VPRI 1760; (D) conidia DAR 48046 (*Herb. Mycol. Rom.* No. 2475)

EXTRALIMITAL COLLECTIONS:

on *Cerastium fontanum* ssp. *triviale*; Jalas, **Roumania**, 20 May 1973, G. Negrean, *Herb. Mycol. Romanicum* No. 2475 (DAR 48046);

on *Cerastium vulgatum*; Newark, Delaware, **U.S.A.**, 2 June 1907, H.S. Jackson, *Fungi Columbiani* No. 2478 (DAR).

Septoria dianthi Desm., *Ann. Sci. Nat.*(Ser. 3) **11**: 346 (1849)

(Fig. 50)

Leaf lesions hologenous, elongated, 3-6 x 2mm, on both surfaces lesions white to pale grey in the centre with raised thin dark brown margin and purple halo, at length coalescing into large blotches and covering extensive areas of the leaf surface. *Conidiomata* amphigenous, scattered on lesions, separate, immersed, becoming erumpent, dark brown to black, 100-130µm diam., pycnidial. *Ostiole* single, apical, often slightly papillate, 25-35µm, at maturity opening up to 60µm. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, ampulliform 6-8 x 3-5µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, cylindrical, 0-1 septate, straight to curved, 17-40 x 2.5-3µm with truncate to rounded base and rounded apex.

Hosts: *Dianthus barbatus* L. (Sweet William), *D. caryophyllus* L. (Carnation)

Distribution: New South Wales (Noble *et al.* 1935), Queensland (Simmonds 1951, Simmonds 1966), South Australia (Warcup & Talbot 1981, Cooke & Dube 1989), Tasmania (Sampson & Walker 1982 report only), Victoria (Chambers 1982), Western Australia (Carne 1925, Goss 1964, Shivas 1989)

Septoria dianthi was originally described with conidia 30-45 x 4µm and "obsolete 4-nucleatis", however the description by Grove (1935) from both *D. barbatus* and *D. caryophyllus* in the United Kingdom states that the conidia are 1-septate which is found in all collections examined in Australia. Clearly several other taxa are synonymous with *S. dianthi*. *Septoria dianthophila* Speg. and *S. dianthophila* Speg. f. *hispanica* Gonz. Frag. are both described with 1-septate conidia and the other conidial dimensions are within the range seen in examined material. Examination of collections under

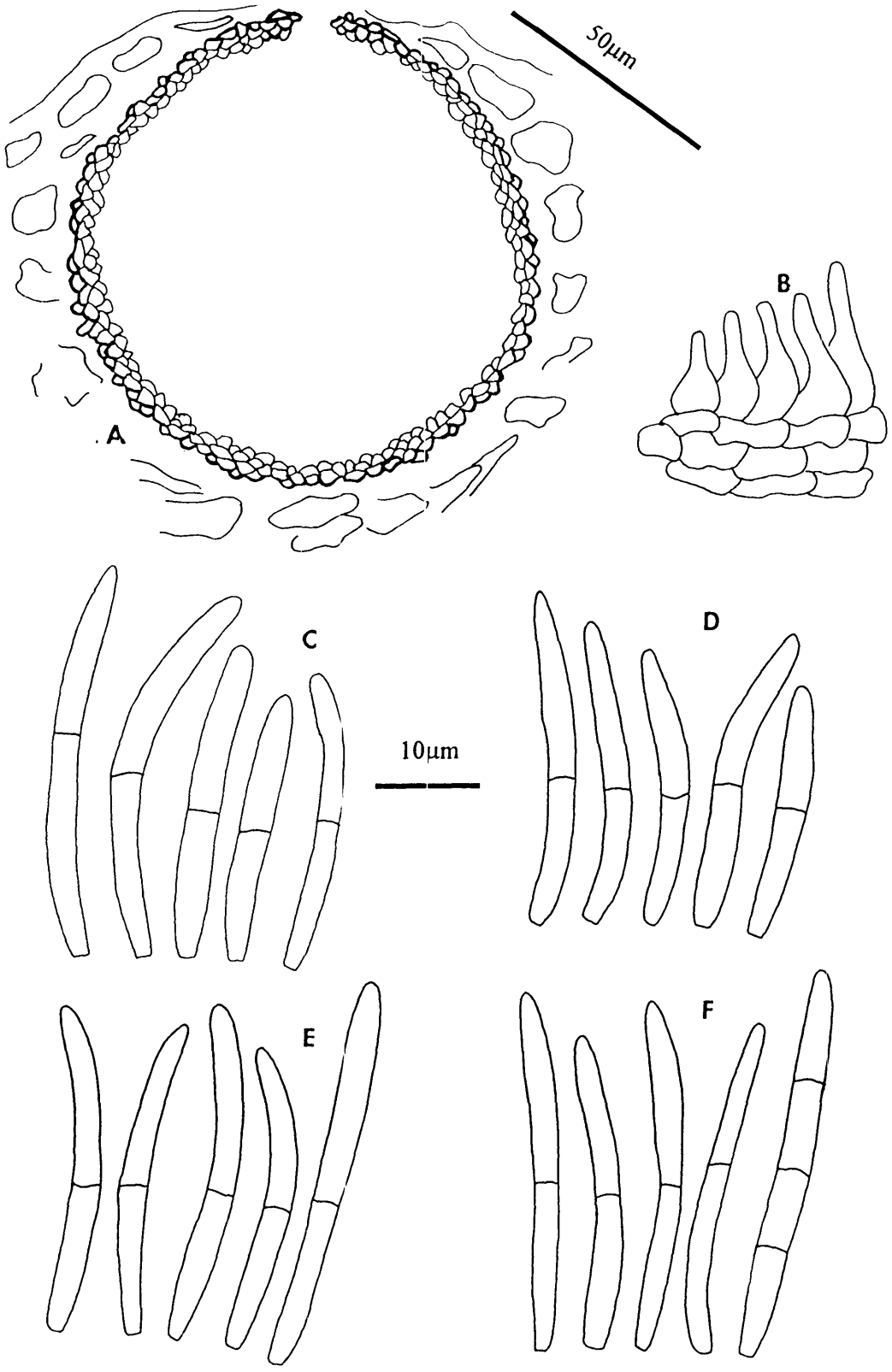

Fig.50 *Septoria dianthi* (A) v.s conidioma DAR 323; (B) conidiogenous cells DAR 323; C-F conidia (C) DAR 323; (D) VPRI 16880; (E) *S. scleranthi* DAR 54146; (F) *S. melandrii* DAR 14942

the name *S. scleranthi* Desm. from the U.S.A. on *Scleranthus* are identical with *S. dianthi* and material under the name *S. melandrii* Pass. also from the U.S.A. on *Lychnis* differs from *S. dianthi* only in the presence of a few 3-septate conidia. *Septoria noctiflorae* Ellis & Kellerman was described from *Silenes noctiflora* with conidia 30-36 x 2-2.5µm and 1-septate and it is difficult to regard it as being different from *S. dianthi*. It is clear that further type studies of other taxa described from genera such as *Dianthus*, *Scleranthus*, *Saponaria*, *Spergula* and *Melandrium* is required.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Dianthus barbatus*; **South Australia**; Forest Range, 26 Aug. 1992, D. Manley (VPRI 18161); **Victoria**; Keysborough, 2 Aug.1990, C.Richardson (VPRI 16880);

on *Dianthus caryophyllus*; **New South Wales**; Miranda, Oct. 1915 (DAR 323); Sydney, Apr. 1919 (DAR 326); Roseville, Apr. 1929 (DAR 1599);Wollongong, 1931 (DAR 1597); Hornsby, 1 May 1930 (DAR 1598); Carlingford, 14 Mar 1941, L.R. Fraser (DAR 3920); Beverly Hills, Mar. 1961 L.R. Fraser (DAR 6342a); Sydney, 16 Aug. 1961, J. Anderson (DAR 6701a); Kellyville, 2 Jan. 1962 (DAR 6861); Royal Botanic Gardens, Sydney, 31 Mar. 1898, A. Grant (DAR 57238); Sydney, Aug. 1903, R.T. Baker (VPRI 8826); **Queensland**; Agricultural College, Gatton, 1900 (BRIP 5761); North Tambourine, 26 Feb. 1951, K.N. Shea (BRIP 5764); **South Australia**; Fullarton, Sept. 1918, F.W. Eardley (ADW 1761); **Victoria**; Oakleigh, Aug. 1903, Tuckett (VPRI 1777); July 1922, W.A. Birmingham (DAR 324); Canterbury, 22 July 1935, C.R. Millikan (VPRI 1780); **Western Australia**; Woolaroo, 30 July 1925, A.G. Tasling (PERTH 785555).

EXTRALIMITAL COLLECTIONS:

Septoria scleranthi; on *Scleranthus annuus*; Newfield, New Jersey, **U.S.A.**, June 1883, *Fungi Columbiani* No. 1054 (DAR 54146); New Brunswick, New Jersey, **U.S.A.**, 9 June 1892, B.D. Halsted, *Seymour & Earle Economic Fungi* No. 351 (DAR 51049);

Septoria melandrii; on *Lychnis dioica*; Wisconsin, **U.S.A.**, June 1950, H.C. Greene, 1476 (DAR 14942 ex WIS).

Septoria silenicola Ellis & G. Martin, *Am. Nat.* **16**:1001 (1882)

(Fig. 51)

Leaf lesions hologenous, irregular, 1-3mm diam., lesions on both surfaces raised, pale cream to yellow without distinct margin. *Conidiomata* epigenous, scattered on lesions, separate, immersed becoming erumpent, brown, globose, occasionally depressed, 95-130m diam., pycnidial. *Ostiole* single, apical, 25-40µm, cells around the opening darkened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, lageniform, 11-15 x 5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding from percurrently proliferating conidiogenous loci. *Condia* hyaline, filiform, cylindrical, 3(-5) septate, straight to curved, (34-)48-65(-85) x 2-2.5(-3)µm, with truncate base and tapering occasionally to a rounded apex.

Host: *Silene gallica* L.

Distribution: New South Wales (Hynes *et al.* 1935, 1941 as *Septoria* sp.), Tasmania (Sampson & Walker 1982 as *S. silenes*), Victoria (Brittlebank 1937-1940, Chambers 1982), Western Australia (Shivas 1989 as *Septoria* sp.).

There appear to be at least two taxa of *Septoria* occurring on *Silene,* one being a short spored taxon with conidia 20-40 x 2µm represented by *S. silenes* West., *S. dimera* Sacc., *S. dominii* Bub. and possibly *S. apetala* Magnus and a longer spored taxon with conidia 36-70 x 2-2.5(-3)µm represented by *S. silenicola* Ellis & Martin, *S. silene-nutantis* Masal and *S. doehlii* Syd. Jørstad (1965) described *S. silenes* from material in Norway and gave conidial dimensions from the type collection and confirmed the short-spored nature of that species. The earliest name for the long-spored taxon is *S. silenicola* and all Australian collections examined are identical with exsiccatus material under this name. Laundon (1973) reported *S. silene-nutantis* from New Zealand on *S. gallica* and figured a long-spored taxon with conidia 45-68 x 1.8-2.5µm and 1-3 septate. However she regarded the identification as tentative. Examination of a single collection from New Zealand under the name *S. silenes* agrees with the description of Laundon but, is identical with collections examined from Australia and I regard it as being *S. silenicola.*

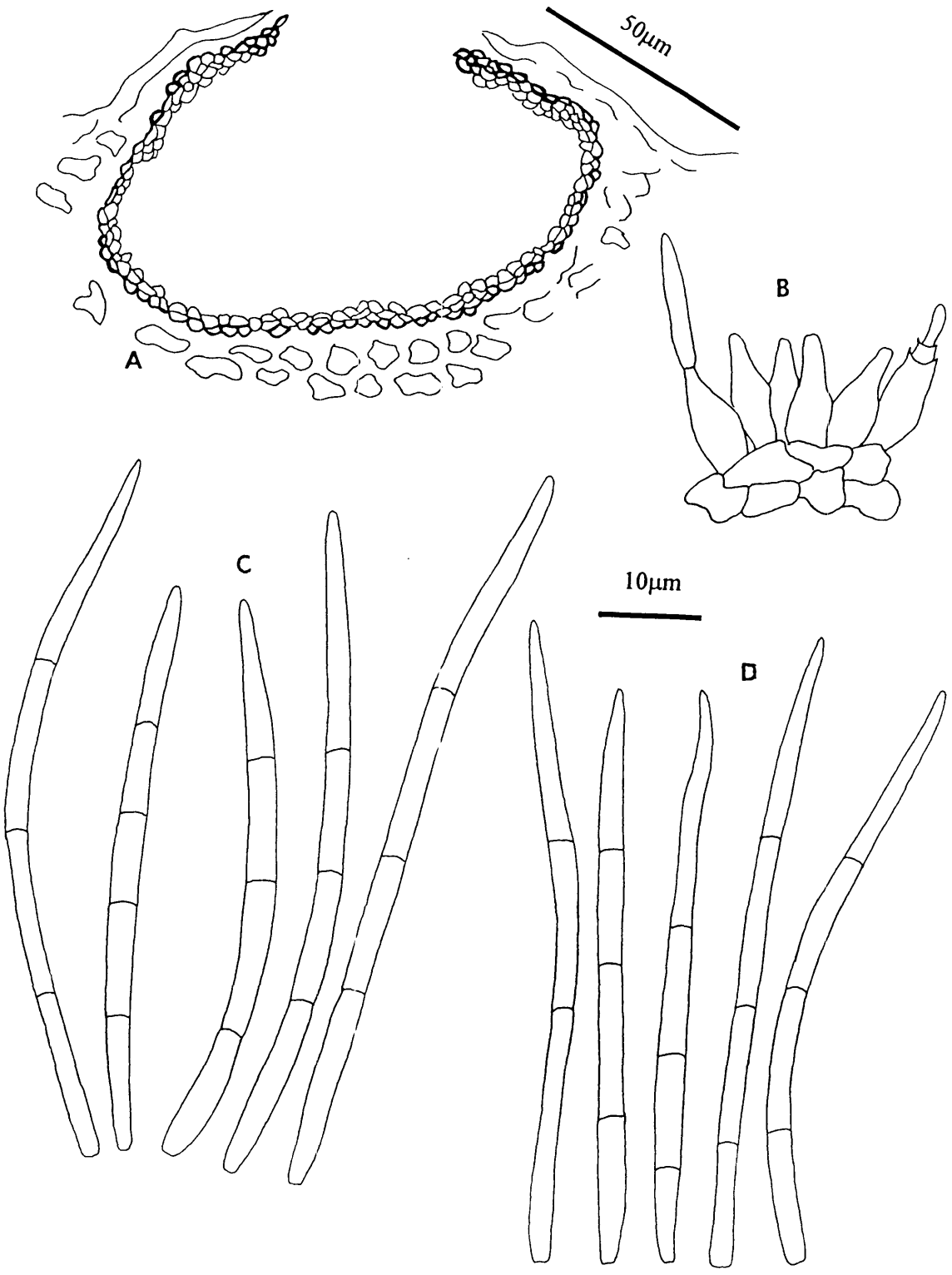

Fig.51 *Septoria silenicola* (A) v.s conidioma DAR 4163; (B) conidiogenous cells DAR 4163; (C) conidia DAR 4163; (D) conidia DAR 53590 (*Fungi Columbiani* No. 439)

Specimens examined:

AUSTRALIAN COLLECTIONS:

all on *Silene gallica*; **New South Wales**; Narara, May 1941, L.R. Fraser (DAR 4161); Pennant Hills, Sept. 1941, L.R. Fraser (DAR 4162); Baulkham Hills, Aug. 1950, L.R. Fraser (DAR 4163); Wollstonecraft, Nov. 1952, J. Walker (DAR 4751); Narara, Oct. 1963, J. McGechan (DAR 12895); East Parramatta, 18 July 1975, J. Walker (DAR 25619); East Parramatta, 10 Aug. 1976, J. Walker (DAR 27823); **Tasmania**; Cambridge, 14 Sept. 1977, D.I. Morris (DAR 30293); Forthside Vegetable Research Station, 23 May 1980, I.D. Geard (DAR 73544); Pawleena, 3 Nov. 1980, D.I. Morris (DAR 73545); **Victoria**; Bacchus Marsh, 24 Nov. 1916, C. French (VPRI 1859); Black Rock, 15 Apr. 1901, D. McAlpine (VPRI 1860); Arthurs Creek, 30 Aug. 1902, D. McAlpine (VPRI 1861); **Western Australia**; Northlake, Fremantle, 21 Oct. 1927, J.G.C. Campbell (PERTH 823570).

EXTRALIMITAL COLLECTIONS:

on *Silene gallica*; Auckland, **New Zealand**, 28 Aug. 1978, A.E. Esler (DAR 62688);

on *Silene noctiflora*; New Jersey, **U.S.A.**, July 1889, B.D. Halsted, *Fungi Columbiani* No. 439 (DAR 53590);

on *Silene antirrhina*; St. Paul, Nebraska, **U.S.A.**, 19 May 1913, J.M. Bates, *Fungi Columbiani* No. 4178 (DAR).

Septoria spergulae Westend., *Herb. Crypt.* No. 1155 (1857)

Listed by Brittlebank (1937-1940) on *Spergula arvensis* L. in Victoria. No herbarium material under this name has been located and the record is unsubstantiated.

Septoria stellariae Rob. et Desm., *Ann. Sci. Nat. (Ser.3)* **8**: 22 (1847)

(Fig. 52)

Leaf lesions hologenous, orbicular to irregular, 1-2mm diam., separate, often becoming confluent and forming large blotches, on both surfaces lesions raised, pale cream to brown with an indistinct but, occasional pale brown margin. *Conidiomata* epigenous, scattered on lesions, separate, immersed

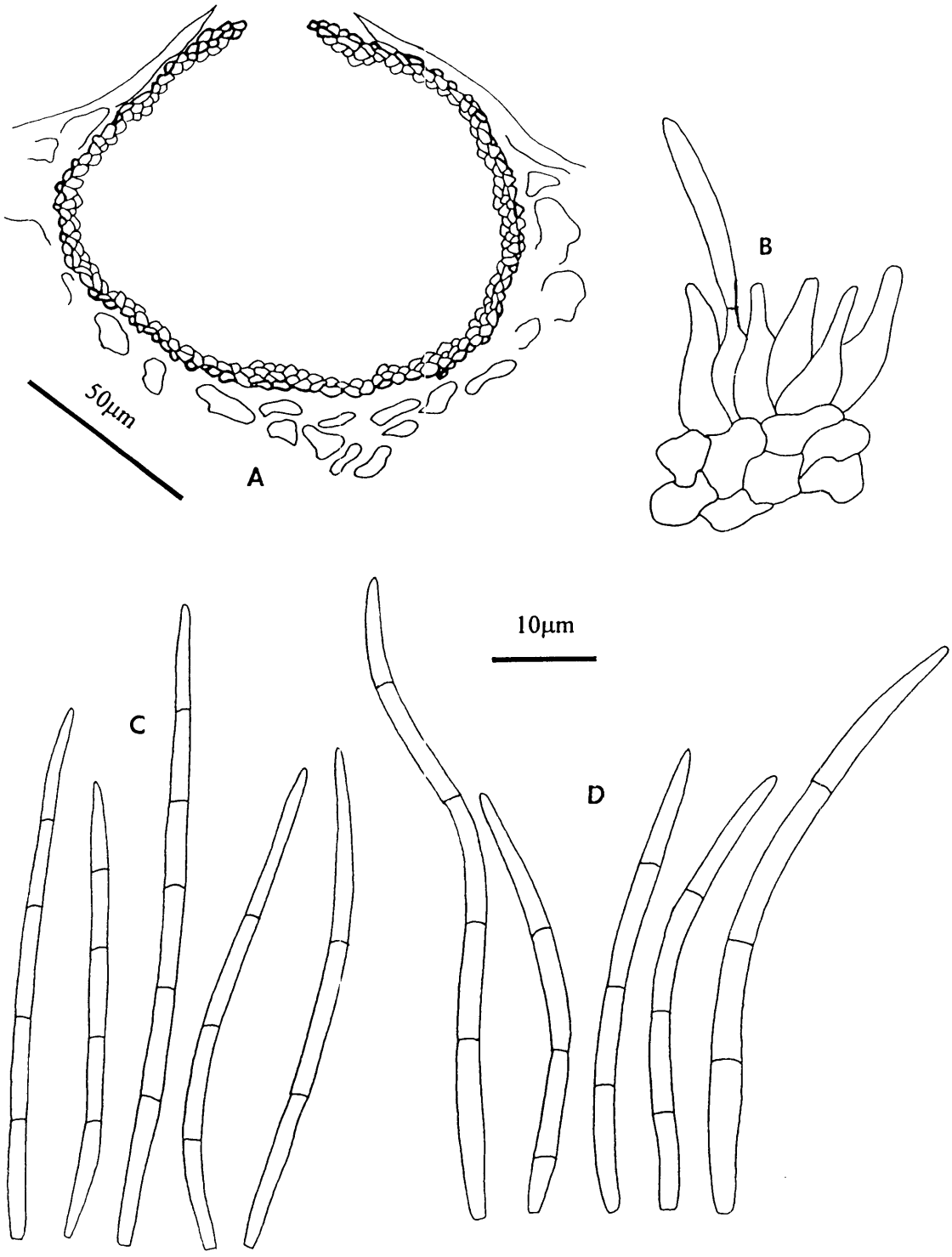

Fig.52 *Septoria stellariae* (A) v.s conidioma DAR 4752; (B) conidiogenous cells DAR 4752; (C) conidia DAR 4752; (D) conidia BRIP 11407 ex *Drymaria*

becoming erumpent, brown, globose, 70-150μm diam., pycnidial. *Ostiole* single, apical, 20-35μm, cells around opening dark brown. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, lageniform, 8-12 x 4μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 2-4 septate, straight to slightly curved, (35-)45-60(-85) x 1.5-2μm, with truncate base and tapering gradually to a rounded or sub-acute apex.

Hosts: *Drymaria diandra* Blume, *Stellaria media* (L.) Vill.

Distribution: New South Wales (Anon 1955), Queensland, South Australia (Warcup & Talbot 1981, Cooke & Dube 1989), Tasmania, Victoria (McAlpine 1902a, Brittlebank 1937-1040, Chambers 1982 as *S. cerastii* and *S. stellariae*).

Septoria stellariae differs from *S. silenicola* in having narrower conidia. Examination of exsiccatus material from both Europe and U.S.A. confirms the identity of this species. *Septoria stellariae* was first recorded in Australia by McAlpine (1902) on *Stellaria media* in Victoria (VPRI 1893). A single collection on *S. multiflora* Hook. (VPRI 8834) has been examined but very few conidia were present and they measured 28-30 x 1μm and were 1-septate. Further collections are needed to establish its identity but it does not appear to be *S. stellariae*. The collection on *Drymaria diandra* from Queensland is morphologically identical with collections on *S. media* and occurs in the same locality as a collection from that host.

Specimens examined:
AUSTRALIAN COLLECTIONS:

on *Drymaria diandra*; **Queensland**; Mount Tambourine; 16 May 1976, J.L. Alcorn (BRIP 11407);

on *Stellaria media*; **New South Wales**; Dugnam's Creek, 29 Oct. 1953, J. Walker (DAR 4752); Narara, 2 Oct. 1956, L.R. Fraser (DAR 5726); **Queensland**; Mount Tambourine, 30 Aug. 1983, J.L. Alcorn 8335 (BRIP 14152); **South Australia**; Kingswood, 20 Sept. 1980, J.H. Warcup (DAR 16762); **Tasmania**; Devonport, 9 Jan. 1985, B. Beattie (DAR 72655); **Victoria**; Armadale, 1900 (VPRI 1893);

Septoria sp.; on *Stellaria multiflora*; **Victoria**; Mount Arapiles, 3 Nov. 1895 (VPRI 8834).

EXTRALIMITAL COLLECTIONS:
on *Stellaria media*; Wisconsin, **U.S.A.**, May 1894, F.L. Stevens, *Fungi Columbiani* No. 775 (DAR 53919); Vanessburg, **Sweden**, 18 Sept. 1894, A.G. Eliasson, *Flora Suecica Plantae Scandinavicae* (DAR 62783 ex S); Lanna, Uppland, **Sweden**, 20 Aug. 1896, A.G. Eliasson (DAR 62791 ex S); Dolina, **U.S.S.R.**, 23 June 1897, A. Kmet, *Fungi Schemnitziensis* (DAR 64394).

CELASTRACEAE

Septoria japonica Oudem., *Nederl. Kruidkund. Arch.* (Ser.2) **3**: 273 (1901)

Listed by Brittlebank (1937-1940) and Chambers (1982) occurring on *Euonymus japonica* Thunb. in Victoria in 1914. No herbarium material under this name has been located and the record cannot be verified. *Septoria japonica* Oudem. is a later homonyn of *S. japonica* Thüm. described from *Ligustrum japonicum*.

CHENOPODIACEAE

Two species of *Septoria* are distinguished in Australia on hosts in the Chenopodiaceae. *Septoria betae* is described from *Beta* in New South Wales and *S. suaedae-australis* from *Suaeda* in South Australia. Australian records of *Septoria chenopodii* and *S. atriplicis* on *Chenopdium* and *Atriplex* are referred to *Stagonospora atriplicis*.

Key to Australian species of *Septoria* on Chenopdiaceae

1 Conidia 12-27 x 1.5-2μm, on *Beta* spp.....**S. betae**
1: Conidia wider than 2μm.....2

2 Conidia 15-35 x 3.5-4(-4.5)μm, on *Chenopdium* and *Atriplex*.....(**Stagonospora atriplicis**)
2: Conidia 43-58 x 3μm, on *Suaeda*.....**S. suaedae-australis**

Stagonospora atriplicis (Westend.) Lind, *Danish Fungi* p.444: (1913)

≡ *Phyllosticta atriplicis* Westend. *Bull Acad. Sci. Bruxelles* **18**: 397 (1851)

= *Septoria atriplicis* (Westend.) Fuckel, *Symbolae mycologicae* 390 (1870)

= *Septoria chenopodii* Westend. *Bull. Acad. Sci. Bruxelles* **18**: 396: (1851)

= *Septoria westendorpii* G. Winter, Hedwigia **26**: 26 (1887)

(Fig. 53)

Leaf lesions hologenous, irregular, 1-4mm diam., upper surface lesions creamy white, slightly raised with an indistinct margin seen as a pale brown discolouration, lower surface lesions pale with no margin. *Conidiomata* amphigenous, scattered on lesions, immersed becoming erumpent, separate, globose, 180-250µm diam., pycnidial. *Ostiole* single, apical, occasionally slightly papillate, 24-36µm, cells around opening darkened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, doliiform to clavate, 6-8 x 4-5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding from percurrently proliferating conidiogenous loci. *Conidia* hyaline, filiform, cylindrical to bacilliform, 1-3 septate, 15-35 x 3.5-4(-4.5)µm, with a truncate base and rounded apex.

Hosts: *Atriplex semibaccata* R.Br., *Chenopodium album* L., *C. murale* L., *Chenopodium* sp.

Distribution: New South Wales (Anon 1954a as *Stagonospora atriplicis* on *C. album*, Anon. 1960 as *Septoria chenopodii* on *C. album*), Queensland (Alcorn 1972 as *Stagonospora chenopodii* Peck), South Australia (Hansford 1954 as *Stagonospora atriplicis*; Warcup & Talbot 1981, Cooke & Dube 1989; both as *Septoria chenopodii*), Victoria (Brittlebank 1937-1940 as *Septoria atriplicis* and *S. chenopodii*, Chambers 1982 as *Septoria atriplicis*).

Stagonospora atriplicis is included here since it has been reported in the Australian literature under several genera including *Septoria*. In South Australia it has been recorded on *Chenopodium murale* as *Stagonospora atriplicis* by Hansford (1954) and on both *Chenopodium album* and *C. murale* as *Septoria chenopodii* (Cooke & Dube 1989). In Victoria it has been reported on *C. album* as both *Septoria atriplicis* and *Ascochyta chenopodii* Rostr. All of these names are regarded as synonyms of *Stagonospora atriplicis* by Lind (1913) and examination of much of the Australian material has revealed that they are indistinguishable from *S. atriplicis* as defined by Lind. The conidiomata are pycnidial, conidiogenesis is holoblastic and percurrent which combined with the cylindrical and

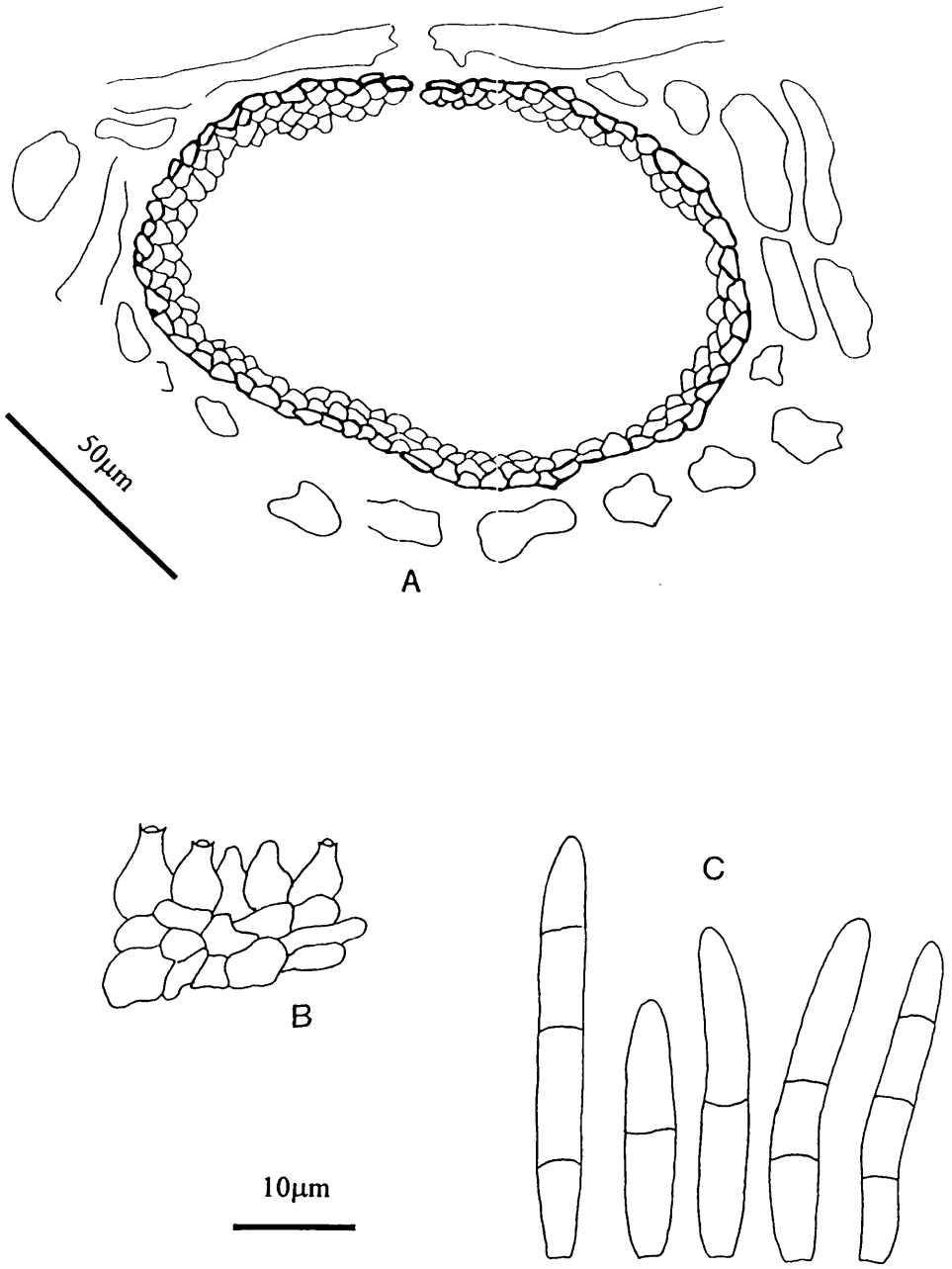

Fig.53 *Stagonospora atriplicis* ADW 1778 (A) v.s conidioma; (B) conidiogenous cells; (C) conidia

slightly bacilliform conidia places this species in *Stagonospora* (Sacc.) Sacc. as defined by Sutton (1980).

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Atriplex semibaccata*; **New South Wales**; Bathurst, June 1933, T.G.B. Osborn (DAR 60539);

on *Chenopodium album*; **South Australia**; Glen Osmond, Aug. 1928, G. Samuels (ADW 1778);

on *Chenopodium murale*; **South Australia**; Urrbrae, Mar. 1924, G. Samuel (ADW 2075); Meningie, June 1953, L.D. Williams (ADW 3440); Meningie, Nov. 1955, L.D. Williams (ADW 6703);

on *Chenopodium* sp.; **Victoria**; Kangaroo Lake, May 1936, A.T. Pugsley (VPRI 1767).

EXTRALIMITAL COLLECTIONS:

on *Chenopodium album*; Canterbury, **New Zealand**, 29 Mar. 1957, H.C. Smith (DAR 62766);

on *Chenopodium hybridum*; Wisconsin, **U.S.A.**, H.C. Greene 2100 (DAR 15245 ex WIS);

on *Chenopodium murale*; Vilcea, **Roumania**, 30 July 1975, G. Negrean, *Herb. Mycol. Romanicum* No. 2743 (DAR 48316).

Septoria betae Westend., *Herb. Crypt. Belg.* No. 296 (1847)

(Fig. 54)

Leaf lesions hologenous, orbicular to irregular, 1-2mm diam., often coalescing into blotches up to 5mm diam., lesions on both surfaces pale grey-brown with a distinct dark brown raised margin. *Conidiomata* amphigenous, scattered on lesions, immersed becoming erumpent, black, globose, pycnidial, 40-85µm diam. *Ostiole* single, apical, 15-35µm, cells around the opening dark and slightly thickened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, doliiform to lageniform, 5-8 x 2-3.5µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not

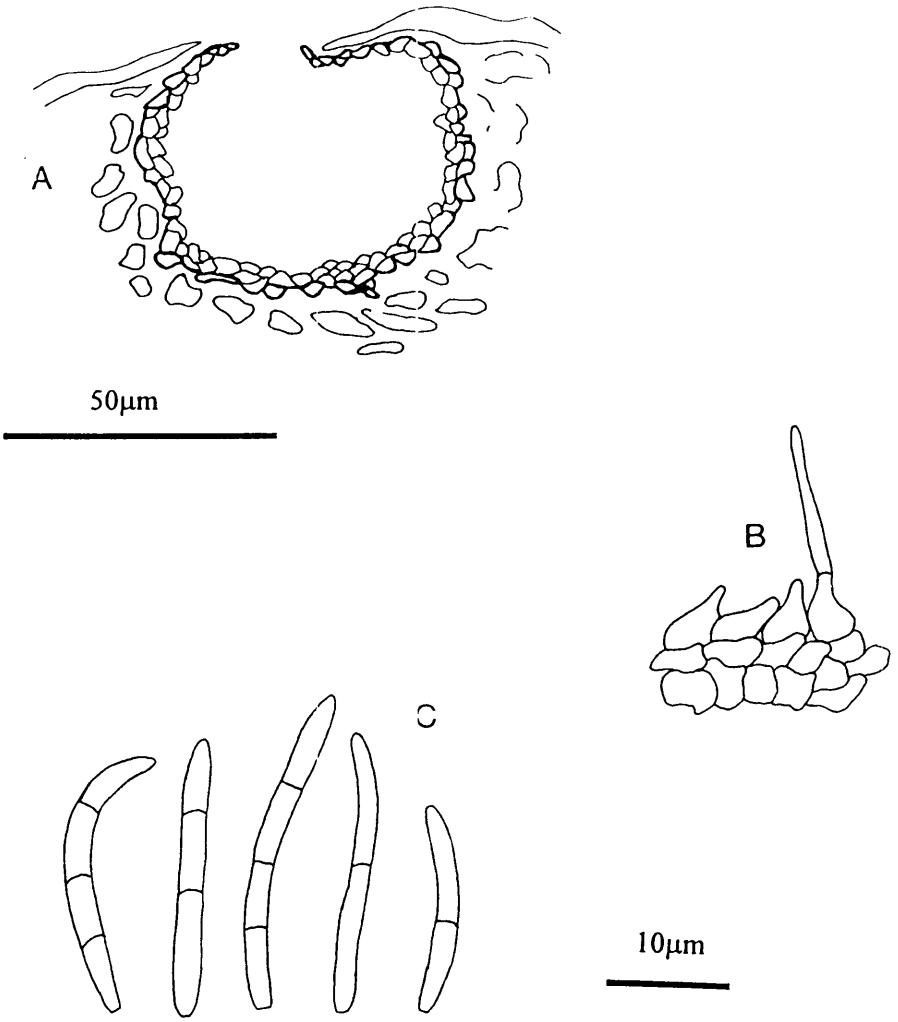

Fig.54 *Septoria betae* DAR 12419 (A) v.s conidioma; (B) conidiogenous cells; (C) conidia

observed. *Conidia* hyaline, filiform, cylindrical, 1-3 septate, straight to slightly curved, 12-27 x 1.5-2μm, with a truncate base and rounded apex.

Host: *Beta vulgaris* L. ssp. *cicla* (L.) Koch (Silver beet), *B. vulgaris* L. ssp. *vulgaris* (Beetroot).

Distribution: New South Wales (Anon 1950), Norfolk Island, Victoria (McAlpine 1903, Brittlebank 1937-1940, Harrison *et al.* 1975, Washington & Nancarrow 1983, see discussion below).

Septoria betae has rarely been described in the literature although it has been reported several times as occurring on *Beta* spp. (Grove 1935, Farr *et al.* 1989). In the original description no conidial dimensions were given and the only description available is by Grove (1935) who described the conidia as 13-18 x 1-1.5μm on *Beta maritima* in the United Kingdom but also noted the lack of spore size from cultivated beet "as the authorities are silent on that point". In Australia, *S. betae* was first recorded by McAlpine (1903) on *Beta vulgaris* from Port Fairy in Victoria. Examination of the specimen (VPRI 1757) has shown that the only fungus present is *Sphaerellospsis filum* (Biv.-Bern. Ex Fr.) Sutton parasitising the rust *Uromyces betae* J. Kickx fil. Another species of *Septoria* described from *Beta* is *S. betivora* Urries on *B. patellaris* in the Canary Islands. I have been unable to cite the original description for comparison.

Specimens examined:

on *Beta vulgaris* ssp. *cicla*; **New South Wales**; Chipping Norton, 15 Nov. 1963, Seery Bros. (DAR 12419);

on *Beta vulgaris* ssp. *vulgaris*; **New South Wales**; Cowra, June 1976, G.E. Drew (DAR 27861); **Norfolk Island**; 14 Oct 1960, J. Walker (DAR 8193).

Septoria suaedae-australis Hansf., *Proc. Linn. Soc. N.S.W.* **79**: 123 (1954) published as *suadae-australis*. Orthographic variant of host genus *Suaeda* as "*suadae-australis*" here corrected.

(Fig. 55)

Leaf lesions absent. *Conidiomata* scattered on dead leaves and stems, immersed becoming erumpent, black, globose, 110-150μm diam., pycnidial. *Ostiole* single, apical, 30-50μm, cells around the opening dark brown and slightly thickened. *Conidiomatal wall* 3 cells thick, composed of

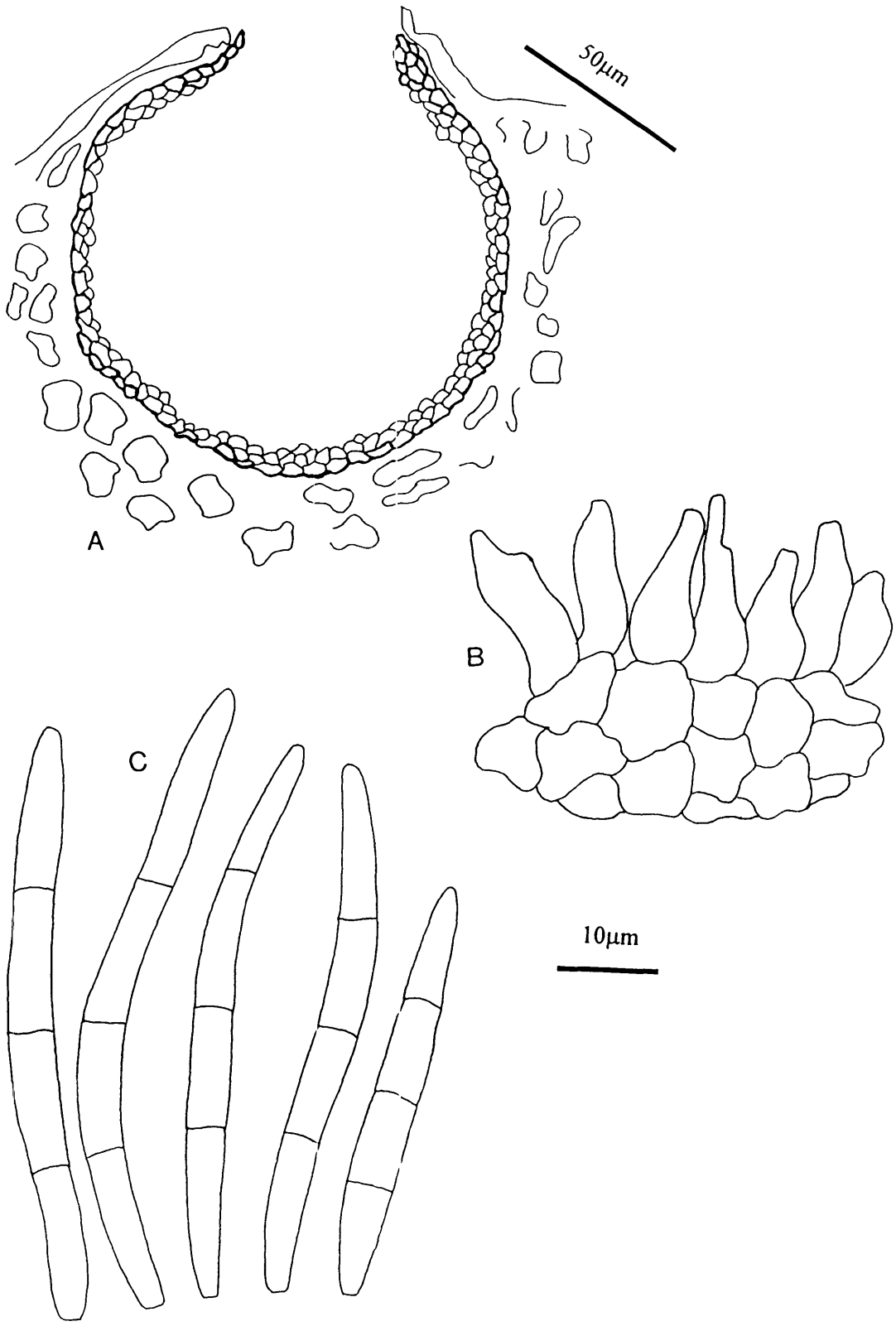

Fig.55 *Septoria suaedae-australis* ADW 3490 (A) v.s conidioma; (B) conidiogenous cells; (C) conidia

pseudoparenchymatous tissue, *textura angularis*, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, ampulliform, 10-15 x 5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, cylindrical, 3 septate, straight to slightly curved, 43-58 x 3µm, with truncate base and rounded apex.

Teleomorph:

Mycosphaerella suaedae-australis Hansf., *Proc. Linn. Soc. N.S.W.* **79**: 122-123 (1954)

(Fig. 56)

Ascomata scattered on dead leaves and stems, discrete, immersed becoming erumpent, black, globose, 80-120µm, with a single apical ostiole. *Ascomatal wall* 5 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer 3 layers dark brown, inner two layers hyaline. *Asci* bitunicate, fasciculate, sessile, aparaphysate, cylindrical, 50-60 x 10-13µm, apex thickened 3-5µm, eight-spored. *Ascospores*, hyaline, smooth-walled, 2-3 seriate, ellipsoidal with rounded ends, medianly 1-septate, not constricted at the septum, 18-20 x 3-4µm.

Spermatial state: *Asteromella* sp.

Host: *Suaeda australis* (R. Br.) Moq.

Distribution: South Australia (Hansford 1954; Warcup & Talbot 1981, Cooke & Dube 1989 as *Mycosphaerella suaedae-australis*).

Hansford (1954) described *Mycosphaerella suaedae-australis* and its accompanying anamorph *Septoria suaedae-australis* (as *suadae-australis*) from South Australia. Examination of the type collection has revealed the additional presence of a spermatial state referrable to the genus *Asteromella*. No other species of *Septoria* have been described from *Suaeda*. *Stagonospora suaedae* Syd., described from *Suaeda maritima* has conidia 12-25 x 3-5µm with 1-3 septa and from the description it is probably referrable to *Stagonospora atriplicis* (see above).

Specimen examined: on *Suaeda australis*; **South Australia**; Meningie, L.D. Williams (ADW 3490) **holotype** of both *M. suaedae-australis* and *S. sueadae-australis*.

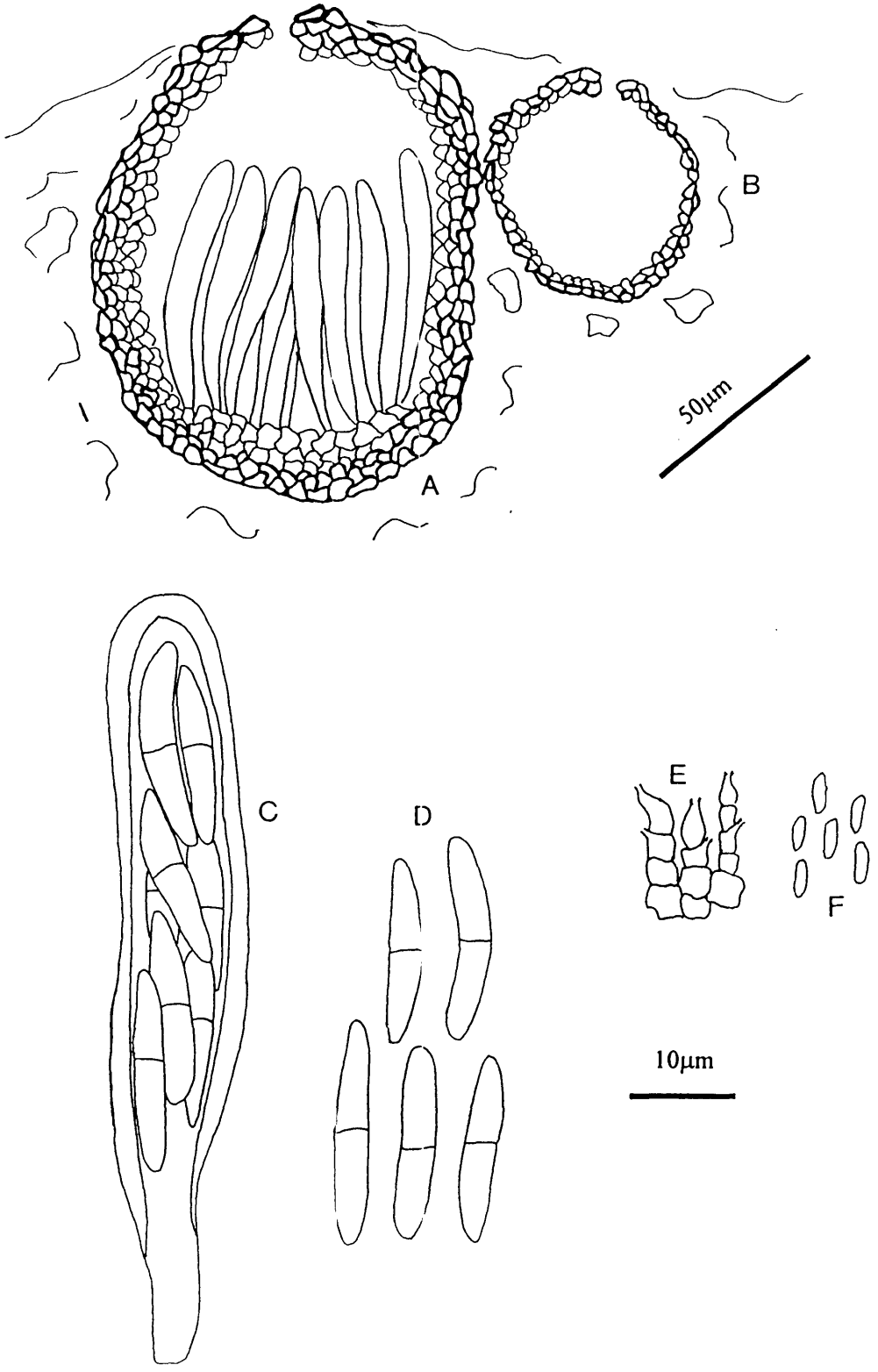

Fig.56 *Mycosphaerella suaedae-australis* ADW 3490 (A) v.s.ascoma; (B) v.s *Asteromella* spermatial anamorph; (C) ascus; (D) ascospores; (E) conidiogenous cells of *Asteromella* anamorph; (F) conidia of *Asteromella* anamorph

CONVOLVULACEAE

Septoria convolvuli Desm., *Ann. Sci. Nat.(Ser. 2)* **17**: 108 (1842)

= *Ascochyta convolvuli* Lib., *Pl. Crypt. Ard.* No. 56 (1830)

= *Septoria flagellaris* Ell. & Everh., *Bull. Torrey Bot. Club* **10**: 97 (1883)

= *Septoria septulata* Beach, *Am. J. Bot.* **6**: 19 (1919)

(Fig. 57)

Leaf lesions hologenous, orbicular to irregular, 3-5mm diam., lesions on both surfaces umber brown with a raised narrow dark brown margin. *Conidiomata* amphigenous, scattered on lesions, immersed becoming erumpent, brown to black, globose, 100-150µm diam., pycnidial. *Ostiole* single, apical, 20-25µm, cells around opening dark brown and slightly thickened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, occasionally septate, ampulliform to lageniform, 8-12 x 5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1-3 septate, straight to slightly curved, 29-40 x 1.5(-2)µm, with truncate base and tapering gradually to an acute apex.

Host: *Convolvulus arvensis* L.

Distribution: New South Wales (Noble *et al* 1935 as *Septoria* sp.), Tasmania.

A large number of species of *Septoria* have been described from *Convolvulus* and its segregate genus *Calystegia*. Grove (1935) and Jørstad (1965) synonymised several taxa under *S. convolvuli* including *S. flagellaris* and *S. septulata*. Grove (1935) also transferred *S. calystegiae* to *Stagonospora* and placed *Septoria sepium* Desm. into synonymy with it. However there are still are large number of taxa which have not been examined including *S. convolvuli* Desm. var. *soldanellae* Brun. (conidia 40-50 x 0.5-1µm), *S. convolvulina* Speg. on *C. arvensis* in Argentina (conidia 40-45 x 2.5-3µm, 1-3 septate), *S. fabletiana* Speg. on *C. soldanella* in Argentina (conidia 25-35 x 1µm), *S. longispora* Bond. (conidia 70-130 x 2.5-3µm, 5 septate) and *S. convolvuli* Desm. var. *dolichospora* Sacc. (conidia 80-95 x 1.5µm). Australian collections are identical with material from Europe and U.S.A. under the name *S. convolvuli* and match descriptions of this species given by Grove (1935) and Jørstad (1965).

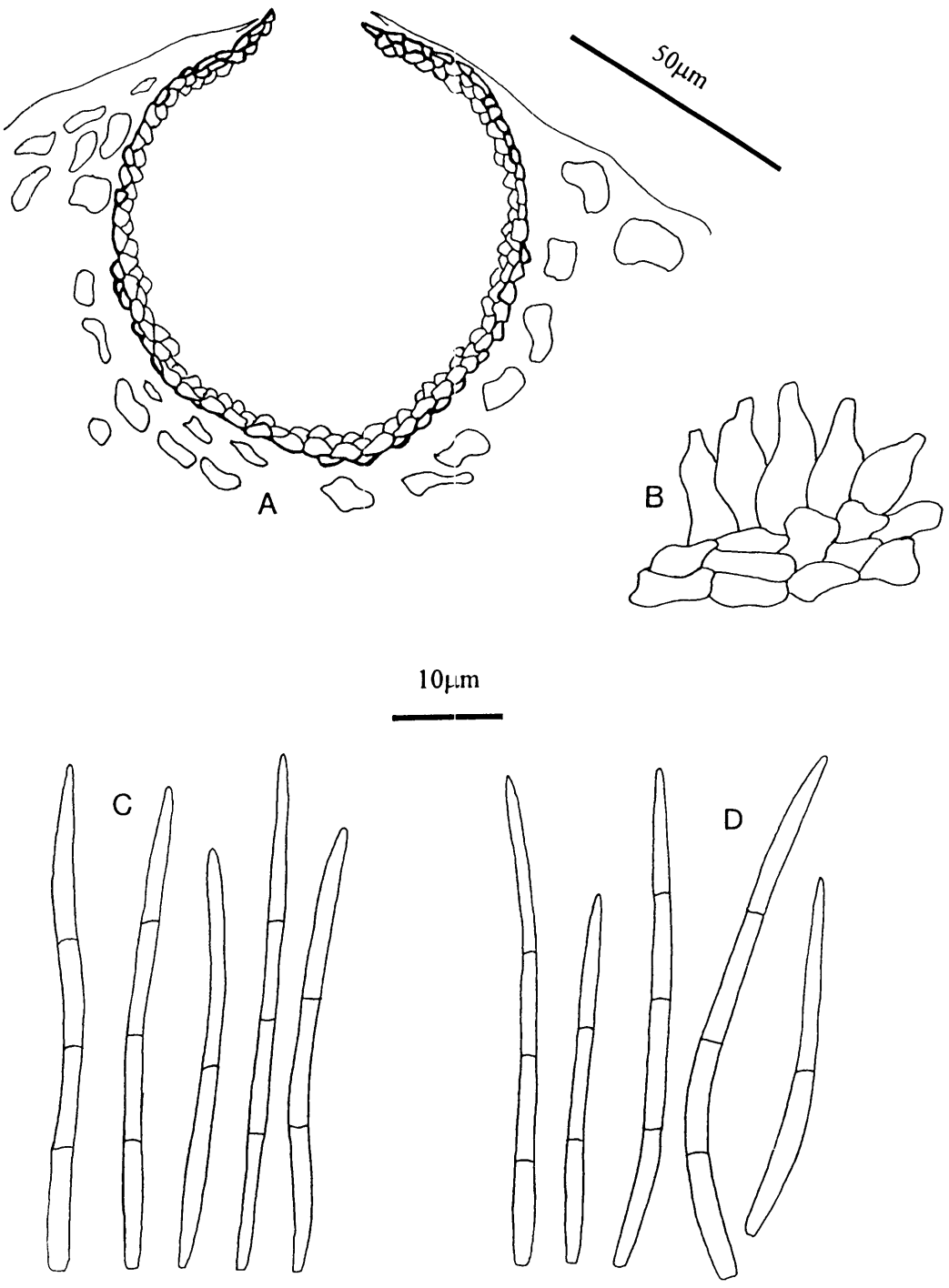

Fig.57 *Septoria convolvuli* (A) v.s conidioma DAR 71777; (B) conidiogenous cells DAR 71777; (C) conidia DAR 71777; (D) conidia DAR 10107 (ex BPI)

Specimens examined:

AUSTRALIAN COLLECTIONS

on *Convovulus arvensis*; **New South Wales**; Narromine, 20 Oct. 1980, D. Trimboli (DAR 35924); **Tasmania**; Railway Yards, Devonport, 26 Oct. 1977, I.D. Geard (DAR 71777).

EXTRALIMITAL COLLECTIONS

on *Convolvulus arvensis*; **Austria**, no date, C. de Kiessler, *Krypt. Exs. Vindobensis* No. 1175 (DAR 62951);

on *Convolvulus sepium*; Washington, **U.S.A.**, Oct. 1902, F.W. Patterson & M.P. Dyre (DAR 10099 ex BPI 60191); Urbana, Illinois, **U.S.A.**, 9 July 1926, W.G. Solheim (DAR 10107 ex BPI 70886);

on *Convolvulus* sp.; **United Kingdom**, J.E. Vize *Microfungi Britanici* No. 308 (MEL).

CUCRBITACEAE

Septoria cucurbitacearum Sacc., *Nuovo giornale bot. ital.* **8**: 205 (1876)

(Fig. 58)

Leaf lesions hologenous, orbicular to irregular, 1-2mm diam., often coalescing into larger spots 5-6mm diam., lesions on both surfaces pale creamy yellow with a narrow raised pale brown margin, at maturity centre of lesions become grey-white. *Conidiomata* amphigenous, mostly epigenous, scattered on lesions, separate, immersed becoming erumpent, globose, brown, 100-150µm diam., pycnidial. *Ostiole* single, apical, 25-45µm, cells around opening dark and thickened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform to cylindrical, 9-14 x 3-4µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, 3-5 septate, straight to curved, 30-45(-70) x 1.5-2µm, with truncate to slightly rounded base and often tapering in the upper third to a sub-acute or rounded apex.

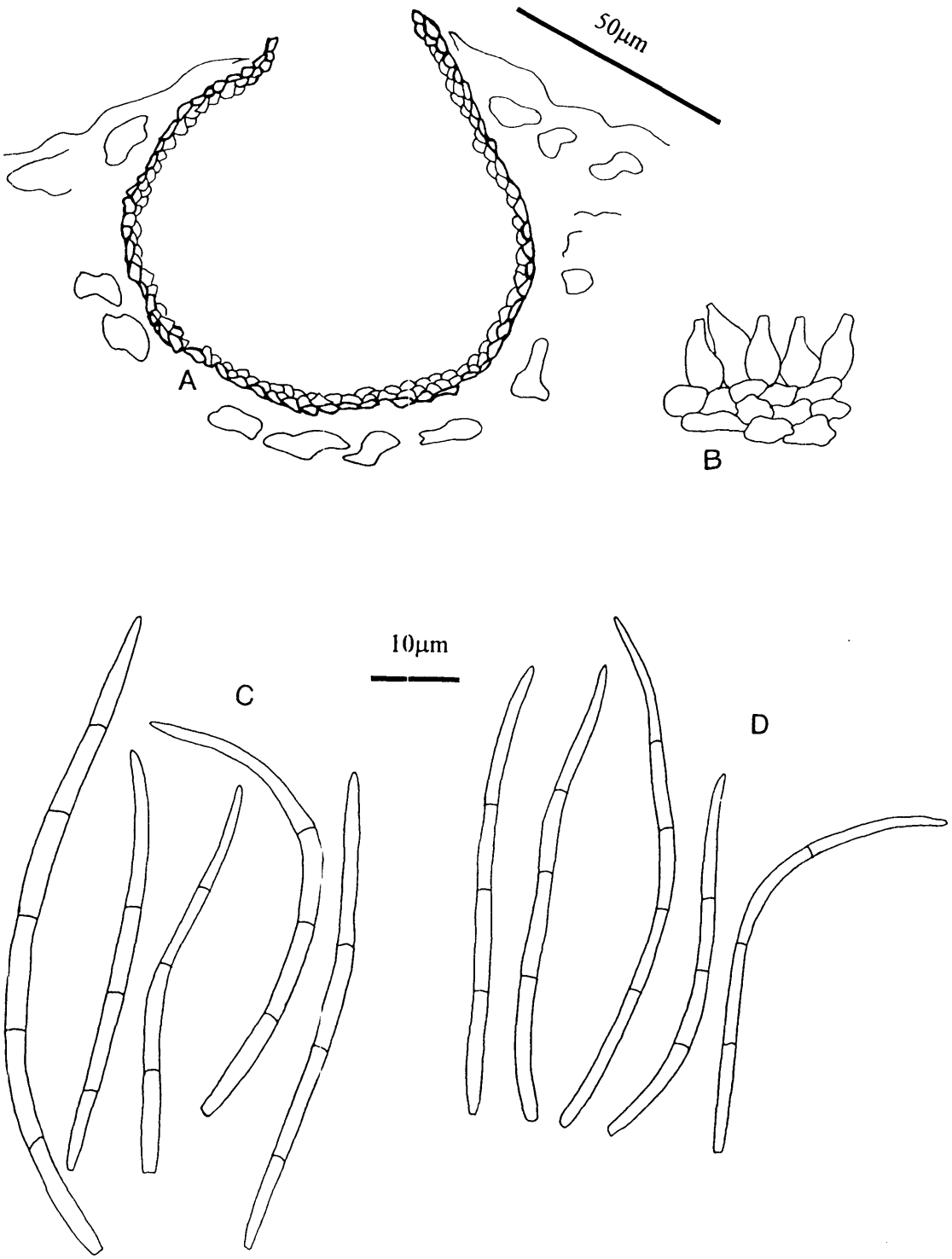

Fig.58 *Septoria cucurbitacearum* (A) v.s conidioma DAR 19520; (B) conidiogenous cells DAR 19520; (C) conidia DAR 19520; (D) conidia DAR 64374 (*Fungi Schemnitziensis*)

Hosts: *Citrullus lanatus* (Thunb.) Matsum & Nakai (Watermelon), *Cucumis sativus* L., *Cucurbita maxima* Duchesne (Pumpkin), *C. pepo* L. (Squash), *Cucurbita* sp. (Sphaghetti squash).

Distribution: New South Wales (Noble *et al.* 1935, 1937), Queensland (Alcorn 1972), Victoria (Brittlebank 1937-1940, Harrison *et al.* 1975, Washington & Nancarrow 1983).

The separation of *S. cucurbitacearum* from other taxa described on *Cucumis* and *Cucurbita* has been fully discussed by Punithalingam (1982). In Australia *S. cucurbitacearum* is also found on *Citrullus lanatus*. *Septoria citrulli* Ellis & Everh. described from *Citrullus* in the U.S.A. was reported to have conidia 10-25 x 1.5-2μm, much shorter than *S. cucurbitacearum*. All Australian collections are identical with exsiccatus material under this name and the description given by Punithalingam (1982).

Specimens examined:

AUSTRALIAN COLLECTIONS:
on *Citrullus vulgaris*; **Queensland**; Beerwah, 18 Nov 1970, K.G. Pegg (BRIP 5755) host as *C. vulgaris* Schrad.;

on *Cucumis sativus*; **New South Wales**; Kurrajong, Feb. 1959 (DAR 4926);

on *Cucurbita maxima*; **New South Wales**; Tenterfield, 1922 (DAR 1366); Goulburn, 2 Feb. 1970, K.F. Flemons (DAR 19520); **Queensland**; Glasshouse Mountains, 4 Aug. 1960, J. Gowen (BRIP 5750); **Victoria**; North Clayton, 29 Mar. 1976, D. Gordon (VPRI 10065);

on *Cucurbita pepo*; **New South Wales**; Catherine Hill Bay, Nov. 1930 (DAR 1369); Leura, 21 Jan. 1953, P.G. Valder (DAR 4326); **Queensland**; Nambour, 14 Aug. 1967 (BRIP 5754);

on *Cucurbita* sp.; **Victoria**; Hoddle's Creek, 29 Jan. 1986, R. Clarke (VPRI 13514).

EXTRALIMITAL COLLECTIONS:
on *Cucumis melo*; Racine, Wisconsin, **U.S.A.**, Sept. 1890, J.J. Davis, *Seymour & Earle Economic Fungi* No. 439 (DAR 51720);

on *Cucurbita maxima*; Auckland, **New Zealand**, 3 Jan. 1968, J.M. Dingley (DAR 62680 ex PDD 26151);

on *Cucurbita pepo*; Prencow, **Czechoslovakia**, 19 July 1896, A. Kmet, *Fungi Schemnitzienses* (DAR 64374).

CYPERACEAE

Clypeopycnis lepidospermatis (Cooke & Massee) Sutton & Pascoe, *Stud. Mycol.* **31**: 183 (1989)
≡ *Septoria lepidospermatis* Cooke & Massee, *Grevillea* **19**: 91 (1891)

(Fig. 59)

Leaf lesions hologenous, orbicular to irregular, becoming confluent and elongated 5-15 x 2-6mm., lesions on both surfaces pale grey in the centre with a narrow mid-brown margin. *Conidiomata* amphigenous, scattered on lesions, separate, immersed, black, obconical, 70-130 x 70-90μm, eustromatic. *Ostiole* single, apical, narrow, 5-10μm. *Conidiomatal wall* of two sections being up to 13 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer six to eight layers dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, lageniform to cylindrical, 6-10 x 2-4μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding at the same level from enteroblastic conidiogenous loci. *Conidia* hyaline, filiform, 0-3 septate, straight to slightly curved, 15-35 x 1-1.5(-2)μm, with a truncate base and acute apex.

Mycosphaerella lepidospermatis Hansford, *Proc. Linn. Soc. NSW* **82**: 218 (1957)

(Fig. 60)

Ascomata amphigenous, scattered on leaf lesions and surrounding dead tissue, sub-epidermal, scarcely erumpent, black, globose, 110-130μm diam., with a single apical ostiole 10-15μm. *Ascomatal wall* 3 cells thick, composed of dark brown pseudoparenchymatous tissue, *textura angularis*. *Asci* bitunicate, obclavate to ellipsoidal, 42-50 x 11-14m, sessile, eight-spored. *Ascospores* hyaline, smooth-walled, 1-3 seriate, ellipsoidal with rounded ends, upper cell occasionally slightly enlarged, medianly 1-septate, non-constricted at the septum, 10-15 x 2.5-3μm.

Host: *Lepidosperma gladiatum* Labill. (Coastal Sword-sedge).

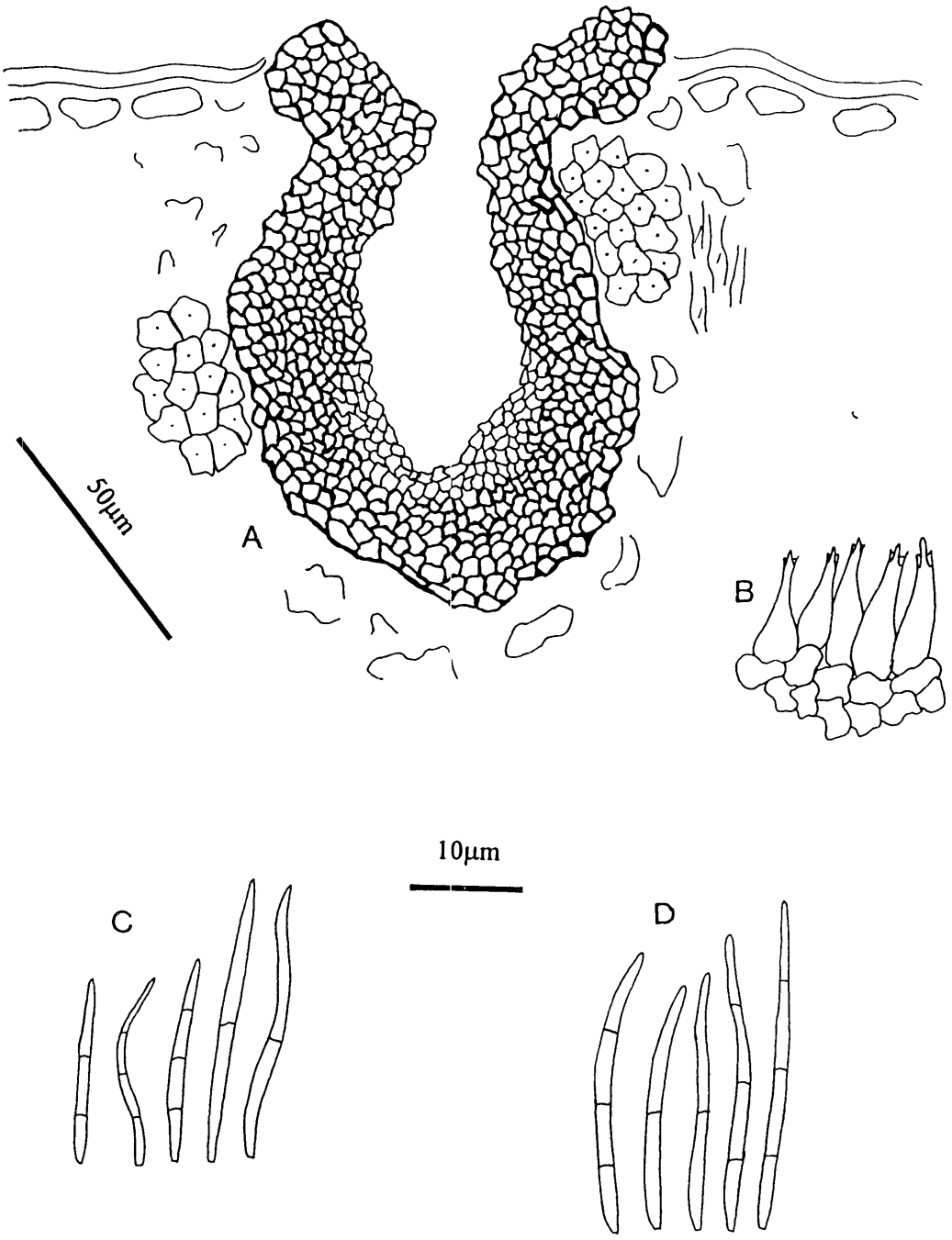

Fig.59 *Clypeopycnis lepidospermatis* (A) v.s conidioma DAR 44159; (B) conidiogenous cells DAR 44159; (C) conidia DAR 44159; (D) conidia ex type in VPRI

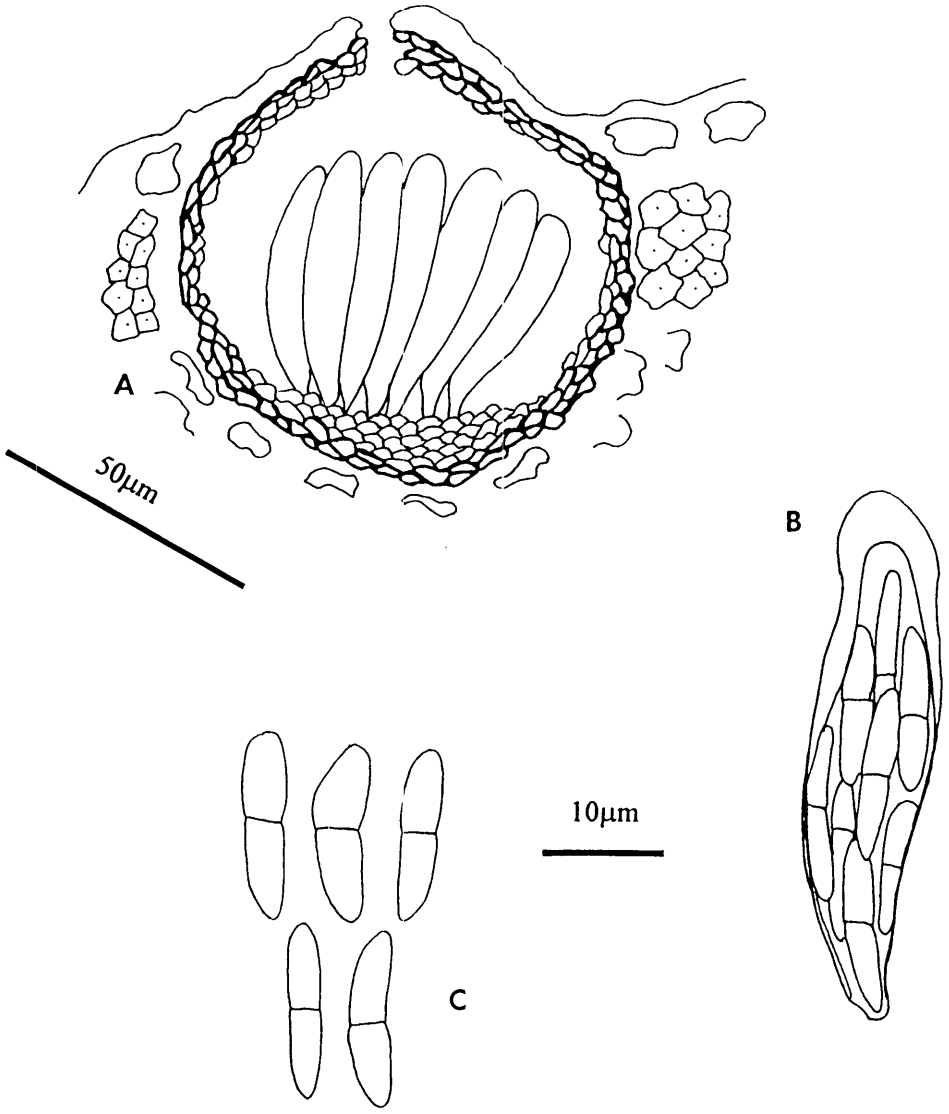

Fig.60. *Mycosphaerella lepidospermatis* ADW 7712 holotype; (A) v.s. ascoma; (B) ascus; (C) ascospores

Distribution: New South Wales, South Australia (Hansford 1957, Warcup & Talbot 1981, Cooke & Dube 1989), Tasmania, Victoria (Cooke & Massee 1891, Cooke 1892, Cobb 1893, McAlpine 1895, Brittlebank 1937-1940 as *S. lepidospermi*, Woodcock & Clarke 1983, Sutton & Pascoe 1989).

Sutton & Pascoe (1989) transferred *Septoria lepidospermatis* to the genus *Clypeopycnis* Petrak on the basis of the eustromatic character of the conidioma and enteroblastic (phialidic) conidiogenesis, although recognising that *Clypeopycnis* was not necessarily the best genus to accommodate this taxon. In their description the conidia were given as being 1-septate. However examination of microscope slides made from the type collection (in VPRI) clearly show 3-septate conidia present. Identical conidia are found in DAR 44159 from Tasmania. On the basis of the multi-septate conidia two other genera become available for redisposition of *S. lepidospermatis*, these being *Phlyctaeniella* Petrak and *Periperidium* Darker. Both genera have thick-walled unilocular conidiomata, phialidic conidiogenesis on septate conidiogenous cells and have multi-septate conidia (Sutton 1980). *Periperidium acicola* Darker occurrs on needles of *Picea* in Canada (Sutton 1980) and is probably an unsuitable genus for *S. lepidospermatis*. Sutton (1980) did not examine the type species of *Phlyctaeniella* (*P. polonica* Petrak) and the current concept is based on *P. humuli* Petrak and examination of the type of *P. polonica* is still needed to define the genus. *Septoria lepidospermatis* is still difficult to accommodate in any of the known genera. Hansford (1957) described *Mycosphaerella lepidospermatis* as the probable teleomorph of *Clypeopycnis lepidiospermatis*. Examination of the type material confirms that it is found in identical leaf lesions associated with *C. lepidospermatis*.

Specimens examined: all on *Lepidosperma gladiatum*; **New South Wales**; Lake Wonboyn, 13 Apr. 1995, M.J. Priest (DAR 53202); **South Australia**; Meningie, Dec. 1956, L.D. Williams (ADW 7710); Meningie, Dec. 1956, L.D. Williams 100 (ADW 7712) **holotype** of *Mycosphaerella lepidospermatis*; **Tasmania**; no locality, 1972, D.I. Morris (DAR 44159); **Victoria**; no locality, Mrs. Martin 779 (slides in VPRI ex K) **holotype** of *S. lepidospermatis*; Discovery Bay, Nelson, 23 May 1984, I.G. Pascoe (DAR 53200 ex VPRI 12315); Powlett River Reserve, 11 Mar. 1986, I.G. Pascoe & B.C. Sutton (DAR 53201 ex VPRI 13577).

EBENACEAE

Septoria diospyri McAlp., *Proc. Linn. Soc. N.S.W.* **22**: 42 (1897)

Septoria diospyri was described from *Diospyros australis* (given as *D. cargillea* F. Muell.) collected by Maiden in New South Wales. In the original description the conidiomata were described as minute and membranaceous with septate appendages and conidia 40-55 x 1-1.5µm and 5-septate. According to I.G. Pascoe (Curator VPRI), the type packet (VPRI 1781) is empty and was annotated as so by Brittlebank in 1914. Two microscope slides from the type are available but one is broken, the other shows setose conidia consistent with *Kazulia vagans* (Speg.) Nag Raj. *Septoria diospyri* must be considered a *nomen dubium*. *Septoria diospyri* has been listed by Hynes *et al.* (1935) for New South Wales (type locality) and in error for Victoria by Brittlebank (1937-1940), Fisher & Freeman (1959) and Chambers (1982) as no collections are known from that state.

ERICACEAE

Phloeospora azaleae (Voglino) Priest ***comb. nov.***

≡ *Septoria azaleae* Voglino, *Malphigia* **13**: 73 (1899)

(Fig. 61)

Leaf lesions hologenous, irregular, 2-4mm diam., upper surface lesions mid to dark brown with indistinct margin, bounded by leaf veins, at first appearing "water-soaked", later becoming sharply defined, lower surface lesions pale brown and more diffuse. *Conidiomata* epigenous, scattered on lesions, acervular, 45-95µm diam., immersed becoming erumpent by irregular rupture of the epidermal tissue, wall 2-3 cells thick, composed of very pale brown pseudoparenchymatous tissue, textura angularis. *Conidiogenous cells* arising from inner cell layer, hyaline, discrete, doliiform to lageniform, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding from percurrently proliferating conidiogenous loci. *Conidia* hyaline, cylindrical, (1-) 3-5 septate, straight to irregularly curved, (11-)15-35(-43) x (1.5-)2-2.5(-3)µm, with truncate base and rounded apex.

Host: *Rhododendron* spp. cult. (Azalea).

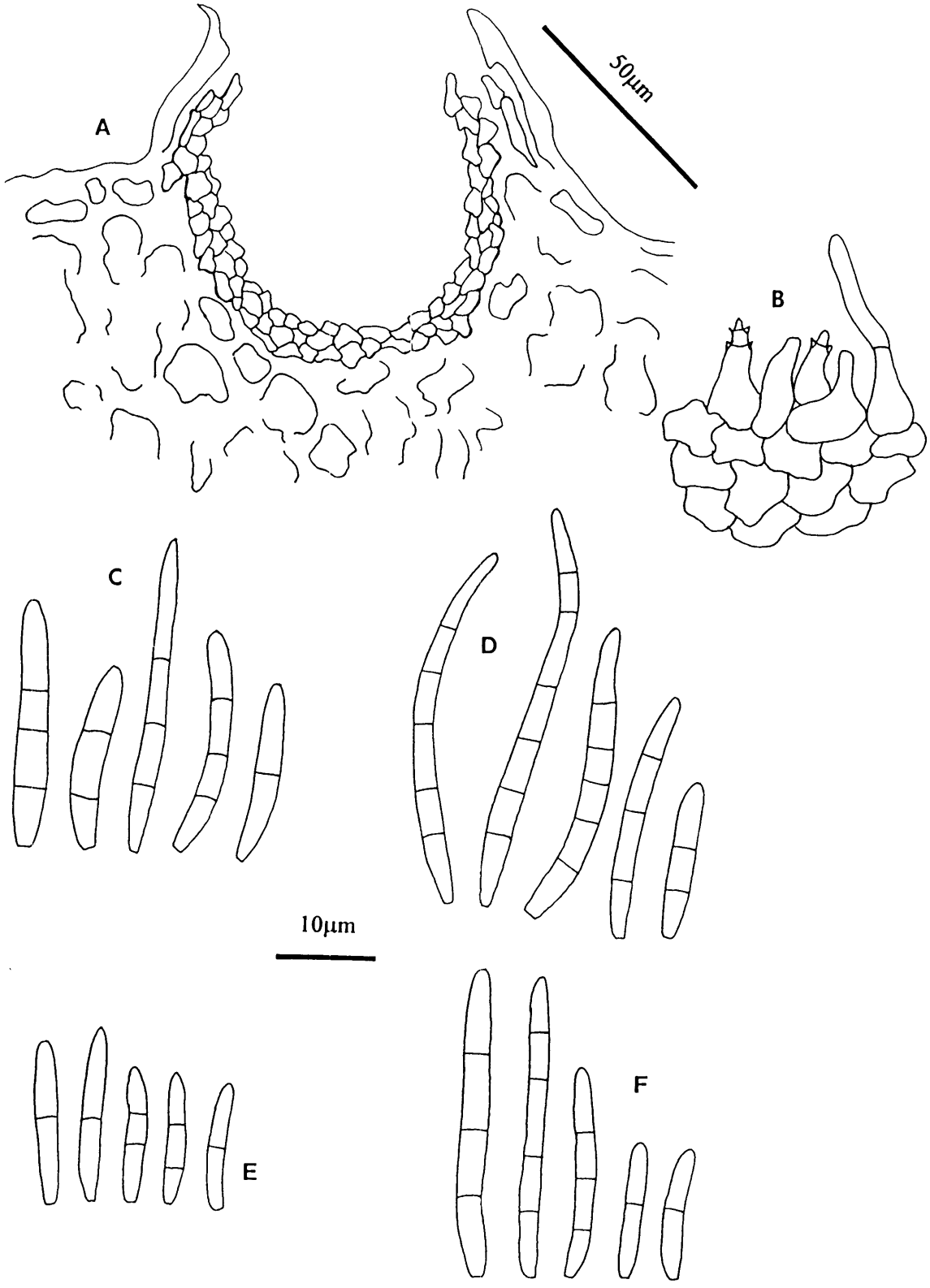

Fig.61. *Phloeospora azaleae*; (A) v.s. conidioma DAR 73647; (B) conidiogenous cells DAR 73647; C-F conidia (C) DAR 73647 ex host; (D) DAR 73647 ex culture; (E) holotype ex PAD; (F) VPRI 15954

Distribution: New South Wales (Anon. 1941, Anon. 1956, Bertus 1979), Queensland (Simmonds 1966), South Australia (Warcup & Talbot 1981, Cooke & Dube 1989), Victoria (Chambers 1982 as *Septoria* sp.).

As the cause of "leaf scorch" of cultivated azalea, this fungus has been recorded world-wide and placed in the genus *Septoria*. However, examination of the type collection and material from Australia has shown that conidiomata are not pycnidial but acervular, lacking any evidence of an ostiole and dehiscing by rupture of the leaf epidermis. Young conidiomata are very pale in colour, a feature noted by Hemmi & Kurata (1931) but in some conidiomata the walls become much darkened and give the appearance of being pycnidial, a feature also clearly illustrated by them. However, there is no evidence of an ostiole at any stage of the development of the conidiomata. In culture, the conidia are produced on a flattened stroma of tissue confirming the acervular nature of the conidioma. Close examination of conidiogenesis reveals that the conidia are produced on percurrently proliferating conidiogenous cells. This, in addition to the acervular conidiomata, place it in *Phloeospora* Wallr. as defined by Sutton (1980). Examination of the type collection shows that conidia are as originally described, being 11-15(-19) x 1.5-2μm and 1-2 septate with similar sized conidia being also reported by Flachs (1926) and found in many Australian collections. However, much longer and more septate conidia have also been found in Australian collections which are similar in size to those reported by Hemmi & Kurata (1931).

The status of several other taxa described from *Rhododendron* spp. is unclear. *Septoria azaleae-indicae* Maulb. has conidia 50-65 x 1.5μm an is clearly close to *S. albo-punctata* Cooke with conidia given as 60-70 x 2. *Septoria rhododendri* Cooke was originally described with conidia 40μm long, but Grove (1935) described them as being 30-40 x 0.8μm, curved and hooked, clearly the β- conidia of a species of *Phomopsis*. It is uncertain whether Grove had examined authentic material of the species in question. *Septoria solitaria* Ellis & Everhart was described from *Rhododendron occidentale* (Torr. & A. Gray) A. Gray (western azalea) in California, U.S.A., with conidia 20 x 2μm and bacilliform. Examination of the type of *S. solitaria* is required to establish if it is conspecific with *P. azaleae* and hence the earliest name for the causal agent of "leaf scorch" of azalea being described in 1894 prior to *S. azaleae*.

On a single collection of Azalea from Victoria (VPRI 21565), a species of *Mycosphaerella* was found associated with *P. azaleae*. The ascomata were hypogenous and very few were mature. The description is as follows:

Mycosphaerella sp:

(Fig.62)

Ascomata hypogenous, associated with lesions of *Phloeospora azaleae*, immersed, becoming erumpent, scattered on lesions, dark brown to black, globose, 80-110μm diam., with a single apical ostiole of 10μ. *Ascomatal wall* 3 cells thick, composed of dark brown pseudoparenchymatous tissue, textura angularis. *Asci* bitunicate, sessile, aparaphysate, 25-30 x 5μm, with a thickened apex to 3μm. *Ascospores* biseriate, hyaline, smooth-walled, medianly 1-septate, ellipsoidal, occasionally constricted at the septum, 10-11 x 2.5(-3)μm.

There are two species of *Mycosphaerella* desribed from species of *Rhododendron*; *M. clintoniana* (House) House (= *Sphaerella rhododendri* Cooke *non* de Not.) with ascospores 10-12 x 2.5μm and *M. rhododendri* Lindau which has ascospores 8-10 x 1.5-2μm (Ellis & Ellis 1985). The closest species is *M. clintoniana* which was originally described from *Rhododendron* in the United Kingdom. No species of *Mycosphaerella* has been described or reported from azalea and whether this taxon is the teleomorph of *P. azaleae* remains unclear since the already named species are not reported to be associated with any anamorph. Another collection of an unnamed species of *Mycosphaerella* on *Rhododendron* (DAR 50487) has ascospores 14-15 x 3-4μm and is different also from the species already discussed.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Rhododendron* sp. cult (Azalea); **New South Wales**; Castle Hill, July 1941, C.J. Magee (DAR 3891); Castle Hill, July 1941, C.J. Magee (DAR 3892); Beecroft, 1 June 1957, L.R. Fraser (DAR 5081);Sydney, June 1959, J. Pearman (DAR 5171) Dolls Point, 11 May 1961, R.H. Turton, (DAR 6365); Mount Wilson, 2 Sept. 1962, P. G. Valder (DAR 7478); Ryde School of Horticulture, North Ryde, 14 Nov. 1962, L. Pratt (DAR 7494); Hazelwood's Nursery, Epping, 8 Apr. 1965, J. Stronach (DAR 13984); Galston, 7 June 1991, G. Stovold (DAR 73647); **Queensland**; Nundah, 8 June 1953, R.B. Morwood (BRIP 5745); Gordon Park, 17 June 1965, M.C. Moffett (BRIP 5746); **South Australia**; Adelaide, no date or collector (ADW 15853); **Victoria**; Cobram, 9 Sept. 1987, D. Williams (VPRI 15590); Heatherton, 20 June 1988, C. Carson (VPRI 15954); Olinda Nurseries, Olinda, 28 Aug 1997, G. Osborne (VPRI 21565) with *Mycosphaerella* sp.

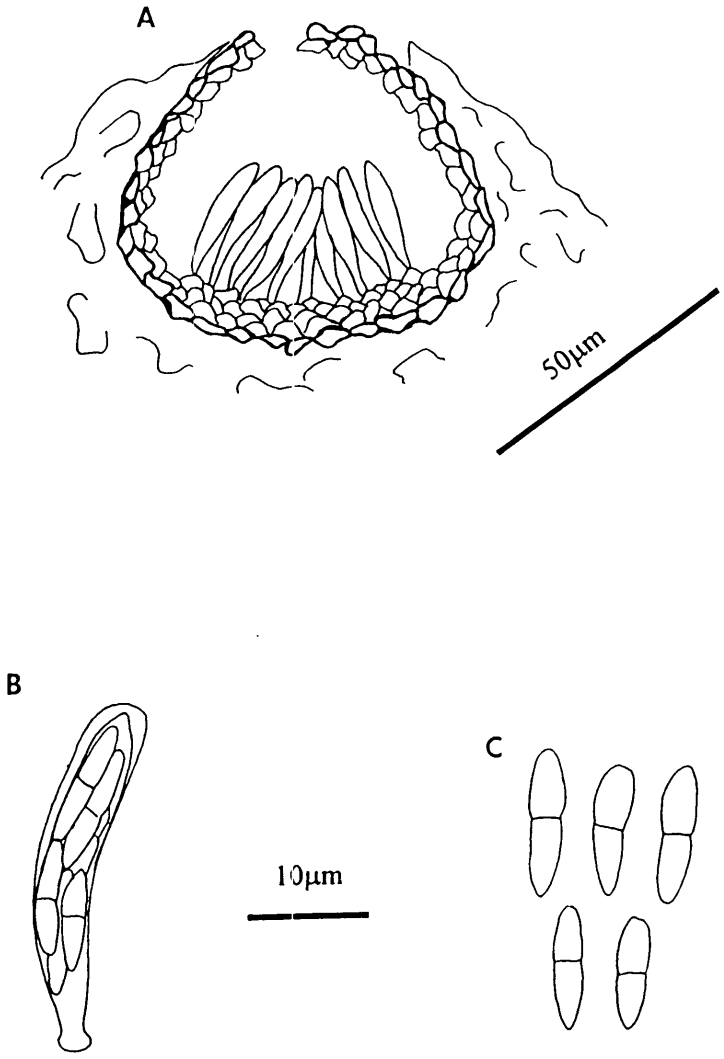

Fig.62. *Mycosphaerella* sp. on *Rhododendron* VPRI 21565; (A) v.s. ascoma; (B) ascus; (C) ascospores

EXTRALIMITAL COLLECTION:

on *Rhododendron indicum*; in horti, Valentino, Torino, **Italy**, 1898, P. Voglino (PAD) **holotype** of *S. azaleae* (host given as *Azalea indica*).

Septoria rhododenri Cooke, *Grevillea* **5**: 151 (1877)

Listed by Brittlebank (1937-1940) on *Rhododendron* sp. cult in Victoria. All Australian collections seen are on Azalea and are identtified as *Phloeospora azaleae* (see discussion under *P. azaleae* regarding the identity of *S. rhododendri*).

Septoria unedonis Rob. & Desm., *Ann. Sci. Nat.(Ser.3)* **8**: 20 (1847)

(Fig. 63)

Leaf lesions hologenous, irregular, 0.5-1mm diam., often coalescing into blotches 6mm diam., upper surface lesions raised, grey with a wide purple-red halo, lower surface lesions purplish brown and lacking a halo. *Conidiomata* epigenous, immersed becoming erumpent, scattered on lesions, separate, subglobose, 100-140µm diam., eustromatic, dehiscence irregular and opening widely up to 75µm, opening plugged with a mucilage containing hyphal material. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer mid-brown and non-thickened, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform to cylindrical, occasionally integrated, 8-12 x 2-3µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding at the same level from very narrow conidiogenous loci. *Conidia* hyaline, filiform, (1-)2-3 septate, straight to curved, 29-50 x 1-1.5µm, with a rounded base and a sub-acute apex.

Host: *Arbutus unedo* L. (Strawberry Tree).

Distribution: New South Wales (Walker & McLeod 1969 as *Septoria* sp.).

Septoria unedonis does not belong in the genus *Septoria*. The conidiomata are not pycnidial but from the collections examined appear to be stromatic without any evidence of an ostiole, the upper wall of the conidiomata being forced open by mucilaginous material which eventually plugs the opening. The presence of the mucilage is unusual being otherwise only reported in *Asteromidium imperspicuum*

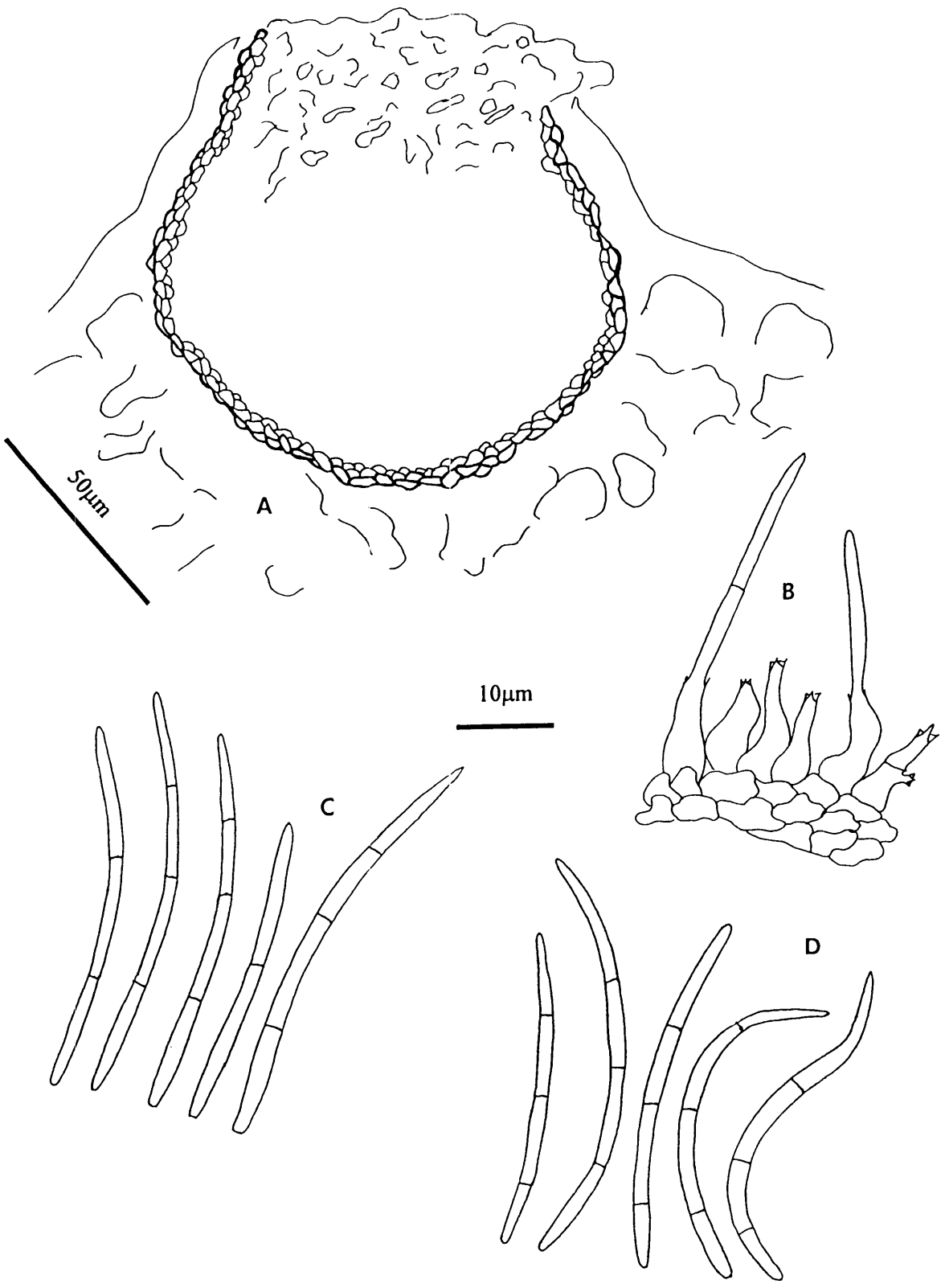

Fig.63. *Septoria unedonis*; (A) v.s. conidioma DAR 16954; (B) conidiogenous cells DAR 16954; (C) conidia DAR 16954; (D) VPRI 6338 (Microfungi Britannici)

Speg. (Sutton 1980). The origin of the mucilage is unknown but probably represents the remains of the lysigenous breakdown of hyphae during pycnidium formation and ejected by pressure due to the formation of the conidia. There is no mention in the literature of this feature being associated with *S. unedonis* but examination of the only available exsiccatus material on *Arbutus* from the United Kingdom shows the presence of the same mucilage. In addition, conidiogenesis is enteroblastic and this fungus is probably better placed in the genus *Phlyctaeniella* Petrak. However in the absence of examination of the type material, I have kept the Australian collection as *S. unedonis*.

Specimens examined:

AUSTRALIAN COLLECTION:

on *Arbutus unedo*; **New South Wales**; Orange, 1 Oct. 1967, O.M. Williams (DAR 16954).

EXTRALIMITAL COLLECTION:

on *Arbutus unedo*; River Cam, **United Kingdom**, J.E. Vize *Microfungi Britannici* No. 410 (VPRI 6338).

EUPHORBIACEAE

Septoria thuemeniana Pass., *Atti. Soc. Critt. Ital.* **2**: 38 (1879)

=*Septoria kalchbrenneri* Sacc., *Syll. Fung.* **3**: 515 (1884)

≡ *Septoria euphorbiae* Kalchbr. *Hedwigia* **14**: 158 (1865) non *S. euphorbiae* Guep., *Roum. F. Gall.* No. 521 (1879) or *S. euphorbiae* (Lasch.) Desm., *Crypt. Fr.* No. 2191 (1851)

= *Septoria pepli* Shaw, *Proc. Linn. Soc. N.S.W.* **76**: 23 (1951)

(Fig. 64)

Lesions on leaves and stems, irregular, diffuse, 1-2mm diam., on both leaf surfaces pale cream, margin lacking. *Conidiomata* scattered on lesions, separate, immersed becoming erumpent, globose, dark brown to black, 75-140μm diam. *Ostiole* single, apical, central, 25-40μm, cells around opening barely thickened. *Conidiomatal wall* 2-3 cells thick composed of pseudoparenchymatous tissue, *textura angularis*, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform, 9-13 x 5-6μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, cylindrical, 3-4 septate, straight to curved,

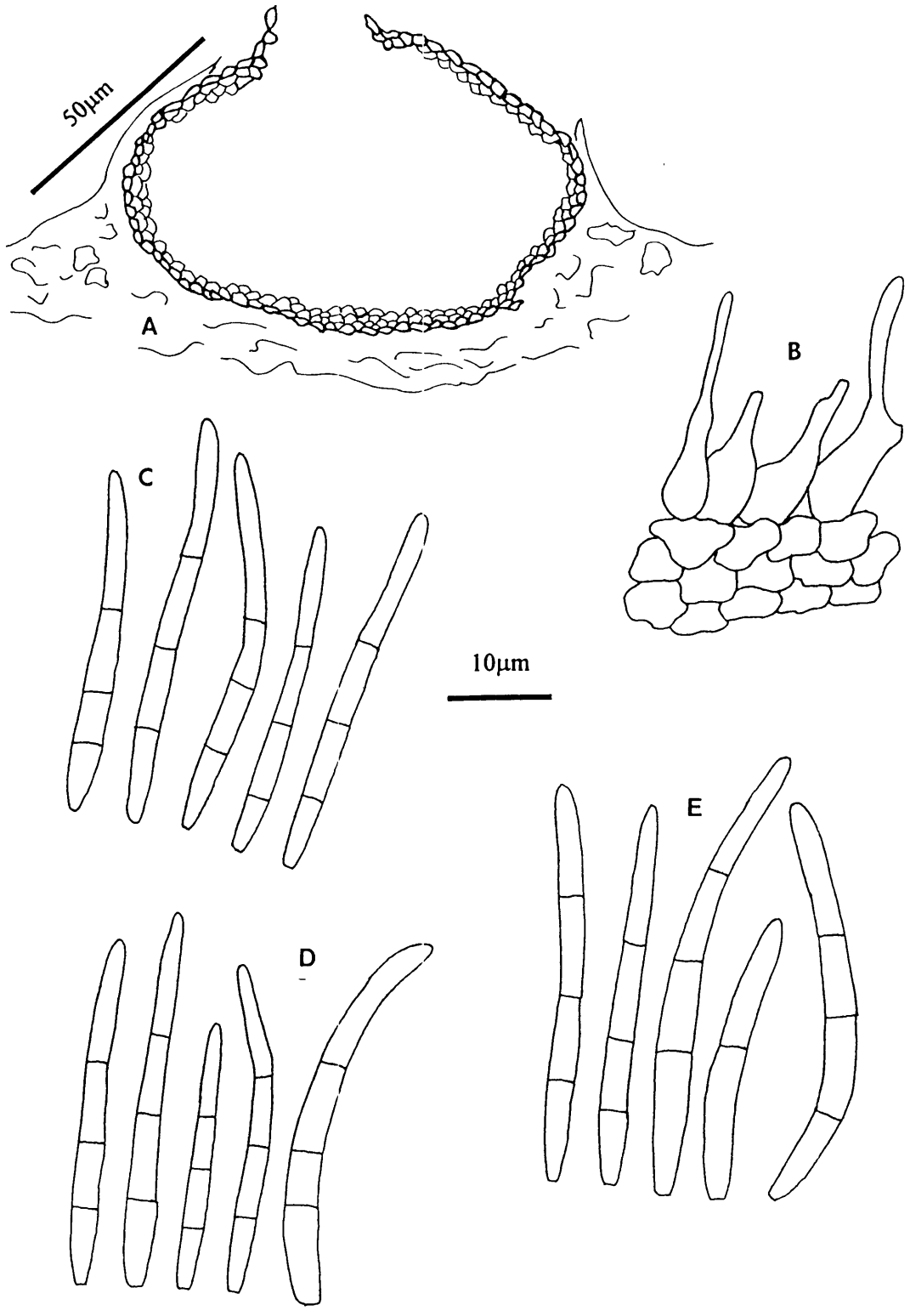

Fig.64. *Septoria thuemeniana*; (A) v.s conidioma DAR 12078 holotype of *S. pepli*; (B) conidiogenous cells DAR 12078; C-E conidia (C) DAR 12078; (D) *S. thuemeniana* type ex MEL; (E) DAR 62907 *S. kalchbrenneri* (Krypt. Exs. No. 1934)

(24-)30-45 x 2-2.5µm, with truncate base and rounded apex.

Hosts: *Euphorbia parvicaruncula* Hassall, *E. peplus* L.

Distribution: New South Wales (Noble *et al.* 1935 as *Septoria* sp., Shaw 1951 as *S. pepli*), South Australia (Warcup & Talbot 1981, Cooke & Dube 1989; as *Septoria* sp.), Tasmania (Shaw 1951, Sampson & Walker 1982 as *S. pepli*, report only).

Numerous taxa of *Septoria* have been described from species of *Euphorbia.* Conidial dimensions of several of these taxa were summarised by Andrionova (1992). Examination of type material of *S. pepli*, *S. thuemeniana* and exsiccatus collections of *S. kalchbrenneri* has shown that all are identical. *Septoria euphorbiae* (Lasch.) Desm. (= *Ascochyta euphorbiae* Lasch.) and *S. bractearum* Mont. are earlier names but descriptions do not allow for adequate comparison with material examined. *Septoria bractearum* Mont. (conidia 50 x 2µ) and *S. media* Sacc. & Brun. (conidia 50-55 x 1µ) appear similar but conidia of *S. thuemeniana* do not reach that length and they may represent another taxon on *Euphorbia* with longer conidia. No description of *S. euphorbiae* is available and as there appears to be one other taxon of *Septoria* occurring on *Euphorbia* with conidia shorter than *S. thuemeniana*, no conclusion can be made regarding its possible identity. Exsiccatus material under the name *S. guepini* Oud. has been examined but conidia are 18-25 x 2.5 and 3 septate, shorter than those of *S. thuemeniana* and match the description of *S. euphorbicola* Hollos with conidia described as 16-20 x 2-2.5µm and 3 septate. Australian collections examined on *Euphorbia parvicaruncula* show conidia (15-)24-36 x 2-2.5µm, well within the range of *S. thuemeniana* and is considered identical. The conidiomatal wall in those collections is much darker and thickened than seen in material on *E. peplus* but this is probably an adaptation to the normally arid environment where *E. parvicaruncula* is found. Shaw (1951) reported *S. pepli* from Tasmania but no material has been located to confirm the record.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Euphorbia parvicaruncula*: **New South Wales**; Broken Hill, 2 June 1973, J.C. Noble (DAR 60111a); Plain Gap, 3 Dec. 1958, N. Beadle (NE 22282); **South Australia**; Moralana, Apr. 1956, L.D. Williams (ADW 7445) host as *E. stevenii* F. Muell.;

on *Euphorbia peplus*; **New South Wales**; no locality, date or collector (DAR 610); Pennant Hills, 31 May 1940, L.R. Fraser (DAR 4150); Hunters Hill, Nov. 1908, F. Hallmann (DAR 8504); Scout Camp, Pennant Hills, 17 Dec. 1949, D. Shaw (DAR 12078) **holotype** of *S. pepli*; Pennant Hills, 20 Dec. 1947, D. Shaw (DAR 29068); Hunters Hill, Nov. 1908, F. Hallmann (DAR 57883).

EXTRALIMITAL COLLECTIONS:

Septoria guepini; on *Euphorbia carpatica* Wolsz.; Maramuresj, **Roumania**, 1 Sept. 1974, G. Negrean, *Herb. Mycol. Rom.* No. 2479 (DAR 48050); on *Euphorbia palustris* L.; Satu-mare, **Roumania**, 14 Aug. 1974, G. Negrean, *Herb. Mycol. Romanicum* No. 2480 (DAR 48051);

S. kalchbrenneri; on *Euphorbia palustris*; **Hungary**, Baumler, *Krypt. Exs.* No. 1934 (DAR 62907); on *Euphorbia salicifolia*; Mehedinti, **Roumania**, 24 Sept. 1968, I. Comes, I. Ene & G. Glodeanu, *Herb. Mycol. Romanicum* No. 1993 (DAR 47563); on *Euphorbia palustris & E. aspera*; in horto botanico, Berolinensis, **Germany**, Sept.1882, P. Sydow, *Rabenhorst-Winter Fungi Europaei* No. 2790 (VPRI 6314);

Septoria pepli; on *Euphorbia peplus*; Upper Hutt, **New Zealand**, Jan. 1954 A.J. Healy (DAR 34468 ex PDD 12864);

Septoria thuemeniana; on *Euphorbia exigua* L.; Parma, **Italy**, Aest 1878, Passerini, *Thüm. Mycotheca Universalis* No. 1695 (MEL) **type**.

FABACEAE

Four species of *Septoria* are recognised in Australia on hosts in the Fabaceae, being *S. hardenbergiae*, *S. pisi*, *S. vignae* and an undetermined taxon on *Lathyrus odoratus*

Key to the Australian species of *Septoria* on the Fabaceae

1 Conidia greater than 3μm wide, on *Pisum* .....***S. pisi***

1: Conidia less than 2μm wide.....2

2 Conidia mostly more than 30μm long, on *Vigna*.....***S. vignae***

2: Conidia less than 30μm long.....3

3 Conidiogenesis holoblastic sympodial, conidia mostly 1.5μm wide....***S. hardenbergiae***

3: Conidiogenesis enteroblastic, conidia mostly 2μm wide.....***Septoria*** sp. (on *Lathyrus*)

Septoria ceratoniae Pass., *Atti. Scoc. Critt. Ital.* **2**: 27 (1879)

Listed by Brittlebank (1937-1940) and Chambers (1982) occurring on *Ceratonia siliqua* L. in Victoria prior to 1940. No herbarium material under this name has been located and the record cannot be verified.

Septoria hardenbergiae Sacc., *Hedwigia* **29**: 156 (1890)

(Fig. 65)

Leaf lesions hologenous, irregular, 3-5mm diam., often coalescing into large blotches up to 25mm diam., lesions on both surfaces mid-brown, becoming paler in the centre with age, margin raised and dark brown. *Conidiomata* scattered on lesions, separate, immersed becoming erumpent, globose, black, 90μm diam., pycnidial. *Ostiole* single, apical, 35-45μm, cells around the opening dark and thickened. *Conidiomatal wall* 2 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer dark brown, inner layer pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, lageniform to ventricose, 12-18 x 3μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, cylindrical, 0-3 septate, (9-)17-23 x 1.5(-2)μm, with truncate to mostly rounded base and rounded apex.

Hosts: *Brachysema sericeum* (Smith) Domin, *Hardenbergia violacea* (Schneev.) Stearn, *Psoralea adscendens* F. Muell.

Distribution: New South Wales, South Australia (Saccardo 1890, Cooke 1892, Cobb 1893 locality in error as Victoria, McAlpine 1895, Warcup & Talbot 1981, Cooke & Dube 1989), Victoria (Brittlebank 1937-1940, Chambers 1982).

Septoria hardenbergiae was described originally on *H. monophylla* from Norwood, South Australia with fusoid-falcate conidia measuring 15-18 x 1.5μm and 2-guttulate. Examination of the type collection has shown conidia (9-) 17-23 x 1.5μm and 1-2 septate. The type host given originally as *H.*

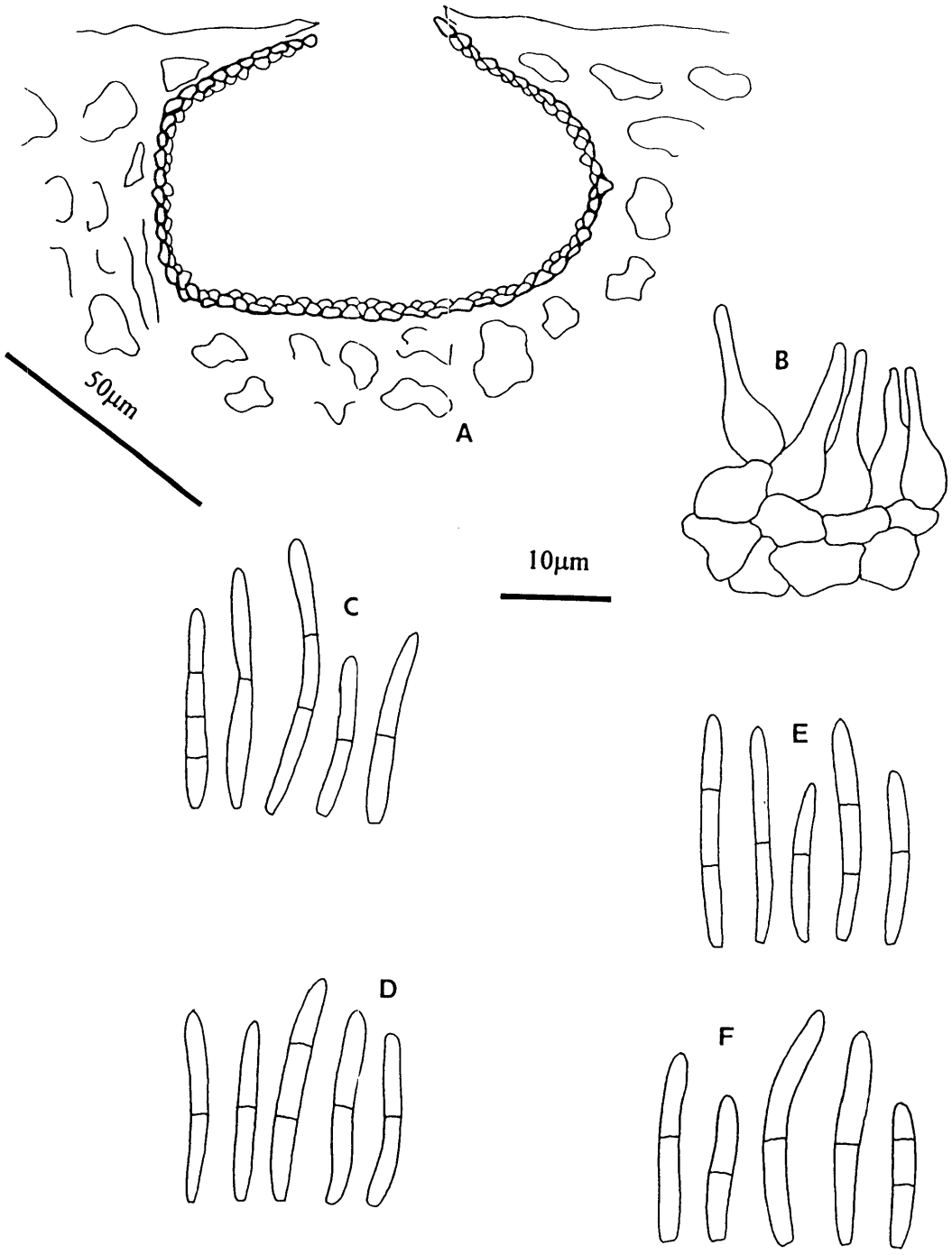

Fig.65. *Septoria hardenbergiae*; (A) v.s. conidioma holotype; (B) conidiogenous cells holotype; C-F conidia (C) holotype; (D) VPRI 16224 ex *Psoralea*; (E) VPRI 13459 ex *Brachysema*; (F) VPRI 1804 ex *Lathyrus*

monophylla is now *H. violacea*. Examination of collections on *Brachysema sericeum* and *Psoralea adscendens* from Victoria and New South Wales has shown that they are morphologically indistinguishable from *S. hardenbergiae*. In New South Wales *S. hardenbergiae* has not yet been collected on *Hardenbergia* and is known currently only from *Psoralea*. On the type collection, *S. hardenbergiae* is associated with a species of *Pleospora*, an association also noted in the original description.

Specimens examined:

on *Brachysema sericeum*; **Victoria**; Montrose, 13 Feb. 1986, I. Pascoe (VPRI 13459);

on *Hardenbergia violacea*; **South Australia**; Norwood, 5 May 1889, Tepper (PAD) **holotype** (host as *H. monophylla*); Port Lincoln, 16 July 1952, N.T. Flentje (ADW 2481); **Victoria**; Ferny Creek, 8 Mar. 1986, B.C. Sutton (VPRI 13623); Monbulk, 13 Apr. 1989, C. Richardson (VPRI 16238);

on *Psoralea adscendens*; **New South Wales**; Guthega, Feb. 1972, L.R. Fraser (DAR 59884); Yarrangobilly, 29 Mar. 1989, I. Pascoe & S. Templer (VPRI 16224).

Septoria medicaginis Rob.& Desm., *Ann. Sci. Nat. (Ser.3)* **8**: 24 (1847)

Listed by Brittlebank (1937-1940) and Woodcock & Clarke (1983) as causing a leaf spot on *Medicago sativa* L. (Lucerne) in Victoria in 1884. No herbarium material under this name has been located and the record is unable to be verified.

Septoria meliloti Sacc., *Bull. Soc. Mycol. France* **5**: 122 (1889)

Listed by Brittlebank (1937-1940) as occcuring on *Melilotus* sp. in Victoria. No herbarium collection under this name has been located and the record remains unsubstantiated.

Septoria pisi Westend., *Herb. Crypt.* No. 1378 (1859)

(Fig. 66)

Lesions on leaves and stems. *Leaf lesions* hologenous, irregular, 5-10mm diam., on both surfaces pale cream-white bounded by veins, often coalescing to form large blotches covering the entire leaf surface. *Stem lesions* elongated up to 8mm in length and pale brown. *Conidiomata* amphigenous, scattered on lesions, separate, immersed becoming erumpent, globose, pale golden brown to dark brown, 90-150(-210)µm diam., stromatic. *Ostiole* absent, apical opening at first 24-36µm, at maturity 50-70µm. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer pale yellow brown, inner layers sub-hyaline. *Conidiogenous cells* arising from the inner wall layer, discrete, cylindrical to lageniform, (12-) 15-20 x 2.5-3µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding from both percurrently proliferating and sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, cylindrical, 1-3 septate, straight, 26-50 x (2.5-) 3-3.5µm, with truncate base and rounded apex.

Host: *Pisum sativum* L. (Pea)

Distribution: New South Wales (Noble *et al.* 1935), Queensland, South Australia (Warcup & Talbot 1981, Cooke & Dube 1989), Tasmania (Wade 1951, Sampson & Walker 1982), Victoria (Anon. 1943), Harrison *et al* 1975, Chambers 1982, Washington & Nancarrow 1983, Woodcock & Clarke 1983), Western Australia (Shivas 1989)

Septoria pisi is not a true *Septoria*. The conidiomata are never pycnidial and a true ostiole is absent. However the conidioma is at first almost enclosed by the wall and can be mistaken for a pycnidium. The lack of an ostiole was noted by Cruickshank (1949) who suggested that perhaps *Phloeospora* Wallr. was a better generic placement than *Septoria*, a suggestion with which I concur given that in addition to the stromatic nature of the conidioma, conidiogenesis is both holoblastic sympodial and percurrent, features found in the genus *Phloeospora* as defined by Sutton (1980). Examination of the type collection is required before any transfer should be made. According to Diedecke (1912), Kovachevsky (1938) and Cruickshank (1949), *Rhabdospora hortensis* Sacc. described from stems of *Pisum sativum* with conidia 30-40 x 3 and 2-3 septate is conspecific with *S. pisi*. I have been unable to find the combination *R. hortensis* Sacc. in the literature, the taxon concerned being named *Septoria hortensis* Sacc. by Saccardo (1880).

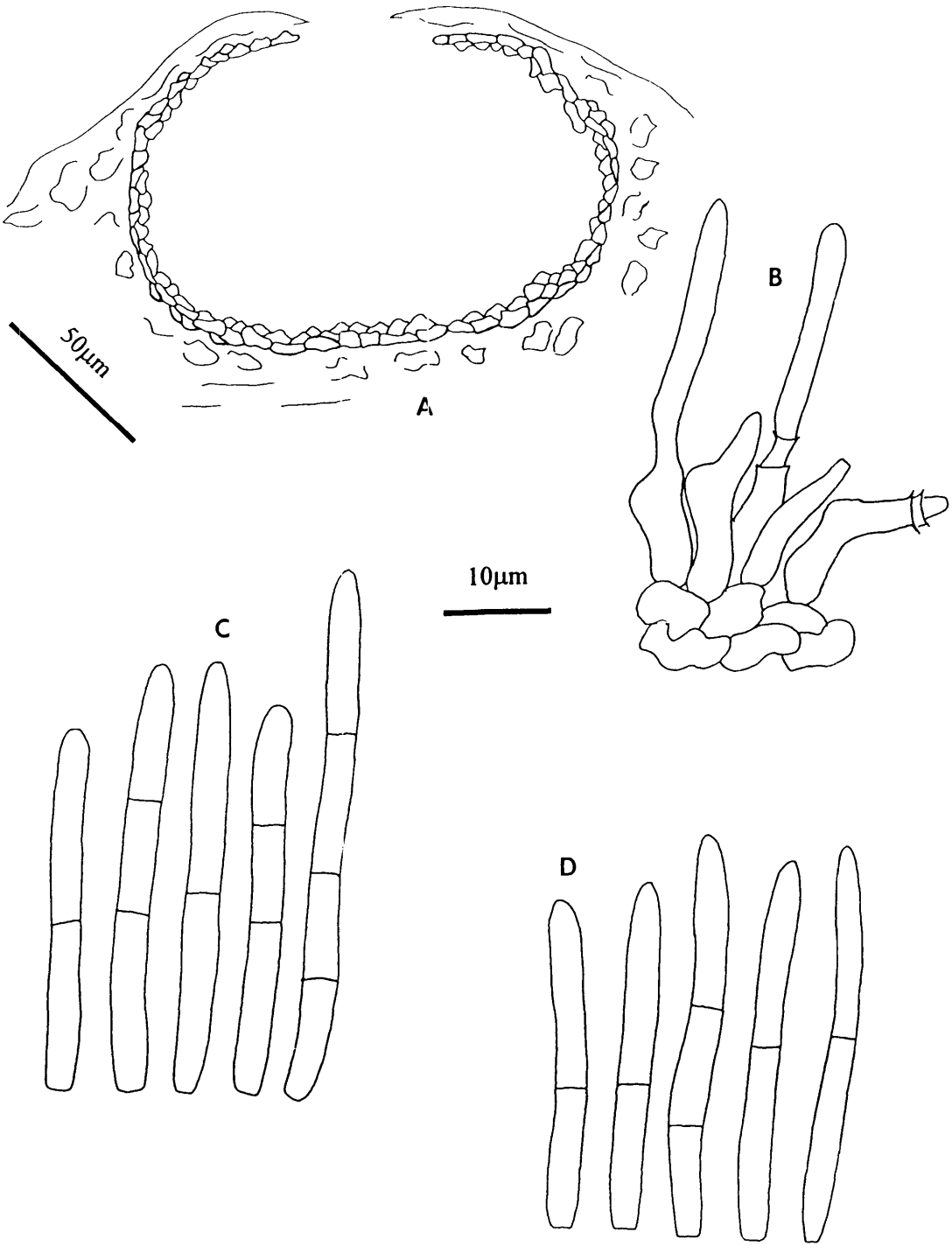

Fig.66. *Septoria pisi*; (A) v.s conidioma DAR 5971; (B) conidiogenous cells DAR 5971; (C) conidia DAR 5971; (D) conidia DAR 1441

Chambers (1982) and Sampson & Walker (1982) record *S. pisi* as occurring on *Lathyrus odoratus* in Victoria and Tasmania but there are no collections available to confirm the record. Farr *et al.* (1989) also record *S. pisi* as occurring on *Lathyrus* in the U.S.A. Australian collections are morphologically identical with extralimital material under this name.

Specimens examined:

AUSTRALIAN COLLECTIONS:

all on *Pisum sativum*; **New South Wales**; Rydal, 1922 (DAR 1441); Bathurst Experiment Farm, Bathurst, Oct. 1922 (DAR 1442); Somersby, 1926 (DAR 1443); Farnham, Sept. 1930 (DAR 1457); Cowra Experiment Farm, Cowra, Oct. 1928 (DAR 1458); Quirindi, Sept. 1953 (DAR 4345); Sydney, 30 May 1960, E. Darley (DAR 5991); Bathurst, 16 Feb. 1970, P. Simpson (DAR 19589); Oberon, 31 Dec. 1970, K. Long (DAR 20883); Nashdale, 17 Feb. 1995, C. Beckingham (DAR 71769) **Queensland**; Toowoomba, 2 Oct. 1968, I.K. Hughes (BRIP 5818); **South Australia**; Strathalbyn, 2 Oct.1992, M. Ramsey (ADW 17032); **Tasmania**; Devonport, 17 Dec. 1982, B. Beattie (DAR 72539); Meander, 3 Feb. 1983, R. Orr (DAR 72585); Devonport, 18 Jan. 1984, B. Beattie (DAR 72677); Penguin, 14 Oct. 1983, J. Richmond (DAR 72696); **Victoria**; Leongatha, 6 Dec. 1904, D. McAlpine (VPRI 1843); Myrniong, 9 Dec. 1901, D. McAlpine (VPRI 1844); **Western Australia**; no locality or collector, July 1942 (PERTH 831603);

EXTRALIMITAL COLLECTIONS:

all on *Pisum sativum*; London, **Canada**, July 1894, J. Dearness, *Seymour & Earle Economic Fungi* No. 414 (DAR 51693); Syracuse, New York, **U.S.A.**, July 1892, F.L. Stevens, *Fungi Columbiani* No. 437 (DAR 53588); Canterbury, **New Zealand**, 8 Jan. 1958, H.C. Smith (DAR 62685 ex PDD 22431).

Septoria vignae P. Henn., *Ann. Mus. Congo belge Se'r. Bot.* **2**: 102 (1907)

(Fig. 67)

Leaf lesions hologenous, orbicular to irregular, 2-3mm diam., on both surfaces pale brown with distinct red-purple margin. *Conidiomata* amphigenous, mostly epigenous, scattered on lesions, immersed becoming erumpent, separate, globose, black, 60-120µm diam. pycnidial. *Ostiole* single, apical, 20-40µm, cells around opening dark and thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, cells 5-8µm diam., outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete,

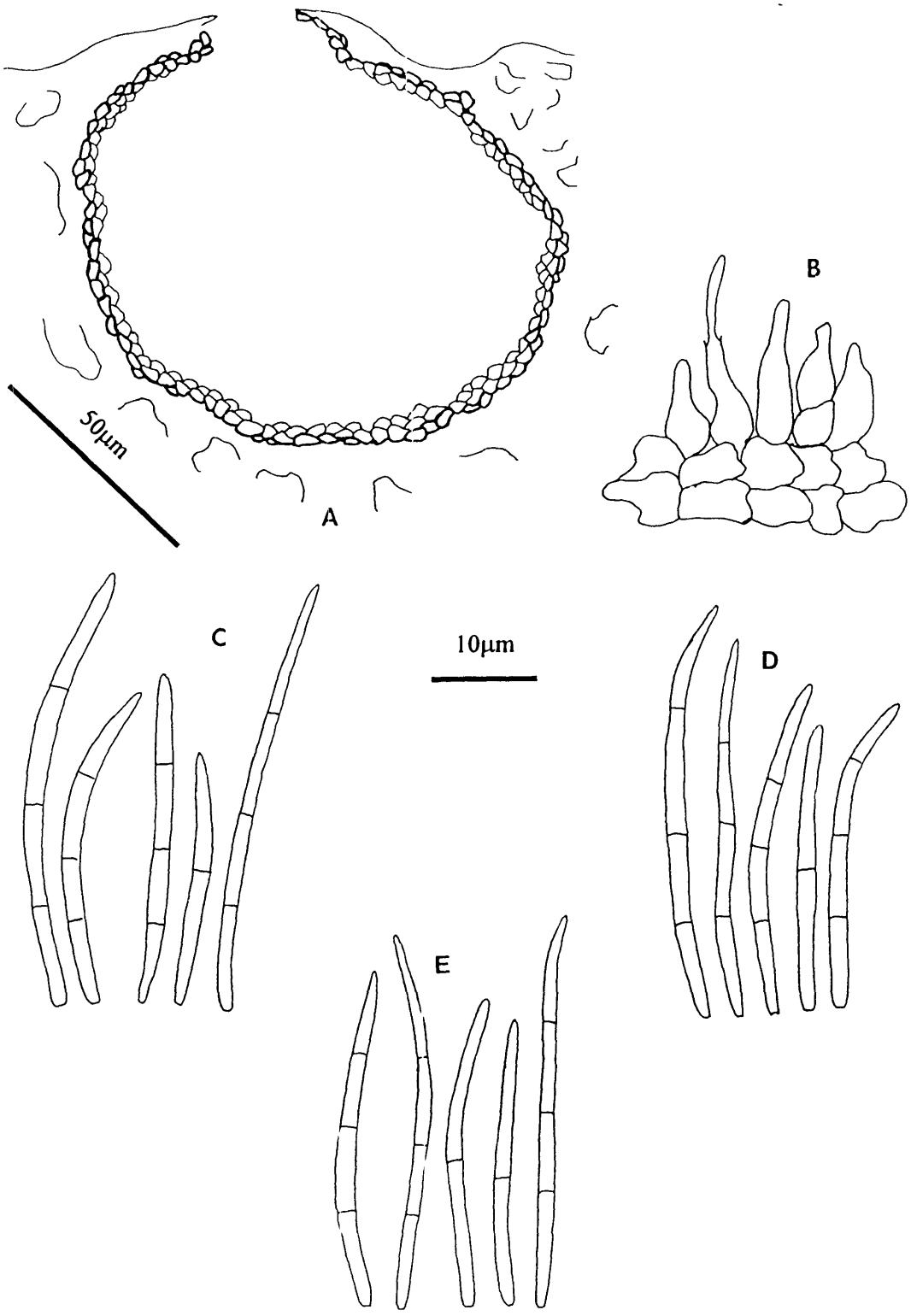

Fig.67. *Septoria vignae*; (A) v.s. conidioma DAR 7250; (B) conidiogenous cells DAR 7250; C-E conidia (C) DAR 7250; (D) DAR 8056; (E) *S. glycines* DAR 15079

hyaline, occasionally septate and integrated, ampulliform to lageniform, 8-14 x 3-5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci or, produced enteroblastically and seceding at the same level from non-proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1-3 septate, straight to flexuous, 18-40 (-52) x 1-1.5(-2)µm, with rounded to truncate base and sub-acute apex.

Hosts: *Vigna lanceolata* Benth., *V. unguiculata* (L.) Walp. ssp. *sesquipedalis* (L.) Verdc. (Snake Bean), *V. unguiculata* (L.) Walpole ssp. *unguiculata* (Cowpea).

Distribution: New South Wales (Anon. 1950 host as *V. sinensis*), Queensland (Punithalingam 1985).

According to Punithalingam (1985a) the type collection of *S. vignae* is presumed lost and the description given by him is based on material assumed to have been compared with it by Bisby. In the original description the type host was given as *Vigna* sp. and conidia were given as 25-35 x 1µm and 3 septate. Sukapore & Thirumalachar (1964) reported *S. vignae* in India on *V. catajang* Walp. with conidia 16-30 x 1-1.5 and 3 septate. Most Australian collections are on Cowpea, given as *V. sinensis* (L.) Endl. ex Hasek, now *V. unguiculata* ssp. *unguiculata*. Conidia of all Australian collections are within the range given in the original description, Sukapore & Thirumalachar (1964), Punithalingam (1985) and a single exsiccatus collection examined. *Septoria glycines* Hemmi described from *Glycine hispidus* in Japan (conidia 21-45 x 1.4-2.1µm and 1-4 septate) and *S. lablabis* P. Henn. described from *Dolichos lablab* in Africa (conidia 30-50 x 1-1.5µm and 4 septate) both appear to be similar to *S. vignae*. Examination of exsiccatus material of *S. glycines* on *Glycine max* (soybean) from the U.S.A. has shown conidia identical to those seen on *Vigna*. Both cowpea and soybean are widely grown on the North Coast of New South Wales but as yet no *Septoria* has been recorded on soybean. Lee (1996) was able to transfer isolates of *S. glycines* from soybean to a wide variety of leguminous species including *Vigna angularis* and *V. unguiculata* suggesting further that the two taxa may be conspecific.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Vigna lanceolata*; **Queensland**; Brookstead, 15 Apr. 1964, J.L. Alcorn (BRIP 5822);

on *Vigna unguiculata* ssp. *sesquipedalis*; **New South Wales**; West Pennant Hills, 8 Mar. 1963 (DAR 7942); Revesby, 19 Feb. 1974, G. Finocchiano (DAR 24214); Hills district, Sydney, 15 Feb. 1985 (DAR 51426);

on *Vigna unguiculata* ssp. *unguiculata*: **New South Wales**; North Coast, Apr. 1956 (DAR 4846); Baulkham Hills, 4 May 1958, J. Walker (DAR 4847); Narrabri, Mar. 1962, P. Fogarty (DAR 7250); Inverell, 3 Jan. 1962, P. Fahy (DAR 7252); Pilliga, 3 Apr. 1963, T. Anderson (DAR 8056); Taree, 7 Apr. 1964, A.M. Smith (DAR 12874); same locality, date and collector (DAR 12906); Purlewagh, 6 Mar. 1972, R. Freebairn (DAR 23325); Kundabung, 5 May 1972, R.K. Nagle (DAR 24559); Grafton, 12 Apr. 1978, G. Evans (DAR 30613); Agricultural Research Station, Grafton, 14 Mar. 1978, R. Fitzell (DAR 31519); same locality and collector, 22 Feb. 1979 (DAR 33631); same locality, 23 Mar. 1987, G. Stovold & H. Smith (DAR 59129); **Queensland**; Indooroopilly, 28 Dec. 1967, R. Greber (BRIP 5824); no locality, date or collector (BRIP 11919); Leyburn- Millmerran, Jan. 1982, J. Doughton (BRIP 13567); Inglewood, 30 Mar. 1984, M.J. Ryley (BRIP 14249).

EXTRALIMITAL COLLECTIONS:
on *V. unguiculata* ssp. *unguiculata*; **Nigeria**, 4 Oct 1958, A.G. Bailey 217 (BRIP 5825) host as *V. sinensis*;

Septoria glycines; on *Glycine max* (as *Soja max*); Madison, Wisconsin, **U.S.A.**, 2 Sept 1945, H.C. Greene 1006 (DAR 15079 ex WIS).

Septoria sp. on *Lathyrus odoratus* L.

(Fig. 65F)

Leaf lesions hologenous, irregular, 1-2mm diam., on both surfaces pale creamy white, lacking margin. *Conidiomata* scattered on lesions, separate, immersed becoming erumpent, globose, black, 80-110µm diam., pycnidial. *Ostiole* single, apical, 25-45µm, cells around opening dark and thickened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, rarely integrated, cylindrical, 8-10 x 2.5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding at the same level from narrow conidiogenous loci. *Conidia* hyaline, cylindrical, 0-2 septate, straight to slightly curved, (7-) 12-22 x (1.5-) 2µm, with truncate to obtuse base and rounded apex.

Host: *Lathyrus odoratus* L. (Sweet Pea).

Distribution: Victoria (Brittlebank 1937-1940 and Chambers 1982, both as *S. lathyri*).

Chamber (1982) reported this taxon as *S. lathyri* Ell. & Everh. which was described with conidia 20-30 x 1.2µm and occurring on *L. latifolius* in the U.S.A. The single collection examined has conidia shorter and wider than reported for *S. lathyri* and also does not match any of the species of *Septoria* currently described from *Lathyrus* spp. *Septoria silvestris* Pass. (conidia 30-50 x 3µm), *S. stipularis* Pass. (conidia 25-38 x 2.5-3µm), *S. fautreyana* Sacc. (conidia 80-100 x 3-4µm), *S. podgoricensis* Bubak (conidia 20-42 x 2.5-3µm) and *S. astragali* Rob. ex Desm. (conidia 50-100 x 3-3.5µm) have larger conidial dimensions than the Australian collection. Morphologically this species is close to *S. hardenbergiae* but the conidiogenesis is enteroblastic, not holoblastic sympodial as seen in that species.

Specimen examined: on *Lathyrus odoratus*; **Victoria**; Armadale, Aug 1904, D. McAlpine (VPRI 1801).

GERANIACEAE

Septoria canberrica Petrak, *Ann. Mycol.*9: 567 (1955)

(Fig. 68)

Leaf lesions hologenous, irregular, 5-10mm diam., occasionally coalescing, upper surface lesions reddish-brown without margin, lower surface lesions paler in colour. *Conidiomata* amphigenous, scattered on lesions, separate, immersed becoming erumpent, brown, globose, 90-120µm diam., pycnidial. *Ostiole* single, apical, 35-50µm, cells around opening darkened. *Conidiomatal* wall 3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer pale brown, inner layers sub-hyaline. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, lageniform, (8-)10-20 x 4-5µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, 1-3 septate, straight to slightly curved, (12-)30-40(-60) x 1.5-2(-2.5)µm, with truncate to rounded base and rounded apex.

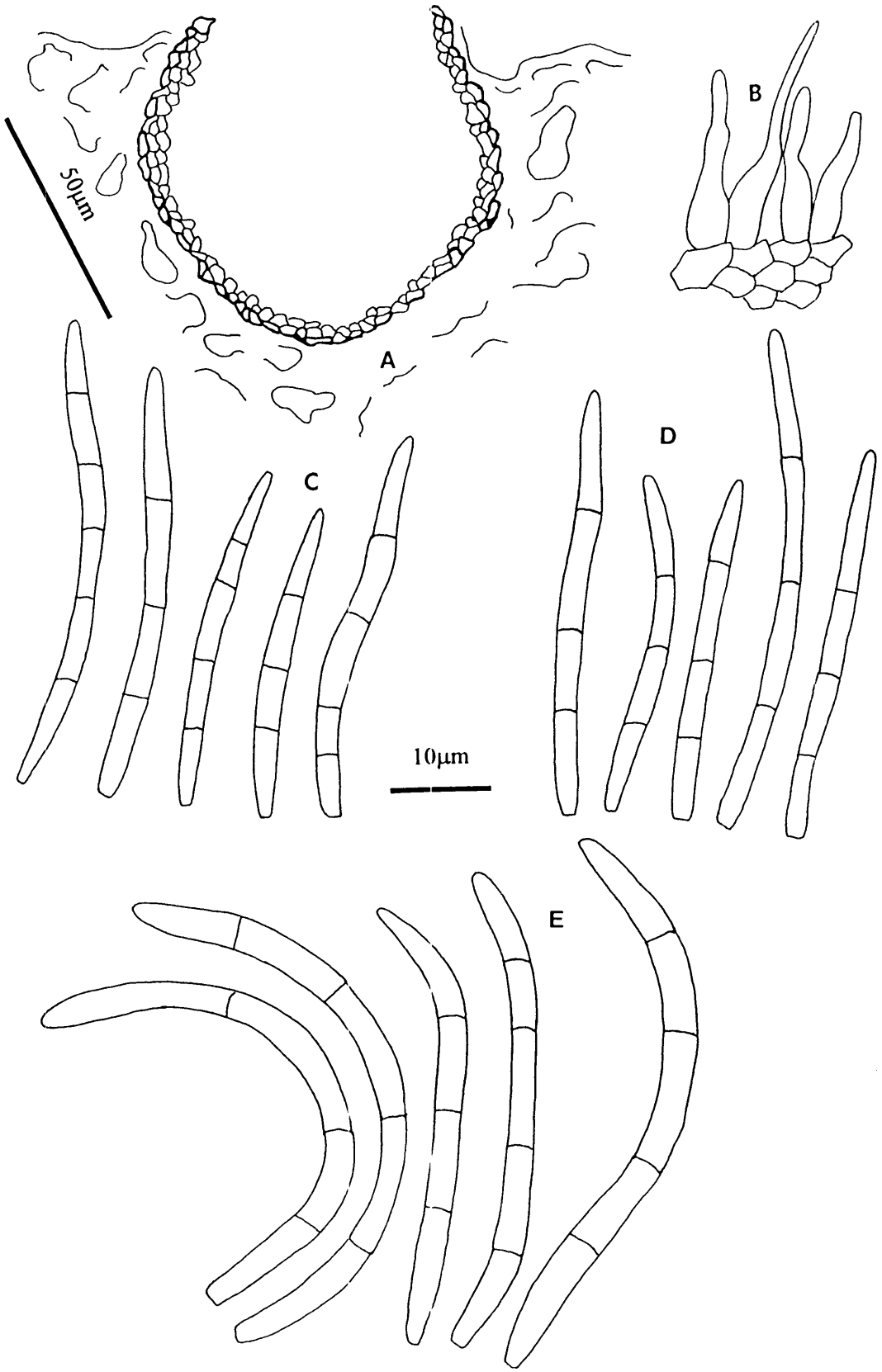

Fig.68. *Septoria canberrica*; (A) v.s. conidioma DAR 71753; (B) conidiogenous cells DAR 71753; C-E conidia (C) DAR 71753; (D) holotype ex W; (E) *S. pelargonii* holotype ex S

Hosts: *Erodium crinitum* Carolin, *Pelargonium australe* Willd., *Pelargonium* sp. (? *P. rodneyanum* Mitchell ex Lindl.).

Distribution: Australian Capital Territory (Petrak 1955), New South Wales (Shaw 1949, Anon. 1950; as *Septoria* sp. on *Erodium cygnorum*), South Australia (Warcup & Talbot 1981, Cooke & Dube 1989; as *S. pelargonii* Sydow), Tasmania (Sampson & Walker 1982 as *Septoria* sp.), Victoria (Chambers 1982 as *S. pelargonii*, report only).

Septoria canberrica was described from dried stems of *P. australe* with conidia 12-30 (rarely up to 36) x 1.5-2μm. Examination of the type collection has shown many conidia up to 50μm long. Other collections examined from South Australia and Tasmania on *P. australe* are morphologically indistinguishable from the type. Conidia of *S. canberrica* are generally 1.5-2μm wide with only occasional conidia up to 2.5μm. This makes *S. canberrica* difficult to distinguish from *S. geranii* Rob. ex Desm. which has conidia of similar width but generally much longer (see discussion under *S. geranii*). *Septoria pelargonii* Syd. was described from *P. cucullatum* in South Africa with conidia 40-60 x 2-2.5μm and 3-5 septate. Examination of the type collection has shown conidia mostly 40-60 x 2.5-3μm and 3-4 septate which are wider and generally longer than *S. canberrica*. The single collections examined on *Erodium crinitum* and *Pelargonium* sp. are placed here due to the length of the conidia being within the range of that of *S. canberrica* and never as long as seen in *S. geranii*. *Septoria erodii* Rayss (Rayss 1950) was described from *Erodium malacoides* (L.) Willd. from Palestine with conidia 16-35 x 1μm which are shorter and narrower than the conidia seen in the Australian collection on *Erodium*.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Erodium crinitum*; **New South Wales**; Barham, Oct. 1949, L.R. Fraser (DAR 7503); Lake Wyangan, 12 Sept. 1962, B.J. Ballantyne (DAR 7509);

on *Pelargonium australe*; **Australian Capital Territory**; Mount Coree near Canberra, 21 Oct. 1954, E. Gauba (W) **Holotype** of *S. canberrica*; **South Australia**; Meningie, June 1953, L.D. Williams (ADW 3426); **Tasmania**; Blackmans Bay, 5 Oct. 1977, D. Munro (DAR 71753);

on *Pelargonium* sp.; **Victoria**; Grampians National Park, 16 Oct. 1983, J.H. Warcup (VPRI 17650).

EXTRALIMITAL COLLECTIONS:

Septoria pelargonii; on *Pelargonium cucullatum*; CapeTown, **South Africa**, 18 Oct. 1909, C.P. Lounsbury (S) **holotype**.

Septoria geranii Rob. ex Desm., *Ann. Sci. Nat. (Ser.3)* **20**: 93 (1853)

(Fig. 69)

Leaf lesions hologenous, orbicular to irregular, 2-6mm diam., upper surface lesions dark green-brown with purple-red halo which becomes lacking in older lesions, lower surface lesions paler. *Conidiomata* scattered on lesions, separate, immersed becoming erumpent, pycnidial, of two types; one small 70-90μm diam. with pale brown wall, the other 105-180μm with much darker and thickened outer wall layer. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, textura angularis. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, lageniform to cylindrical, 7-10 x 3-4μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced both enteroblastically or holoblastically and seceding at the same level from non-proliferating conidiogenous loci. *Conidia* hyaline, filiform, of two types; one narrow 25-40 x 1-1.5μm, 1-3 septate with rounded base and sub-acute apex, and, 50-80 x 1.5-2μm, 3-5 septate with truncate base and rounded apex.

Hosts: *Geranium antrorsum* Carolin, *G. homeanum* Turcz., *G. neglectum* Carolin, *G. pilosum* Carolin, *G. solanderi* Carolin, *Geranium* sp.

Distribution: New South Wales (Costin 1954, Walker, Fahy & Priest 1990), Queensland, Victoria.

Septoria geranii appears to have dimorphic conidia; first formed conidia being narrow and produced enteroblastically followed by conidiomata on older leaf lesions producing much longer and slightly wider conidia from simple holoblastic conidiogenous cells. Attempts to germinate conidia from fresh material have so far been unsuccessful. The narrow conidia are identical to those described for *S. geranii* (35-50 x 1μm) and longer conidia are identical to those described for S. *geranii-nodosi* Massal (given as 50-65 x 2μm). Petrak (1958) transferred *S. geranii* to *Rhabdospora* and synonymised several species under it including *S. expansa* Niessl (conidia 50-60 x 1μm), *S. geranii-nodosi* Massal and *S. geranii-pratense* P.Henn. (conidia 50-80 x 2-2.5μm). Examination of exsiccatus

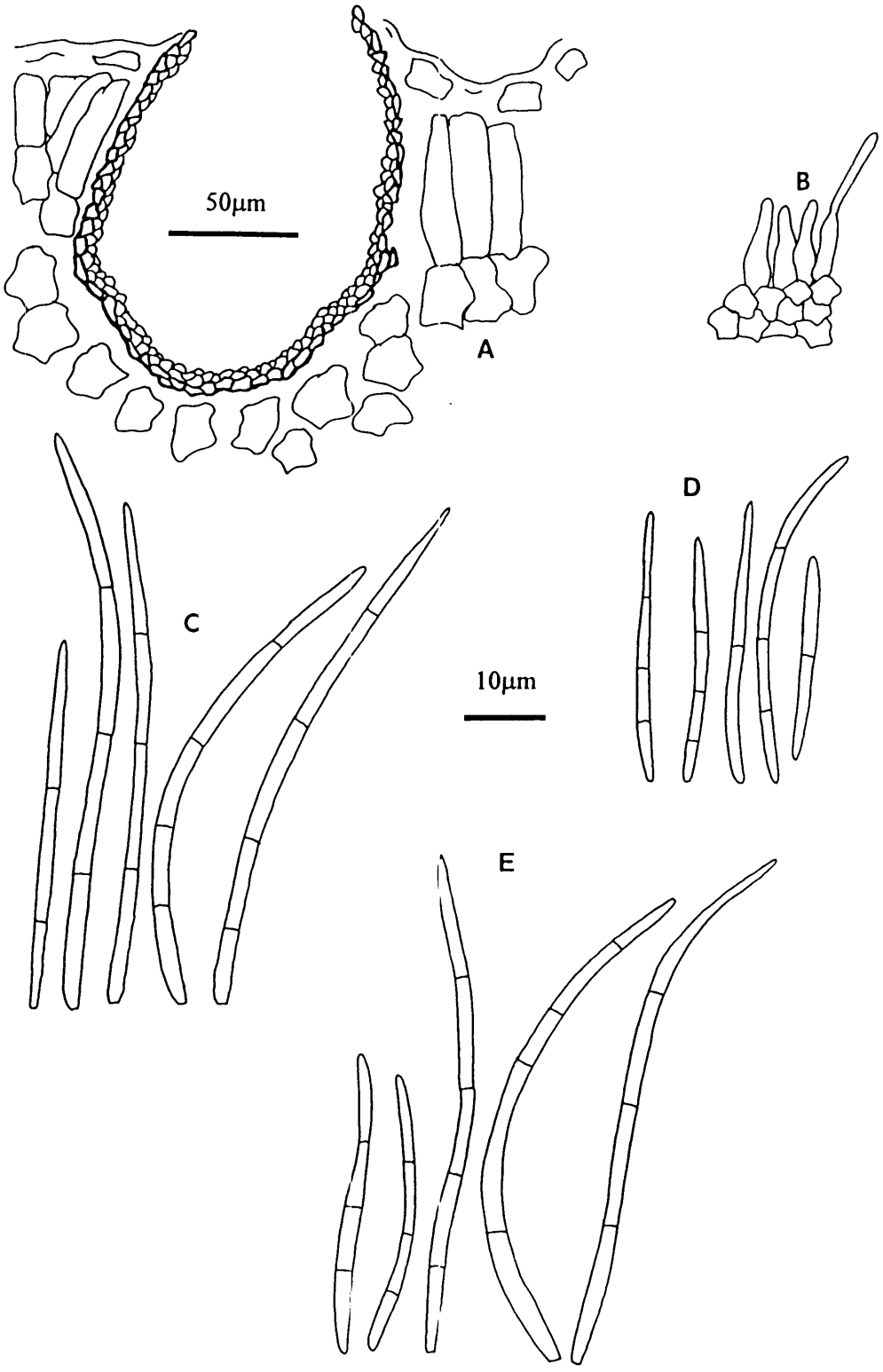

Fig.69. *Septoria geranii*; (A) v.s conidioma DAR 44484; (B) conidiogenous cells DAR 44484; C-E conidia (C) DAR 44484; (D) VPRI 17655; (E) DAR 64412 (Krypt. Exs. No. 832b)

material identified as *S. expansa* and *S. geranii* has shown identical conidia (of both types) to those found in Australian collections. Jorstad (1965) reported conidia for *S. geranii* on *G. sylvaticum* as 27-59 x 1.5-2(-2.5)µm and questioned Petrak's synonymy due to variability however many of the described species fall within the range given for his collection. Australian collections do not differ from the exsiccatus material examined and are therefore placed under the name *S. geranii*. There can be difficulty distinguishing between *S. canberrica* and *S. geranii* since both can have similar width conidia and can only be separated by the much longer conidia usually seen in *S. geranii*. Presence of narrow conidia in collections of *S. geranii* also distinguish the species. It seems prudent to keep *S. geranii* restricted to *Geranium* spp. at present until more collections on *Erodium* and *Pelargonium* are examined.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Geranium antrorsum*; **New South Wales**; Wragges Creek, Mount Kosciusko National Park, 17 Feb. 1976, J. Walker (DAR 44484);

on *Geranium homeanum*; **Queensland**; Mount Tambourine, 13 Mar. 1984, J.L. Alcorn (BRIP 14287);

on *Geranium neglectum*; **New South Wales**; Mount Wilson, 20 Apr. 1986, M.J. Priest & A. Francis (DAR 56019);

on *Geranium solanderi*; **New South Wales**; Clifton Gardens, 10 Nov. 1911, E. Cheel (DAR 8520); same locality, 16 Nov. 1911, E. Cheel (DAR 58027b); Ben Boyd National Park, 13 Apr. 1994, M.J. Priest (DAR 71756); **Queensland**; Mount Coot-tha, 27 July 1975, J.L. Alcorn (BRIP 8968); Bellbowie, 4 Aug. 1978, J.L. Alcorn (BRIP 12071); **Victoria**; Grampians National Park, 11 Oct. 1983, J.H. Warcup (VPRI 17655);

on *Geranium* sp.; **New South Wales**; Mount Tomah, 1 Feb. 1960, L.R. Fraser (DAR 7302) host as *G. pilosum*; Moss Vale, 11 Oct. 1988, M.J. Priest & J. Walker (DAR 63944).

EXTRALIMITAL COLLECTIONS:

Septoria expansa; on *Geranium columbinum*; **Czechoslovakia**, F. Bubak, *Krypt. Exs.* No. 832a (DAR 64411); on *Geranium pratense*; **Austria**, F. de Hoehnel, *Krypt. Exs.* No. 832b (DAR 64412); on

Geranium sanguineum; Prencow, **Czechoslovakia**, 22 Nov. 1896, A. Kmet, *Fungi Schemnitzienses* (DAR 64416);

Septoria geranii; on *Geranium lucidum*; Valea Beusnitei, **Roumania**, 8 Apr. 1976, G. Negrean *Herb. Mycol. Rom.* No. 2746 (DAR 48319).

Septoria pelargonii Syd., *Ann. Mycol.* **10**: 443 (1912)

Listed by Brittlebank (1937-1940) as occurring on *Pelargonium zonale* and Chambers (1982) on *Pelargonium* sp. in Victoria. No herbarium collections under this name have been located and the records remain unsubstantiated.

GOODENIACEAE

Septoria goodeniicola B. Sutton & Pascoe, *Stud. Mycol.* **31**: 177-179 (1989)

(Fig. 70)

Leaf lesions hologenous, orbicular to irregular, 1-4mm diam., often coalescing to form lesions 15mm diam., upper surface lesions mid-brown in the centre becoming pale grey with age, margin broad and vinaceous brown, lower surface lesions paler and lacking margin. *Conidiomata* epigenous, scattered on lesions, separate, immersed becoming erumpent, umber-brown, globose, 90-110µm diam., pycnidial. *Ostiole* single, apical, 20-35µm, cells around opening dark and slightly thickened. *Conidiomatal wall* 3-4 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform to lageniform, 8-15 x 4-7µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci or enteroblastically and seceding from percurrently proliferating conidiogenous loci. *Conidia* hyaline, filiform, 2-4 septate, straight to curved, 36-63 x 2(-2.5)µm, with a truncate base and rounded apex.

Host: *Goodenia ovata* Sm.

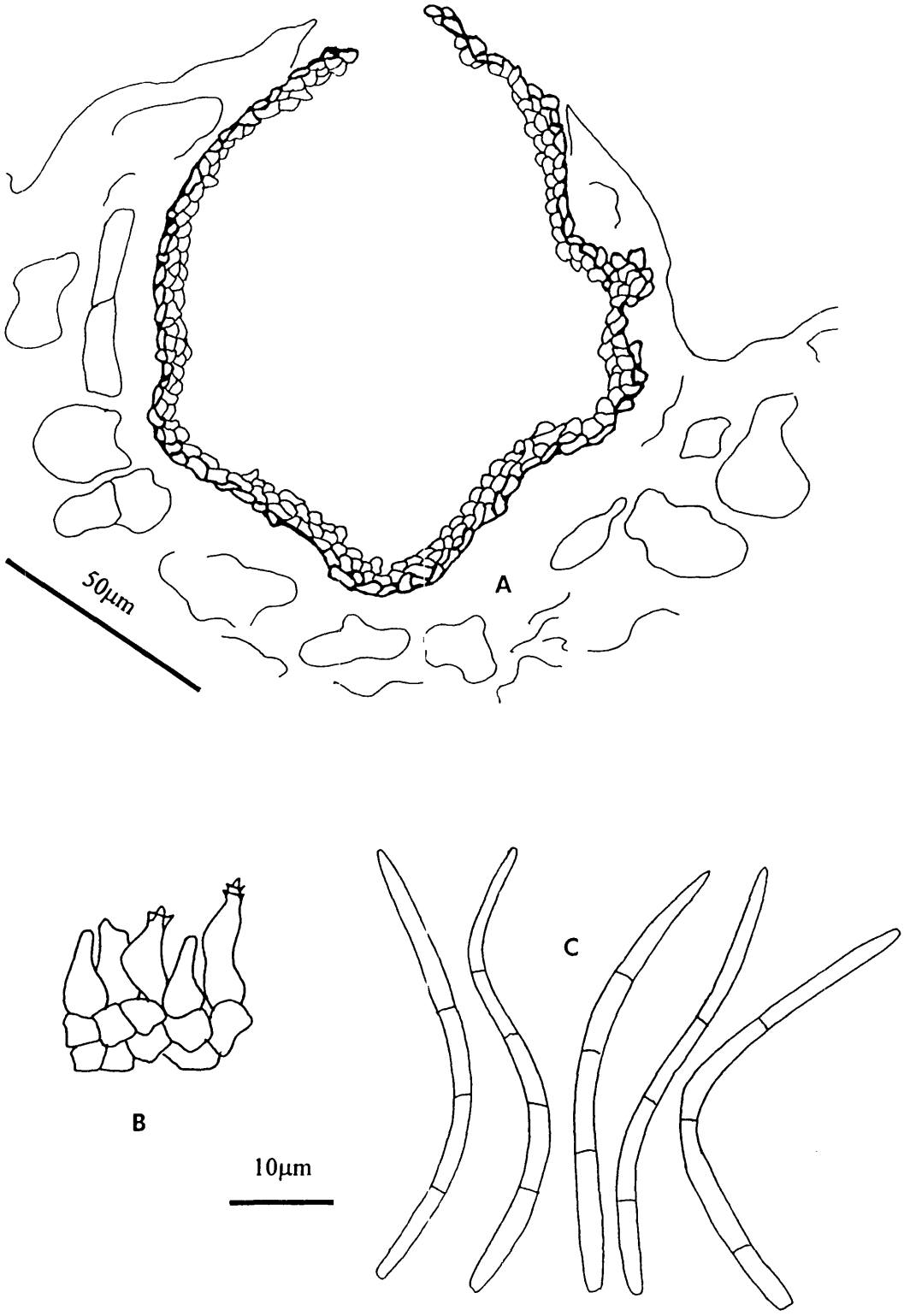

Fig.70. *Septoria goodeniicola* VPRI 14320 holotype; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

Distribution: New South Wales, Victoria (Chambers 1982 as *Septoria* sp., Sutton & Pascoe 1989), Tasmania.

Septoria goodeniicola was fully described and illustrated by Sutton & Pascoe (1989). Examination of further collections has extended the known geographic range to New South Wales and Tasmania. It is known currently only from *Goodenia ovata.*

Specimens examined: all on *Goodenia ovata*; **New South Wales**; Cambewarra Mountain, 27 July 1983, M.J. Priest & J. Walker (DAR 49241); **Tasmania**; Camp Falls, Tasman Peninsula, 17 May 1984, J. Walker (DAR); **Victoria**; Mount Disappointment State Forest, 24 Oct. 1985, I. Pascoe (VPRI 12977a); Pinnacle Track, Grampians National Park, 24 Aug. 1986, B. Sutton, I. Pascoe & M.J. Priest (VPRI 14320) **holotype**; Maroondah Dam, 28 Sept. 1986, S. Isaacs (VPRI 14608).

GROSSULARIACEAE

Septoria ribis (Lib.) Desm., *Ann. Sci. Nat.* (Ser.2) **17**: 111 (1842)
≡ *Ascochyta ribis* Lib., *Pl. Crypt. Ard.* No. 53 (1830)
≡ *Phloeospora ribis* (Lib.) Westend., *Bull. Acad. R. Sci. Belg.* **12**: 251 (1845)
= *Septoria grossulariae* (Lib.) Westend., *Bull. Acad. R. Soc. Belg. (Ser.2)* **2**: 577 (1857)
≡ *Ascochyta grossulariae* Lib., *Pl. Crypt. Ard.* No. 250 (1834)
= *Septoria sibirica* Thuem., *Bull. Soc. Imp. Natural Moscou* **55**: 231 (1880)
= *Septoria ribis-alpinum* Eliass., *Sv. Bot. Tidskr.* **9**: 410 (1915)

(Fig.71)

Leaf lesions hologenous, irregular, bounded by leaf veins, 1-3mm diam., upper surface lesions mid-brown at first becoming pale grey with age, margin narrow and pale to mid-brown, lower surface lesions pale to mid-brown even with age and lacking margin. *Conidiomata* amphigenous, mostly epigenous, scattered on lesions, separate, immersed becoming erumpent, globose to slightly flattened, 120-175μm diam., pycnidial. *Ostiole* single, apical, 35-50μm, cells around opening slightly darkened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer pale brown, inner layers becoming sub-hyaline. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, cylindrical to ampulliform, 9-14 x 3-4μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1-3 septate, (20-) 35-50(-70) x 1.5-2μm,

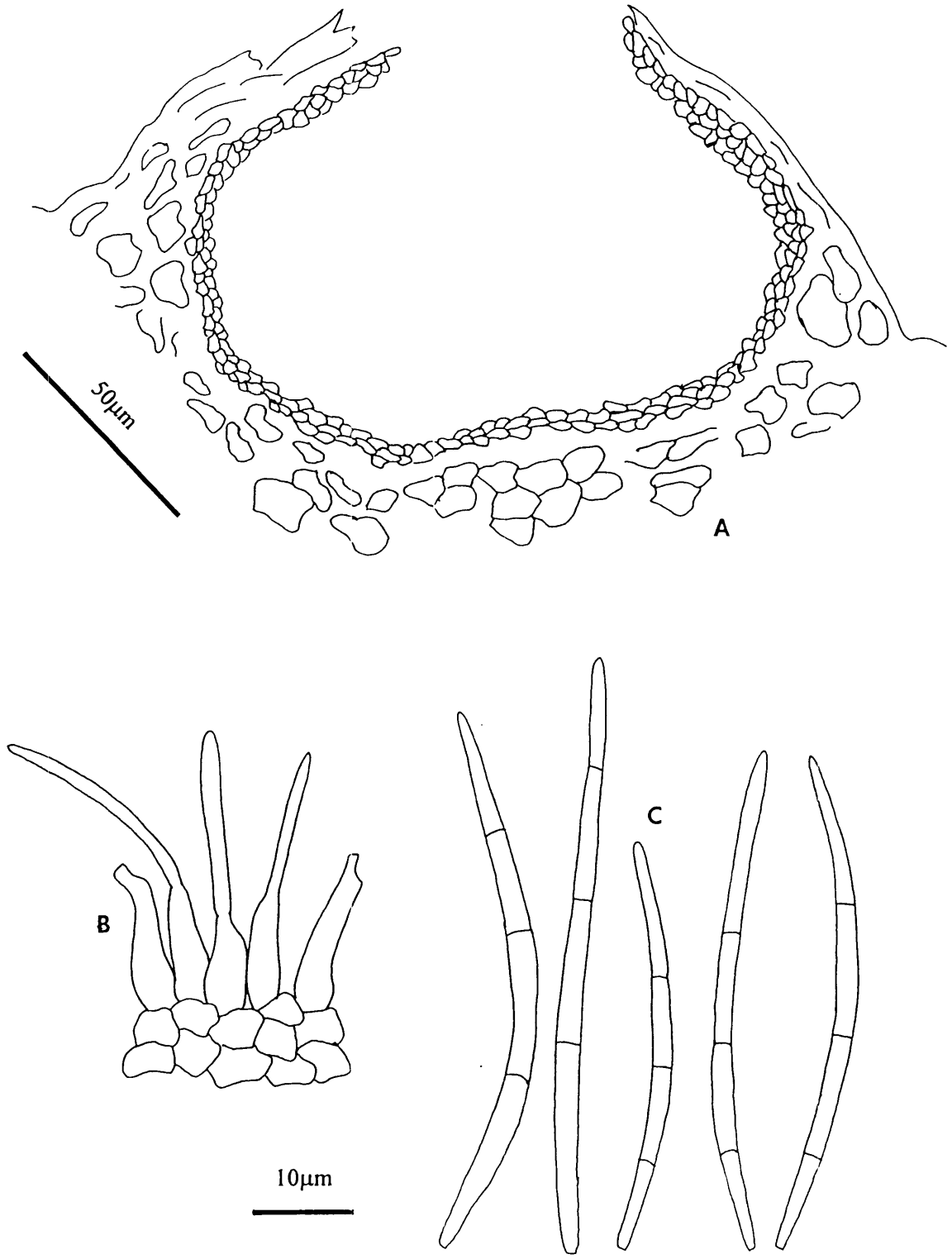

Fig.71. *Septoria ribis* DAR 7588; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

with truncate base and tapering to a rounded or sub-acute apex.

Hosts: *Ribes nigrum* L. (Blackcurrant), *R. rubrum* L.(Redcurrant), *Ribes* sp.

Distribution: New South Wales (Noble *et al* 1935 as *Mycosphaerella grossulariae*), Tasmania (Wade 1949, 1949a, Sampson & Walker 1982), Victoria (Brittlebank 1937-1940 as *S. grossulariae* and *S. ribis*, Fisher & Freeman 1959, Washington & Nancarrow 1983).

Examination of exsiccatus material from both Europe and the U.S.A. and comparison with the descriptions of Stone (1916), Vassilievsky (1924) and Jorstad (1965) and has confirmed the identity of this species in Australia. The recognition of a separate species *S. aurea* Stone and its accompanying teleomorph *Mycosphaerella aurea* Stone on *Ribes aurea* in the U.S.A. (Stone 1916) has not been accepted by later authors including Jorstad (1965) who placed *S. aurea* and several other species under synonymy with *S. ribis*. The correct name for the teleomorph according to Boerema & Verhoeven (1972) is *Mycosphaerella ribis* Feltg. In Australia only immature ascocarps have been found to be present on two collections (DAR 6336 from New South Wales and DAR 71758 from Tasmania) although Wade (1949a) reported perithecia to be common and ascospores to be discharged in mid-September in Tasmania. A single collection identified as *S. grossulariae* (Lib.) Westend. (Washington & Nancarrow 1983) has been examined and shows pycnidial conidiomata and hyaline conidia measuring 8-17 x 2-2.5μm and 1-septate. This is clearly not *S. grossulariae* which is a synonym of *S. ribis*. *Ascochyta grossulariae* Oudem. has similar size conidia but they are pale olivaceous (Buchanan 1987). The identity of this collection is uncertain.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Ribes nigrum*; **New South Wales**; Batlow, Dec. 1947 (DAR 4060); Robertson, 15 Mar. 1961, B. Ballantyne (DAR 6336); Belmore, 25 Jan. 1909, E. Cheel (DAR 59935); **Tasmania**; Huonville, 15 Jan. 1980, I.D. Geard (DAR 71758); Claremont, 30 Mar. 1977, P.J. Sampson (DAR 71759); Salmon Ponds, 14 Oct.1979, J. Walker (DAR 71760); **Victoria**; Ringwood, 1 Apr. 1894, C.R. Williams (VPRI 1851);

on *Ribes rubrum*; **Victoria**; Ferny Creek, 14 Dec. 1922, E.P. Dunn (VPRI 1846);

on *Ribes* sp.; **New South Wales**; Burradoo, 30 Jan. 1963, H.W. Sutton (DAR 7588).

EXTRALIMITAL COLLECTIONS:

on *Ribes nigrum*; Ontario, **Canada**, July 1893, J. Dearness, *Fungi Columbiani* No. 147 (DAR 52147); New York, **U.S.A.**, 10 July 1901, F.C. Stewart (DAR 68694 ex BPI);

on *Ribes rubrum*; **Sweden**, 27 Aug. 1914, A.G. Eliasson (DAR 62782 ex S);

on *Ribes uva-crispa*; Prencow, **Czechoslovakia**, 22 Sept. 1897, A. Kmet, *Fungi Schemnitzienses* (DAR 62932);

on *Ribes* sp.; Rooks County, Kansas, **U.S.A.**, Aug. 1895, E. Bartholomew, *Fungi Columbiani* No. 845 (DAR 53977).

HIPPOCASTANACEAE

Septoria aesculi (Lib.) Westend., *Bull. Acad. R. Belg.* **18**: 394 (1851)
≡ *Ascochyta aesculi* Lib., *Pl. Crypt. Ard.* No. 154 (1832)
≡ *Phloeospora aesculi* (Lib.) Lind, *Danish Fungi* 463 (1913)

(Fig. 72)

Leaf lesions hologenous, orbicular to irregular, 0.5-1mm diam., rarely confluent, on both surfaces with pale grey centre and raised purple-brown margin. *Conidiomata* amphigenous, scattered on lesions, immersed, scarcely erumpent, depressed globose, black, 100-180µm diam., pycnidial. *Ostiole* single, apical, 20-35µm, cells around opening slightly thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer mid-brown inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform to lageniform, 9-15 x 4-5µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, 1-3 septate, curved, 28-46(-60) x 2-2.5(-3)µm, with a truncate base and rounded to sub-acute apex.

Host: *Aesculus hippocastanum* L.

Distribution: New South Wales (Anon. 1954 as *Septoria hippocastani* Berk. & Br.)

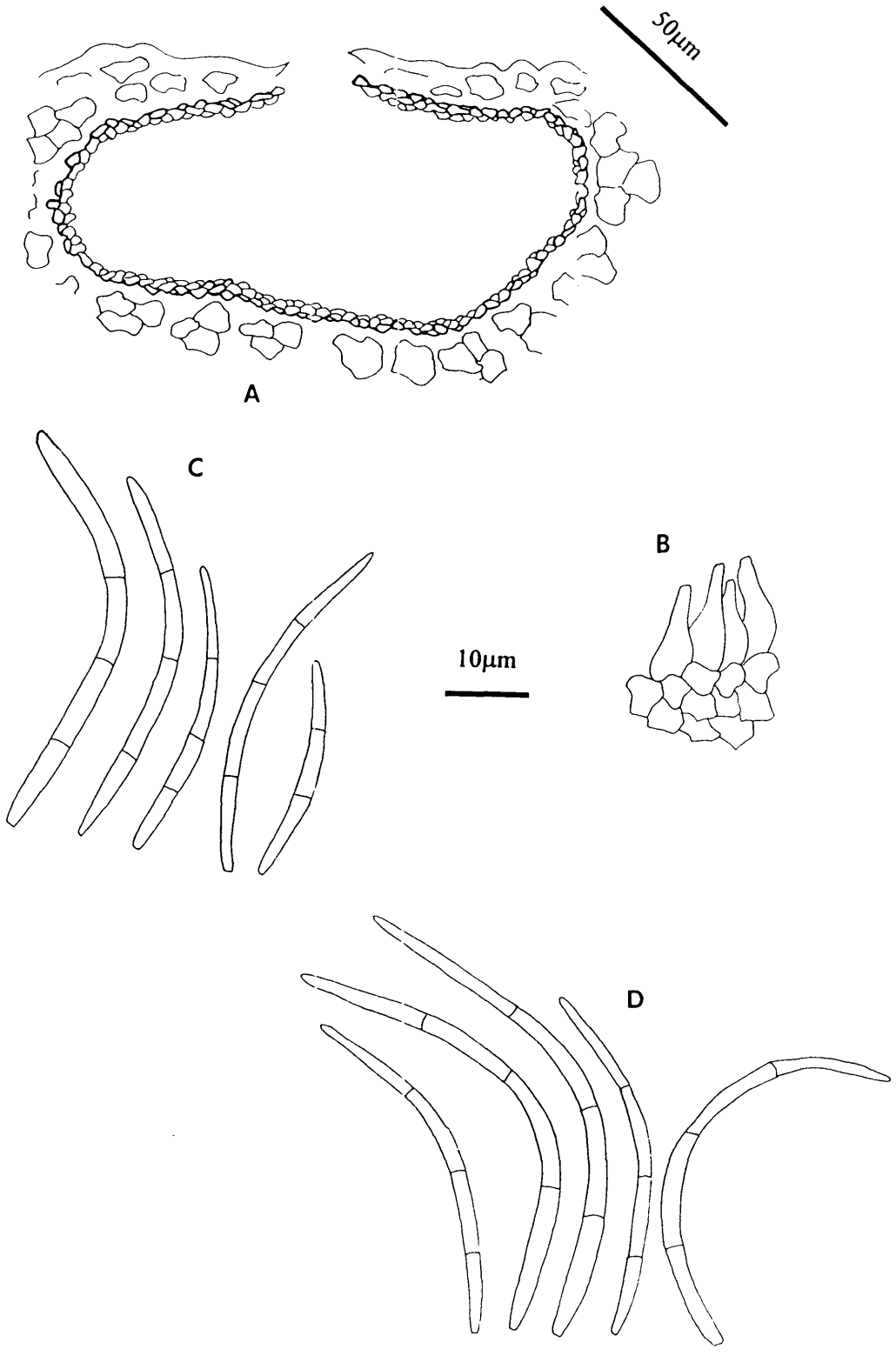

Fig.72. *Septoria aesculi*; (A) v.s. conidioma DAR 4428; (B) conidiogenous cells DAR 4428; (C) conidia DAR 4428; (D) conidia Flora Romaniae Exs. No. 3424

Septoria aesculi is known in Australia from only a single collection originally identified as *S. hippocastani*. Kuhnholtz-Lordat (1944) recognised several species as occurring on *Aesculus* including *S. aesculi* (conidia 50-60 x 3-3.5μm and 4-5 celled), *S. hippocastani* (conidia 55-60 x 2.5μm and 1-celled), *S. aesculina* Thuem. (conidia 36-44 x 3.5-5μm and 1-celled), and *S. aesculicola* (Fr.) Sacc. (conidia 20-30 x 1μm 1-celled), adding a new species *S. aesculi* var. *minor* (conidia 48-54 x 1.6-2μm and 3-septate) with an illegitimate autonym as *S. aesculi* var *major*. The recognition of all of these taxa appears to be based on measurements found in Saccardo's *Sylloge Fungorum* which on close inspection probably represents only two recognisable taxa represented by *S. aesculi* with conidia up to 60μm long and 2.5-3(-3.5)μm wide, and *S. aesculicola* (Fr.) Westend. with short narrow conidia (20-30 x 1μm). As the Australian collection does not differ from material identified as *S. aesculi* on the type host I am placing it under that name.

Specimens examined:

AUSTRALIAN COLLECTIONS:
on *Aesculus hippocastanum*; **New South Wales**; Uralla, March 1955, L.R. Fraser (DAR 4428).

EXTRALIMITAL COLLECTIONS:
on *Aesculus glabra* var *arguta*; Stockton, Kansas, **U.S.A.**, 31 Aug. 1903, E. Bartholomew, *Fungi Columbiani* No. 1873 (DAR);

on *Aesculus hippocastanum*; Transsilvania, **Roumania**, 19 Sept. 1963, M. Bechat & Gh. Lupean, *Flora Romaniae Exsiccata* No. 3424 (DAR).

HYPERICACEAE

Septoria hyperici Desm., *Ann. Sci. Nat. (Ser. 2)*, **17**: 110 (1842)

Listed by Brittlebank (1937-1940) as occurring on *Hypericum perforatum* L. in Victoria. No herbarium material under this name has been located and the record remains unsubstantiated.

IRIDACEAE

Septoria gladioli Pass., in Rabenh. *Fung. Europaei Exs.* No. 1956 (1875)

(Fig. 73)

Leaf lesions hologenous, orbicular to irregular, bounded by veins, 2-3mm diam., on both surfaces dark green-brown, sunken with raised margin and diffuse purple-brown necrotic halo. *Conidiomata* amphigenous, scattered on lesions, separate, immersed scarcely erumpent, globose, black, 130-180µm diam., pycnidial. *Ostiole* single, apical, 10-20µm, opening widely at maturity up to 50µm, cells around opening non-thickened. *Conidiomatal wall* 3-4 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform, 8-14 x 5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding from percurrently proliferating conidiogenous loci. *Conidia* hyaline, filiform, 3-5 septate, straight to slightly curved, (25-)45-55 x 2.5-3µm, with a truncate base and rounded apex.

Host: *Gladiolus* x cult. (Gladiolus)

Distribution: New South Wales (Hynes *et al.* 1941, Anon. 1965, Bertus 1984), Queensland (Simmonds 1966), Tasmania (Sampson & Walker 1982, report only),Victoria (Brittlebank 1937-1940, Chambers 1982), Western Australia (Goss 1953, Goss 1964, Shivas 1989).

Australian collections are identical with examined type material. *Septoria gladioli* is the cause of the disease known as "hardrot" of corms of *Gladiolus*. The biology of *S. gladioli* has been outlined by Stone (1958) and Schenk (1960). One unusual feature of *S. gladioli* is the presence of over-wintering "sclerotia" which cause leaf infection in the following season. All Australian collections examined are leaf spot material only.

Specimens examined:

AUSTRALIAN COLLECTIONS:

all on *Gladiolus* x cult.; **New South Wales**; Sydney, Nov. 1938, H.J. Hynes (DAR 2183); Beecroft, Sept 1937, R.J. Noble (DAR 2184); Sydney, Apr 1944, L.R. Fraser (DAR 4187); Gosford, May 1941,

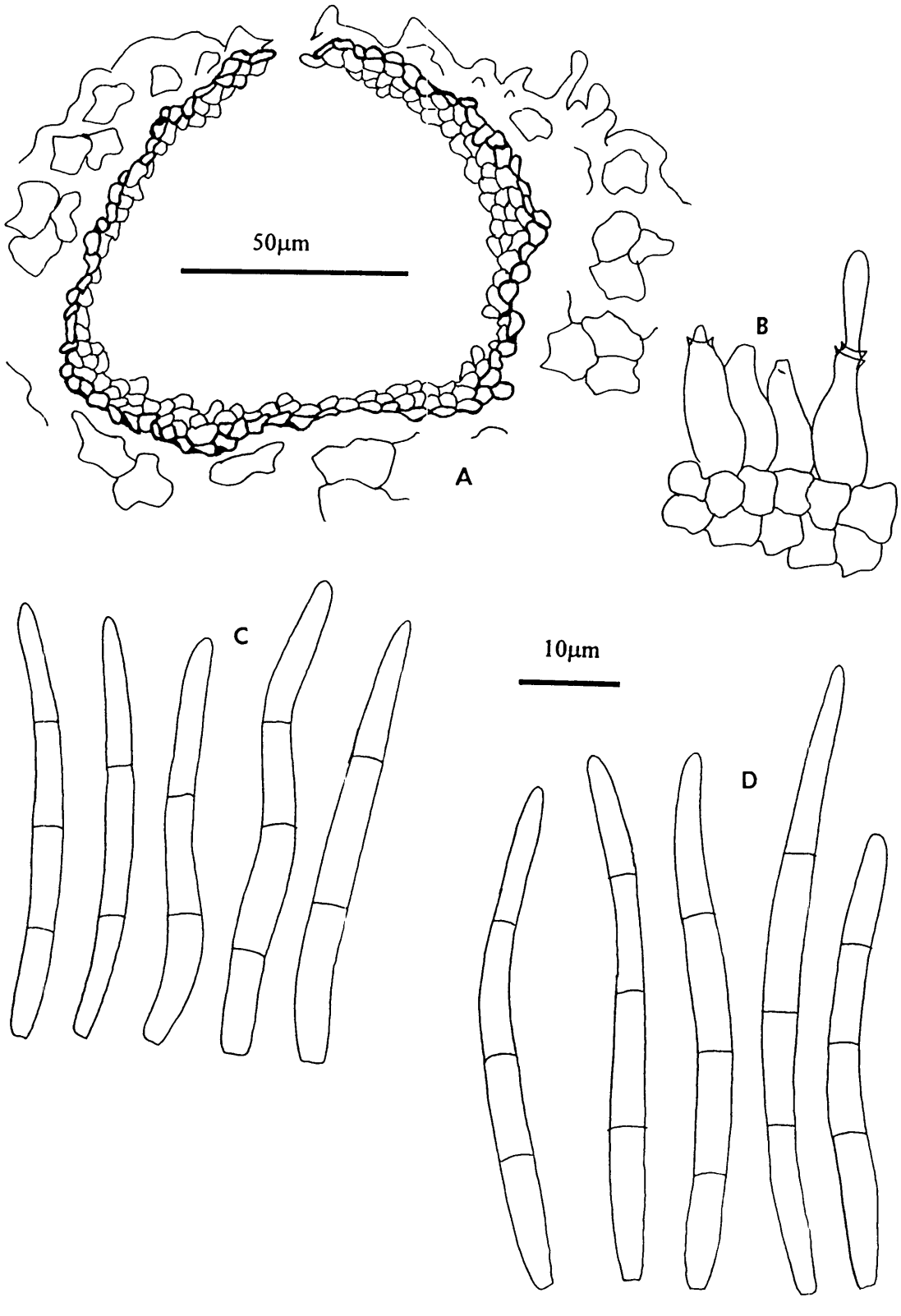

Fig.73. *Septoria gladioli*; (A) v.s. conidioma VPRI 1786; (B) conidiogenous cells VPRI 1786; (C) conidia VPRI 1786; (D) conidia ex type MEL

L.R. Fraser (DAR 4188); Wyong, Feb. 1960, Pierce (DAR 5816); Toongabbie, Nov. 1960, K.E. Hutton (DAR 6075); **Queensland**; Eight Mile Plains, 9 Nov. 1950, K.N. Shea (BRIP 5773); Mount Gravatt, 2 Feb. 1948, Allen (BRIP 5835); **Victoria**; no locality, Sept. 1934, A.T. Pugsley (VPRI 1786); Monbulk, 7 Dec. 1988. I. Smith (VPRI 16068); Dromona, 11 Aug. 1992, M. Hill (VPRI 18144); **Western Australia**; no locality, Sept 1944 (PERTH 825182);

EXTRALIMITAL COLLECTIONS:
on **Gladiolus segetum**; Vigheffio, Parma, **Italy**, Aest 1874. Passerini, *Thuem. Mycotheca Univeralis* No. 298 (MEL) **type**.

Septoria iridis C. Massal., *Mem. dell' Acad. d'Agricolt. Arti e Commercio di Verona (Ser.3)* **55**: 96 (1889)

Listed by Brittlebank (1937-1940) and Chambers (1982) as ocurring on *Iris germanica* L. in Victoria. No herbarium material under this name has been located and the record remains unsubstantiated.

Septoria sp. on *Iris* sp.

A *Septoria* sp. was listed by Chambers (1982) as occurring on *Iris* sp. in October 1920 in Victoria. No herbarium collection under this name has been located and the identity of the species involved is unknown.

JUGLANDACEAE

Septoria nigro-maculans Thuem., *Symb. Fl. Myc. Austr.* III No. 66 (1879)

Septoria nigro-maculans was described from the epicarp of mature fruits of *Juglans* in Austria with conidia 8-12 x 2.5-3 and 1-septate. The record of this species in Victoria was not reported by either Fisher & Freeman (1959) or Washington & Nancarow (1983). Examination of a collection identified as this species (VPRI 1829) has revealed aggregated conidiomata producing conidia measuring 7-12 x

2.5-3μm (mostly 1-septate, rarely 3-septate) from short doliiform enteroblastic conidiogenous cells. *Septoria nigro-maculans* was transferred to the genus *Cytosporina* (Sacc.) Sacc. by Diedecke (1912), which according to Sutton (1977) is a synonym of *Dumortieria* Westend. Examination of type material of *S. nigro-maculans* tends to support Diedecke's transfer: the conidiomata are stromatic, conidia are allantoid, measure 7-9 x 1μm and are non-septate. The conidiogenous cells are integrated and are enteroblastic which places it near *Cytospora* Ehrenb. ex Fr. as defined by Sutton (1980). The Australian collection which is from fruits of *Juglans regia* L. (Walnut) matches the original description of *S. nigro-maculans* but since the type of that species in no way resembles the original description, the placement of this collection is uncertain. It is certainly not a *Septoria* and is probably referrable to *Phoma* Sacc. or *Ascochyta* Lib.

Host: *Juglans regia* L. (Walnut)

Distribution: Victoria.

Specimens examined:

AUSTRALIAN COLLECTION

on *Juglans regia*; Victoria; Koroit, 27 Feb. 1902, W. Anderson (VPRI 1829);

EXTRALIMITAL COLLECTION

on "epicarpio fructorum matuorum" of *Juglans nigra* L.; Klosterneuberg, **Austria**, Oct. 1878, de Thümen, *Thüm. Mycotheca Universalis* No. 1492 (MEL) **type** of *S. nigro-maculans*.

LAMIACEAE

Septoria lamiicola Sacc., *Syll. Fung.* **3**: 538 (1884)

≡ *Septoria lamii* Sacc., *Michelia* **1**: 180 (1878) non Westend. or Pass.

= *Septoria heterochroa* Rob. ex Desm. b. *lamii* Desm., *Ann. Sci. Nat. (Ser.3)* **8**: 21 (1847)

= *Septoria lamii* Westend. in Bellynck, *Bull. Acad. R. Sci. Belg.* **19**: 63 (1852)

= *Septoria lamii* Pass., *Atti. Soc. Critt. Ital. (Ser.2)* **2**: 37 (1879)

(Fig. 74)

Leaf lesions hologenous, irregular, 5-10mm diam., often coalescing into large blotches 15-18mm

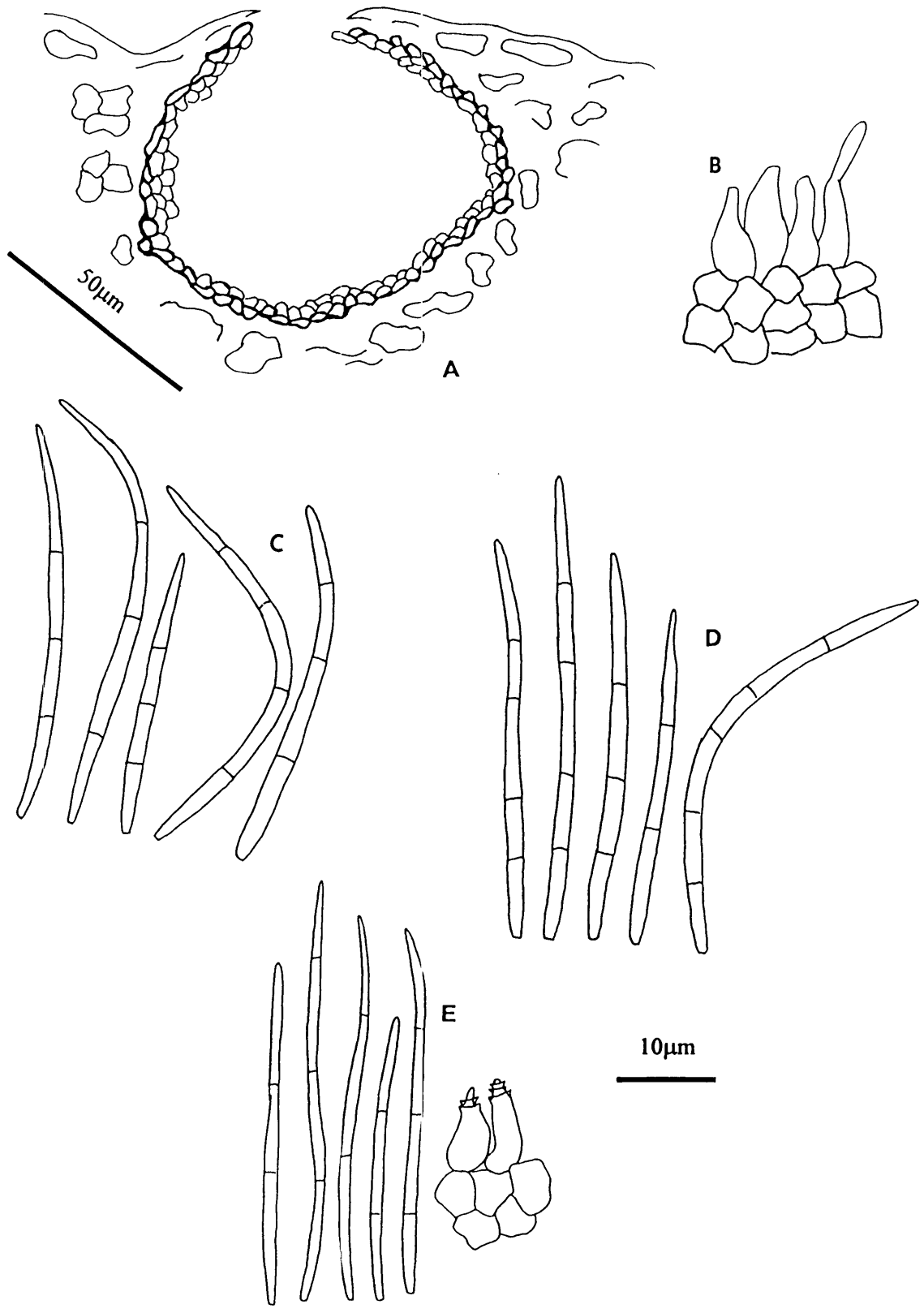

Fig.74. *Septoria lamiicola*; (A) v.s. conidioma DAR 72139; (B) conidiogenous cells DAR 72139; (C) conidia DAR 72139; (D) conidia *S. lamii* type ex MEL; (E) conidia and conidiogenous cells *S. galeopsidis* DAR 53832 (Fungi Columbiani No. 678)

diam., upper surface lesions grey-brown becoming creamy-grey in the centre with age, margin raised, dark brown with broad brown necrotic halo, lower surface lesions slightly paler. *Conidiomata* amphigenous, scattered on lesions, immersed, globose, dark brown, 90-120µm diam., pycnidial. *Ostiole* single, apical, occasionally slightly papillate, 10-25µm, cells around opening scarcely thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, doliiform to ampulliform, 8-15 x 3-4µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, 0-4 septate, straight to slightly curved, 33-55 x 1.5-2(-2.5)µm, tapering to a truncate base and rounded to sub-acute apex.

Host: *Lamium amplexicaule* L.

Distribution: New South Wales, South Australia (Cooke & Dube 1989 as *S. lamii*), Victoria

The reason for the acceptance of *S. lamiicola* as the legitimate name for this species is outlined by Jørstad (1965). Australian collections are identical to material named as *S. lamii* Pass. (including the type collection). The suggestion by Jørstad (1965) that *S. galeopsidis* Westend. and *S. lamiicola* resemble each other is not supported by examination of collections of *S. galeopsidis* available. In *S. galeopsidis* the conidia are 1-1.5µm wide, narrower than those of *S. lamiicola*, and conidiogenesis is enteroblastic with percurrent proliferation.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Lamium amplexicaule*; **New South Wales**; Narromine, Aug. 1989, D. Trimboli (DAR 65376); Narromine, June 1995, D. Trimboli (DAR 72139); **South Australia**; Clare, 25 Oct. 1987 (DAR 60881); **Victoria**; Timmering, 24 Sept. 1991, I.G. Pascoe (VPRI 17602).

EXTRALIMITAL COLLECTIONS:

Septoria lamiicola; on *Lamium purpureum* L.; **Austria**, F. de Hoehnel, *Krypt. Exs. Vindobensis* No. 1464 (DAR 64396, BRIP 7225) as *S. lamii* Pass.; Parma, **Italy**, April 1877, G. Passerini, *Thüm. Mycotheca Universalis* No. 1183 (MEL) **type** of *S. lamii* Pass.;

Septoria galeopsidis; on *Galeopsis tetrahit* L.; Johnson, Vermont, **U.S.A.**, Sept 1894, A.J. Grout, *Fungi Columbiani* No. 678 (DAR 53823); Rekola, Nylandia, **Finland**, 11 Aug 1935, V. Heikinheimo & E. Laine, *Liro Mycotheca Fennica* No. 808 (DAR 36938)

Septoria lavandulae Desm., *Ann. Sci. Nat.* **20**: 86 (1853)

(Fig. 75)

Leaf lesions hologenous, orbicular to irregular, 2mm diam., often coalescing into blotches 5-6mm diam., on both surfaces pale brown becoming grey in the centre with age with a dark brown raised narrow margin. *Conidiomata* amphigenous, scattered on lesions, immersed, dark brown to black, globose, 70-120µm diam., pycnidial. *Ostiole* single, apical, 15-35µm, cells around opening slightly thickened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer mid-brown and thickened, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform, 7-8 x 2-3µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, 1-3(-4) septate, straight to slightly curved, (10-)16-35 x 1.5-2µm, with truncate base and shortly tapering to a rounded to sub-acute apex.

Host: *Lavandula* spp.

Distribution: New South Wales (Anon 1953), Victoria (Brittlebank 1937-1940, Chambers 1982).

Australian collections agree with the original description of *S. lavandulae*, descriptions by Grove (1935), Ellis & Ellis (1985), Cejp & Dolejs (1967) and a single exsiccatus collection available. *Septoria lavandulae* is known from Europe (Grove, 1935, Cejp & Dolejs 1967, Cejp 1969) and the U.S.A. (Farr *et al.* 1989) but has rarely been reported from elsewhere. One collection (VPRI 1803) from Cheltenham, Victoria had too little evidence of *Septoria* to be examined in detail.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Lavandula vera* DC; **New South Wales**; Mount Wilson, Feb. 1953, P.G. Valder (DAR 4458);

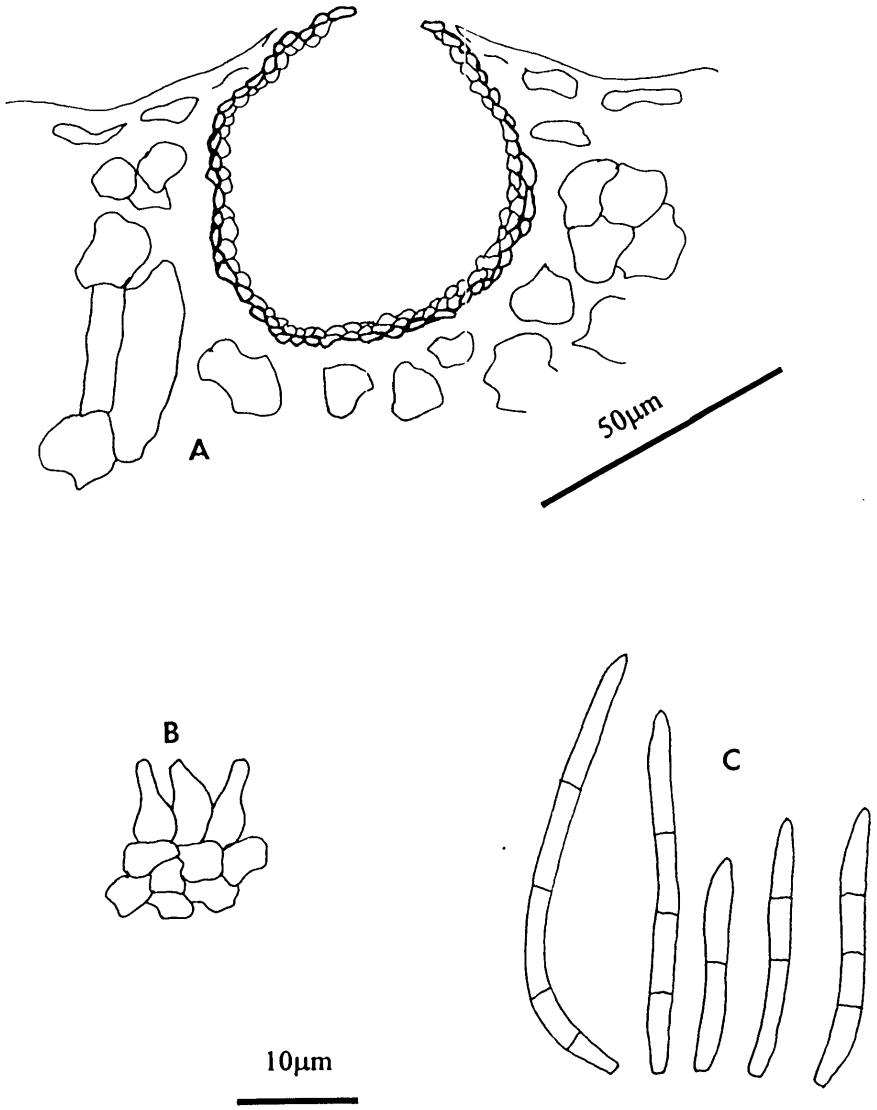

Fig.75. *Septoria lavandulae* DAR 72137; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

on *Lavandula* sp.; **New South Wales**; Candelo, 24 Dec. 1992, H. Kemp (DAR 72137); **Victoria**; Cheltenham, 16 July 1898 (VPRI 1803); Melbourne, 29 Jan. 1935, C.R. Millikan (VPRI 1802).

EXTRALIMITAL COLLECTION:
on *Lavandula* sp.; Chichester, Sussex, **United Kingdom**, 31 July 1968, O.M. Williams (DAR 71771).

Septoria stachydis Rob. ex Desm., *Ann. Sci. Nat.* (Ser. 3), **8**: 19 (1847)

Listed by Brittlebank (1937-1940) on *Stachys* sp. in Victoria. No herbarium material under this name has been located and the record remains unsubstantiated.

LILIACEAE

Septoria narcissi Pass., *Memor. Acad. Linacei Roma* **6**: 457 (1890)

Listed by Brittlebank (1937-1940) and Chambers (1982) as occurring on *Narcissus* in Victoria in 1917. No herbarium specimen exists and the record is unable to be verified. In the original description of *S. narcissi* conidia were given as cylindrical with dimensions 17.5-20 x 2.5-3µm and occurred on the apex of leaves. It is probable that *S. narcissi* is a synonym of *Stagonospora curtisii* Berk. & Curt. which has similar conidial dimensions, causes leaf scorch of *Narcissus* (particularly on leaf tips) and is recorded in Victoria on this host.

Septoria polygonati Kabat & Bubák, *Hedwigia* **50**: 41 (1909)

(Fig. 76)

Leaf lesions orbicular to irregular, 2-8mm diam., on both surfaces pale grey-brown in the centre with a wide deep-brown to black margin up to 1.5mm. *Conidiomata* amphigenous, mostly epigenous, scattered on lesions, separate, immersed, depressed globose, dark-brown to black, 100-150µm diam., pycnidial. *Ostiole* single, apical, 15-20µm, cells around opening dark and thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer pale to mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, occasionally septate and integrated, cylindrical, 6-12 x 2-3µm, producing conidia

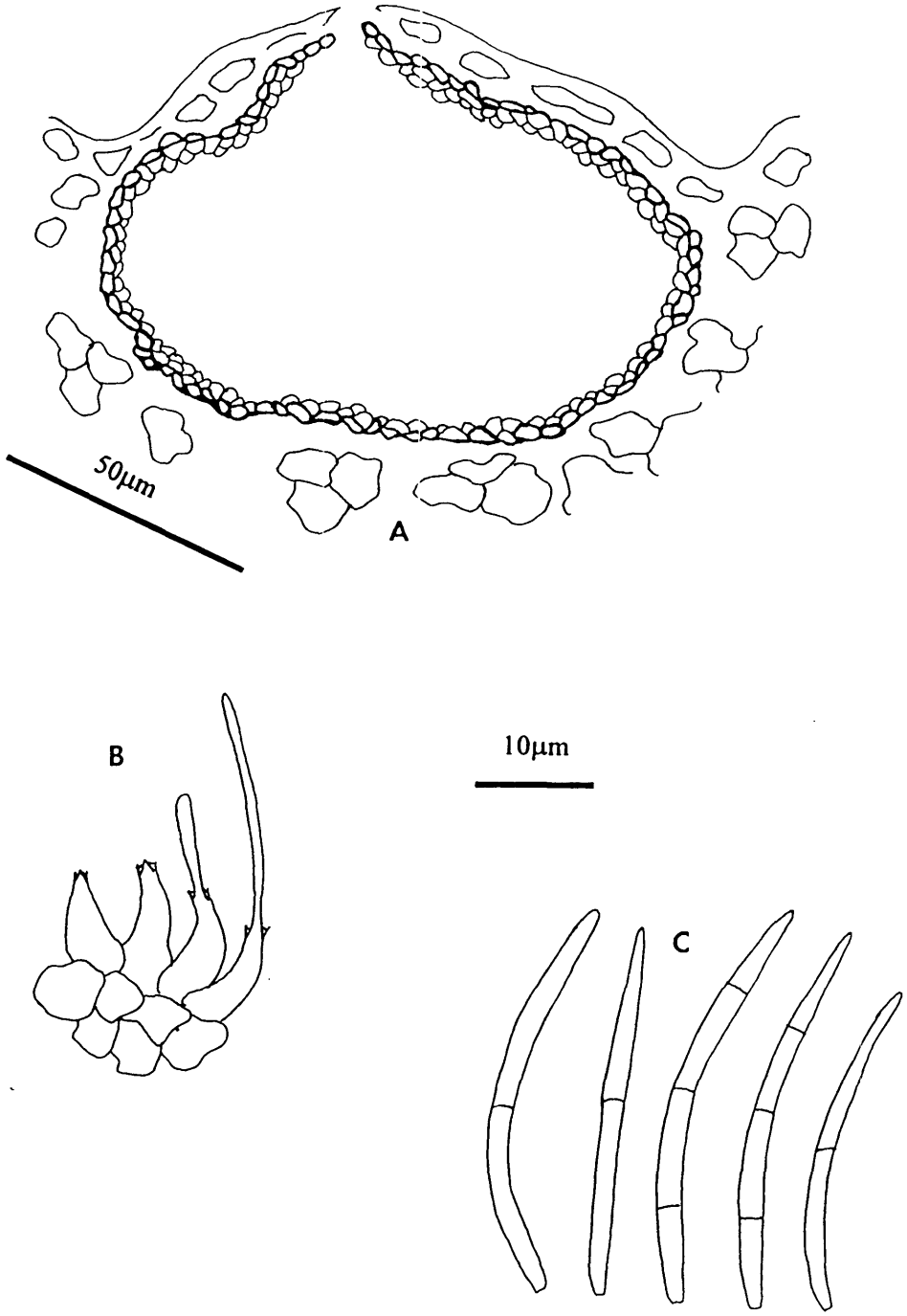

Fig.76. *Septoria polygonati* DAR 4472; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

holoblastically, secession schizolytic, subsequent conidia produced enteroblatically and seceding at the same level from the conidiogenous locus. *Conidia* hyaline, filiform, 1(-3) septate, falcate, rarely straight, 24-35 x 2μm, with rounded base and rounded to sub-acute apex.

Host: *Polygonatum* sp. (Solomon's Seal).

Distribution: New South Wales (Anon 1954).

In the original description of *S. polygonati* conidia were described as being falcate and measuring 25-38 x 2-2.5μm. The single Australian collection matches the description and is placed here. Since its description, *S. polygonati* has only been recorded once by Sameva (1991) in Bulgaria. The Australian collection appears to be the only record outside Czechoslovakia and Bulgaria.

Specimen examined: on *Polygonatum* sp.; **New South Wales**; Mount Wilson, Feb. 1953, P.G. Valder (DAR 4472).

Septoria transversalis Sacc., *Fungi Romanae* No. 57, (in *Annuar. d. Istit. Bot. di Roma* **4**, 1891)

(Fig. 77)

Leaf lesions hologenous, covering up to half of the leaf, on both surfaces, pale creamy white with a sharply defined brown margin and diffuse pale brown necrotic halo. *Conidiomata* amphigenous, scattered to aggregated, occasionally in transverse rows across the lesion, immersed, scarcely erumpent, globose, dark brown to black, 50-80μm, stromatic. *Ostiole* absent, opening widely by dehiscence of the upper wall of the conidioma. *Conidiomatal wall* 3-4 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer bark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform, 8-10 x 2.5μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding at the same level from narrow conidiogenous loci. *Conidia* hyaline, cylindrical to occasionally bacilliform, 0-1 septate, 9-12 x 1-1.5μm, with rounded to truncate base and rounded apex.

Host: *Aspidistra elatior* Blume var. *variegata.*

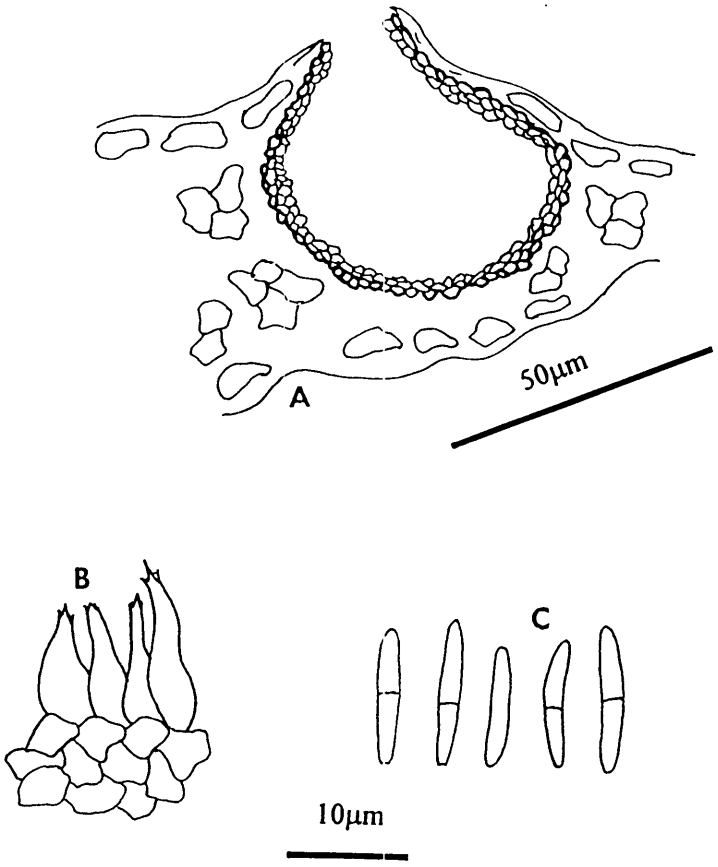

Fig.77. *Septoria transversalis* VPRI 8836; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

Distribution: South Australia, Victoria (Brittlebank 1937-1940 and Chambers 1982; report only).

Septoria transversalis was listed by both Brittlebank (1937-1940) and Chambers (1982) as occurring in Victoria in April 1904. However the only collections available were both collected at Norwood in South Australia by Tepper in November 1904 and no collection from Victoria has been located. In the original description of *S. transversalis* the type host was given as *A. elatior*, conidioma were described as "in foliis transverse positas" and conidia were given as 11-14 x 1.5µm and bacilliform. The Australian collections examined match the original description of *S. transversalis* in conidial dimensions and the occasional transverse placement of the conidiomata. Punithalingam (1988) published a description of the fungus *Ascochyta aspidistrae* Massee from its type collection and gave the conidiomata as either pycnidial or stromatic, conidiogenesis as enteroblastic and conidia were given as being 9-15 x (1-) 1.5 -2.5µm and 0-1 septate. Paucity of the material however prevented critical examination and subsequent generic placement. Careful examination of the photograph of the type material figured by Punithalingam (1988) indicates that there is some evidence of transverse placement of the conidiomata as described for *S. aspidistrae* although this feature was not mentioned. Australian collections are not appreciably different in all characters given by Punithalingam (1988) and it appears that *A. apsidistrae* Massee is probably a later synonym of *S. aspidistrae* Sacc. The stromatic nature of the conidioma and the enteroblastic conidiogenesis place this taxon outside *Septoria* but examination of the type collection is required before an alternative generic placement can be made.

Specimens examined: on *Aspidistra elatior* var. *variegata*: **South Australia**; Norwood, 5 Nov. 1904, J.G.O. Tepper (VPRI 1896 & 8836).

Septoria sp. on *Burchardia umbellata* R.Br.

An unidentified species of *Septoria* was listed by Chambers (1982) as occurring on *Burchardia umbellata* in Victoria in 1912. No herbarium material under this name has been located and the identity of the species of *Septoria* is unknown.

LINACEAE

Septoria linicola (Speg.) Garassini, *Rev. Fac. de Agron. Univ. nac. de La Plata* **22**: 104 (1938)
≡ *Phlyctaena linicola* Speg., *An. Mus. nac. Hist. Buenos Aires* **20**: 389 (1910)

(Fig. 78)

Lesions on leaves and stems. On leaves hologenous, orbicular, 2-3mm diam., on both surfaces yellow-brown with a pale brown raised margin; on stems elongated up to 10cm long, raised or occasionally sunken. *Conidiomata* epigenous, scattered on lesions, occasionally aggregated on stems, immersed, scarcely erumpent, black, 90-150um, pycnidial. *Ostiole* single, apical, 20-35µm, cells around opening dark and thickened. *Conidiomatal wall* 2-3 cells thick, often 4 cells thick around ostiole, composed of pseudoparenchymatous tissue, textura angularis, outer layer dark brown and thickened, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, occasionally septate, ampulliform to lageniform, 6-8 x 2-3µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1-3(-4) septate, straight to slightly curved, 15-28 x 2µm, with truncate to rounded base and rounded apex.

Host: *Linum usitatissimum* L. (Flax).

Distribution: New South Wales (Anon. 1949 as *Sphaerella linorum* Wollenw., Butler 1949, Kerr & Shaw 1951 as *Sphaerella linorum*, Millikan 1951), Queensland (Simmonds 1951, 1966; as *Mycosphaerella linorum*), South Australia (Warcup & Talbot 1981, Cooke & Dube 1989), Victoria (Millikan 1951, Freeman 1964, Woodcock & Clarke 1983), Western Australia (Millikan 1951, Shivas 1989).

Septoria linicola is the cause of Pasmo disease of flax and has a worldwide distribution (Sivanesan & Holliday 1981). Australian collections examined agree with the descriptions given by Brentzel (1926) who examined authentic material from Spegazzini, Newhook (1942), Millikan (1951) and Sivanesan & Holliday (1981). The occurrence in Australia, and varietal resistance to *S. linicola* was summarised by Millikan (1951). Since Millikan (1951), *S. linicola* has also been recorded from Queensland and South Australia.

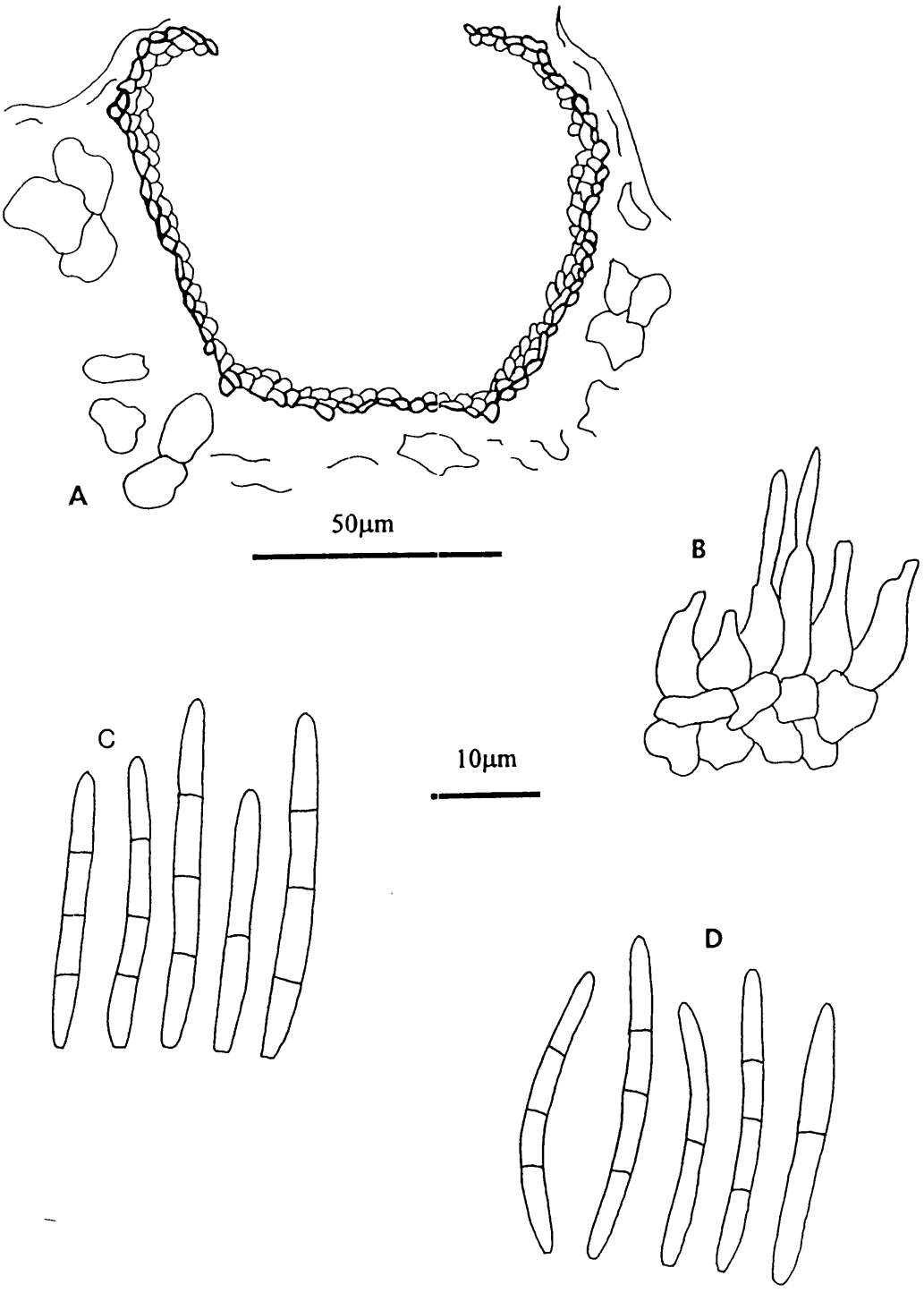

Fig.78. *Septoria linicola*; (A) v.s. Conidioma DAR 3655; (B) conidiogenous cells DAR 3655; (C) conidia DAR 3655; (D) conidia BRIP 20787 ex culture

Specimens examined: all on *Linum usitatissimum*; **New South Wales**; Moree, 20 Sept. 1950 (DAR 3653); Walla Walla, 23 Nov. 1948 (DAR 3654); Pallamallawa, 26 Sept. 1950, D.G. Daniell (DAR 3655); Tamworth, 1955, P. Baumgarten (DAR 4253); Griffith, 14 Sept. 1960, T.E. Kitamura (DAR 6511); Tambar Springs, 2 Nov. 1961, W. Poggendorf (DAR 6667); Moree, 7 Nov. 1962 (DAR 7667); Forbes, 24 Oct. 1963 (DAR 12352); Narrabri, 28 Oct. 1964, F. Cutting (DAR 13620); Gulargambone, 21 Dec. 1970, G. Peart (DAR 20787); Trundle, 15 Oct. 1973, R.L. Grammie (DAR 24148); Greenthorpe, 31 Dec. 1987, B. Butler (DAR 61315); **South Australia**; Kangaroo Island, 22 Nov. 1974, P. Fairbrother (DAR 24907); **Victoria**; Dumbalk, 1940, A.A. Lee (VPRI 1811); Croxton, 14 Feb. 1994, G. Whipp (VPRI 19845).

MALVACEAE

Septoria althaea Thüm., *Fungi Austriaci* No. 995

Listed by Brittlebank (1937-1940) and Chambers (1982) as occurring on *Althaea rosea* (L.) Cav. (now *Alcea rosea*) in Victoria prior to 1940. No herbarium collection under this name has been located and the record is unable to be verified.

Septoria malvicola Ellis & G. Martin, *J. Mycol.* **3**: 65 (1887)

(Fig. 79)

Leaf lesions hologenous, irregular, bounded by leaf veins, 1-2mm diam., upper surface lesions at first dark brown, becoming pale grey-brown in the centre with a narrow dark brown margin, lower surface lesions pale grey-green. *Conidiomata* amphigenous, mostly epigenous, scattered on lesions, separate, immersed, becoming erumpent, mid-brown, globose, 80-100µm, pycnidial. *Ostiole* single, apical, 15-30µm, cells around opening thickened. *Conidiomatal wall* 2 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer mid-brown, inner layer pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, cylindrical to lageniform, 8-12 x 3-4µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1-3 septate, straight to slightly curved, (20-)35-50 x 1.5(-2)µm, with truncate base and tapering gradually to a sub-acute apex.

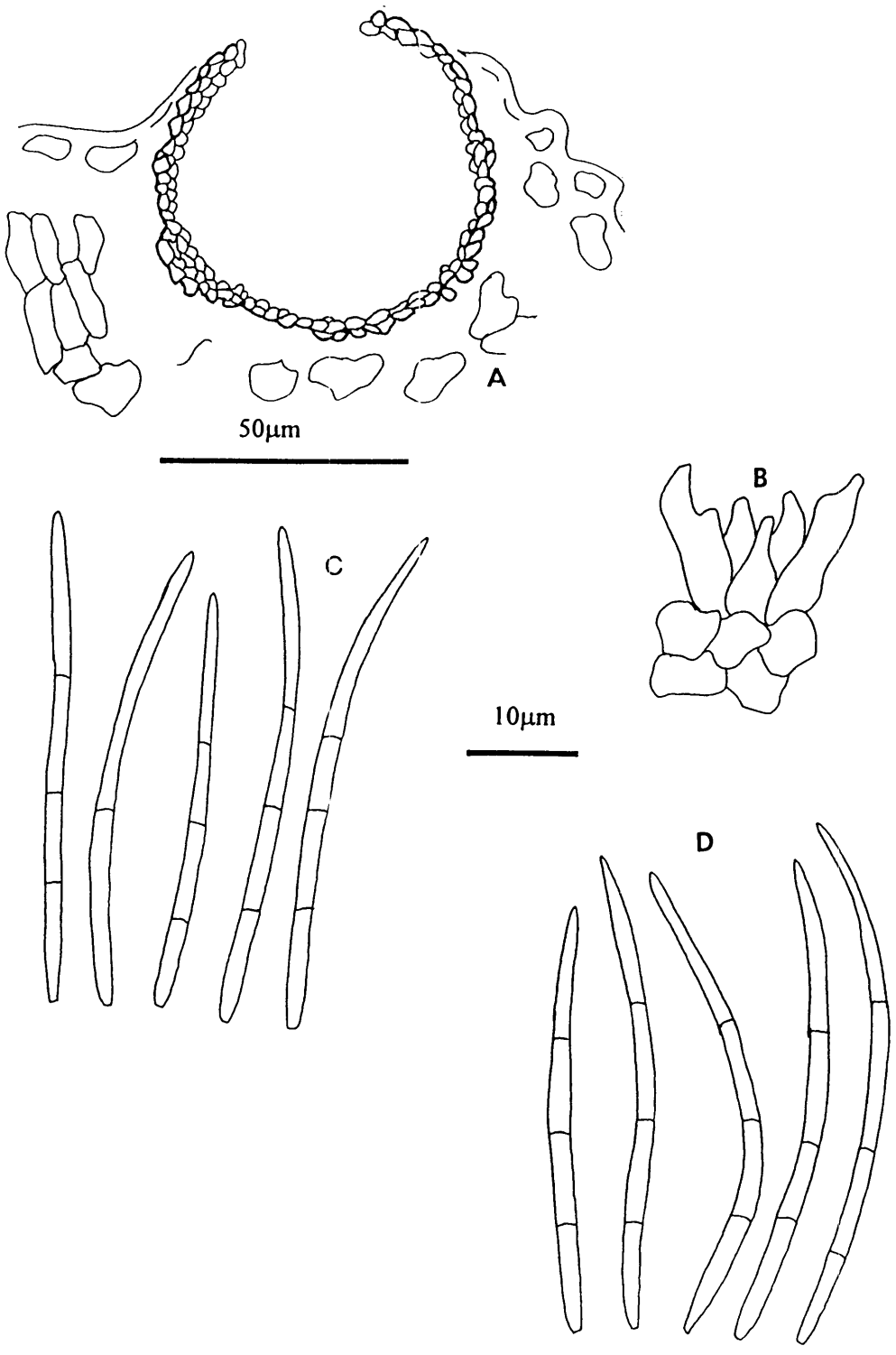

Fig.79. *Septoria malvicola*; (A) v.s conidioma DAR 28231; (B) conidiogenous cells DAR 28231; (C) conidia DAR 28231; (D) conidia DAR 50627 (Ohio Fungi No.196)

Host: *Malva neglecta* Wallr.

Distribution: New South Wales, Victoria (Brittlebank 1937-1940, Chambers 1982, report only).

The single Australian collection examined is identical with exsiccatus material named as *S. malvicola* which was originally described from *Malva rotundifolia* L. in the U.S.A. Two other species of *Septoria* described from *Malva* are *S. heterochroa* Desm. and *S. malvae* Unamuno with conidia given as 25.7- 45.7 x 1.5-2.2μm which are not different to those seen in collections of *S. malvicola*. The status of *S. heterochroa* is uncertain as it was described with conidia 25μm long and occurring on *Malva* with forms on *Lamium* (*S. heterochroa* Desm.var. *lamii* Desm.), *Antirrhinum* and *Plantago* (*S. heterochroa* Desm. var. *plantaginis* Desm. (Saccardo 1884). Grove (1935) noted its occurrence in the United Kingdom with conidia 25-30μm long but did not give a conidial width. However, he also noted that the conidia were shorter than those of *S. malvicola*. As the Australian material is identical with *S. malvicola* it is placed under that name.

Specimens examined:

AUSTRALIAN COLLECTION:
on *Malva neglecta*; **New South Wales**; Jindabyne, 19 Feb. 1976, J. Walker (DAR 28231).

EXTRALIMITAL COLLECTIONS:
all on *Malva rotundifolia*; Nashville, Ontario, **Canada**, 15 Aug. 1952, R.F. Cain (DAR 31599 ex TRTC 31018); London, **Canada**, July 1893, J. Dearness, *Fungi Columbiani* No. 146 (DAR 52146); Columbus, Ohio, **U.S.A.**, 13 Oct. 1904, W.A. Kellerman, *Ohio Fungi* No. 196 (DAR 50627); Syracuse, New York, **U.S.A.**, 5 July 1892, B.D. Halsted, *Seymour & Earle Economic Fungi* No. 268b (DAR 50939).

Septoria sp. on *Abutilon*

An un-named *Septoria* was listed by Chambers (1982) as occurring on *Abutilon* in Victoria in 1900. This record is based on a single collection (VPRI 1808) from Armadale. The collection is labelled *Septoria* with *malvacearum* McAlp. written in pencil. This name was never published and has no status. Examination of the collection has shown no *Septoria* to be present. The only fungi found were a species of *Phoma* Sacc. and an immature ascomycete.

Specimen examined: on *Abutilon* sp.; **Victoria**; Armadale, 6 May 1900, D. McAlpine (VPRI 1808).

MENYANTHACEAE

Two species of *Septoria* are recognised on hosts in the Menyanthaceae. *Septoria villarsiae* is recognised as occurring on *Nymphoides crenata* in New South Wales and *S. menyanthicola* sp. nov. is described from *Nymphoides exiliflora* and *Villarsia exaltata.*

Septoria limnanthemi Thuem., *Fung. Kirgh.* No. 13 (1880)

Recorded by Brittlebank (1937-1940) and Chambers (1982) as occurring on *Nymphoides indica* (L.) Kuntze in Victoria in 1899. No herbarium collection on this host can be located and the record remains unsubstantiated. The only herbarium collections located and named as *S. limnanthemi* from Victoria are on the host *Villarsia exaltata* (as *Limnanthemum exaltatum*) and are discussed below.

Septoria menyanthicola Priest ***sp. nov.***

(Fig. 80)

Laesiones hologenae, orbiculares, 3-6mm diam., pallide brunneae cum margine distincto. *Conidiomata* epigena, pycnidialia, immersa, separata, globosa, 60-80µm diam., crassitudine 3 cellularum, parieties pseudoparenchyamtici, textura angulari, brunnea compositi. *Ostiolum* singulum, apicale, 15-25µm diam. *Cellulae conidiogenae* e cellulis interioribus conidiomatum formatae, discretae, hyaline, ampulliformes vel cylindrici, 6-11 x 3-4µm, holoblastica sympodialia conidia producentes. *Conidia* hyalina, filiforma, 1-3 septata, recta vel curvata, laevia, 20-40(-52) x 1-1.5µm, deminuta versus basim truncatum et apicem sub-acutum.

Holotypus; in foliis *Villarsia exaltata* (Sol. Ex Sims) G.Don, Thirlmere, Nova Wallia Australis, Australia, 11 May 1985, M.L. & J. Walker (DAR 51602).

Leaf lesions hologenous, orbicular, 3-6mm diam., often coalescing to form blotches up to 10mm., upper surface lesions mid-brown in centre with a raised mid-brown margin and a narrow creamy yellow to purple halo up to 2mm diam., lower surface lesions lacking margin and halo. *Conidiomata* epigenous, scattered on lesions, separate, immersed becoming erumpent, globose, black, 60-80µm diam., pycnidial. *Ostiole* single, apical, 15-25µm, cells around opening darkened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layers mid-dark

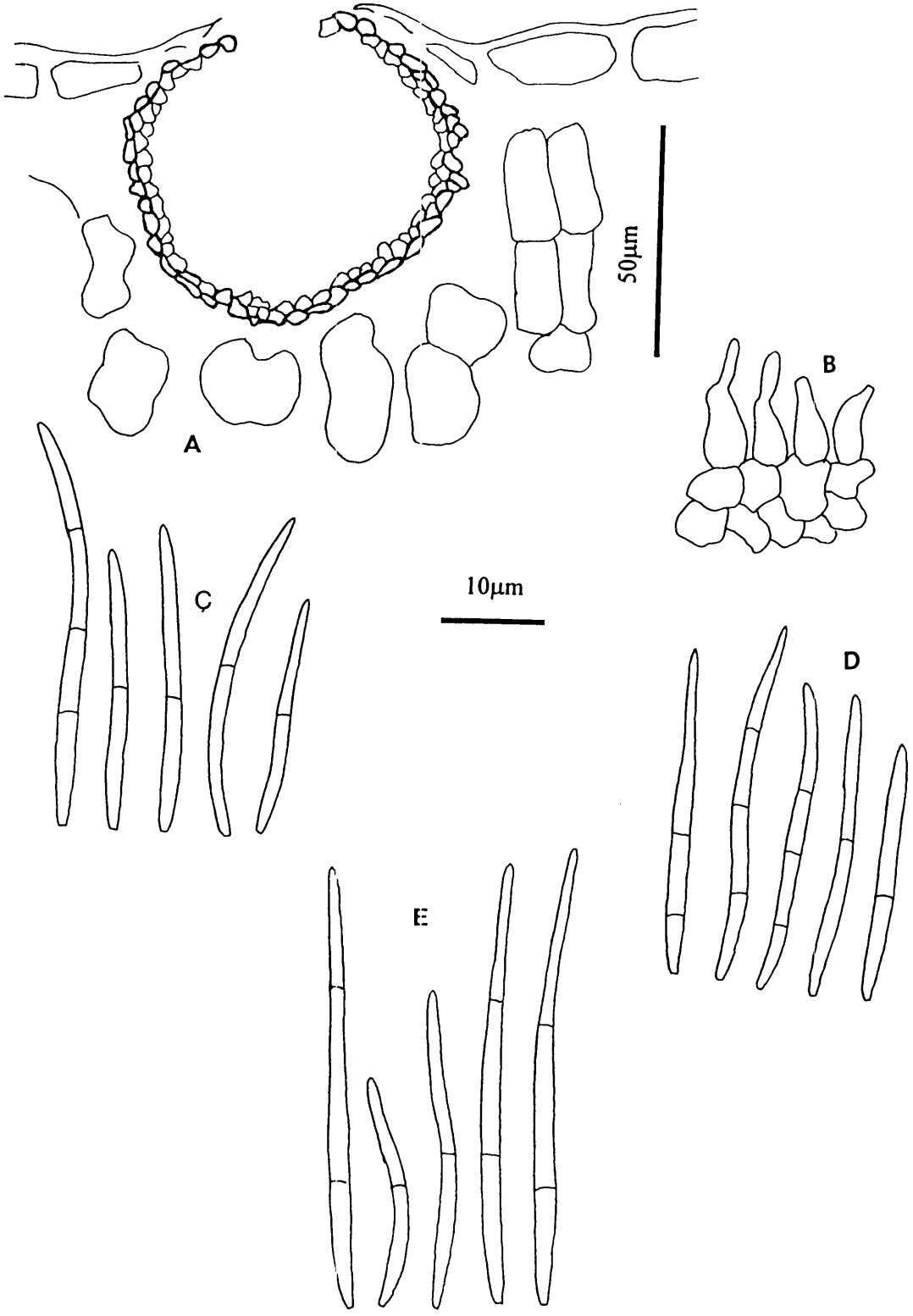

Fig.80. *Septoria menyanthicola*; (A) v.s. conidioma DAR 51062 holotype; (B) conidiogenous cells DAR 51062; C-E conidia (C) DAR 51062; (D) BRIP 22291 ex *Nymphoides*; (E) VPRI 1809 ex *Villarsia*

brown, inner layer pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, ampulliform to cylindrical 6-11 x 3-4µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1-3 septate, straight to slightly curved, 20-40(-52) x 1-1.5µm, with a truncate base and sub-acute apex.

Hosts: *Nymphoides exiliflora* (F. Muell.) Kuntze, *Villarsia exaltata* (Sol. ex Sims) G. Don, *Villarsia* sp. (? *reniformis* R. Br.).

Distribution: New South Wales (Walker 1986 as *Septoria* sp.), Queensland, Victoria.

Septoria menyanthicola is distingushed from other species of *Septoria* on hosts in the Menyanthaceae by its narrow conidia. *Septoria villarsiae* Desm., *S. limnanthemi* Thuem. and *S. menyanthis* Desm. all have conidia described as being at least 1.5µm wide or wider. Examination of collections identified as *S. villarsiae* and *S. menyanthis* have shown that conidia are 1.5-2(-2.5)µm wide (see discussion under *S. menyanthis*). Jorstad (1965) described the condia of *S. menyanthis* as 16-50 x 1-1.5(-2)µm which are similar to that found in *S. menyanthicola* but examination of a collection of *S. menyanthis* on the type host *Menyanthes trifoliata* has found only conidia 1.5-2µm wide, generally wider than those given by Jørstad (1965).

Specimens examined:

on *Nymphoides exiliflora*; **Queensland**; Lake Cooroibah, 27 Apr 1994, J.L. Alcorn (BRIP 22291);

on *Villarsia exaltata*; **New South Wales**; Kinghorn Point, 17 Jan. 1978, J. Walker (DAR 73856); Thirlmere, 11 May 1985, M.L. & J. Walker (DAR 51602) **holotype**; **Victoria**; Oakleigh, 2 Dec. 1899, C. French Jnr. (VPRI 1809) as *S. limnanthemi* on *Limnanthemum exaltatum*;

on *Villarsia* sp.; **Victoria**; Wannon River, Grampians National Park, 1 Jan. 1981, J.H. Warcup (VPRI 17677 ex ADW 16824).

Septoria menyanthis (Lib.) Desm., *Ann. Sci. Nat.* **20**: 89 (1853)
≡ *Ascochyta menyanthis* Lib., *Pl. Crypt. Ard.* 251 (1834)

(Fig. 81)

Leaf lesions hologenous, irregular, 3-5mm diam., on both surfaces pale brown, occasionally raised in the centre of the lesion, margin lacking. *Conidiomata* epigenous, scattered on lesions, separate, immersed becoming erumpent, dark brown to black, globose, 75-110µm diam., pycnidial. *Ostiole* single, apical, 15-20µm, cells around opening darkened. *Conidiomatal wall* 3-4 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, ampulliform, 8-12 x 4-5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1-3 septate, straight to curved, (15-)26-50 x 1.5-2(-2.5)µm, with a truncate base and rounded apex.

Host: *Nymphoides crenata* (F. Muell.) Kuntze.

Distribution: New South Wales (Walker & McLeod 1983 as *Septoria* sp., Walker & McLeod 1984 as *S. limnanthemi*), ? Victoria (Chambers 1982 as *Septoria* sp.).

Four species of *Septoria* have previously been described from hosts in the Menyanthaceae. *Septoria menyanthis* (Lib.) Desm. with conidia originally given as 30-40 x 1.6µm, *S. villarsiae* Desm. with conidia 30-50µm long, *S. limnanthemi* Thüm. with conidia 30-45 x 2-2.5µm and *S. limnanthemi* Voglino (a later homonym of *S. limnanthemi* Thüm.) with conidia 36-48 x 1.5-2.5µm. Both *S. villarsiae* and *S. limnanthemi* Thuem. were described from *Villarsia* (*Limnanthemum*) *nymphaeoides*. Examination of collections identified as *S. villarsiae* and *S. menyanthis* have revealed that they are identical to one another and to the Australian collection examined. *Septoria menyanthis* is the earlier name being based on *Ascochyta menyanthis* Lib. and is the name adopted here.

Specimens examined:

AUSTRALIAN COLLECTION:
on *Nymphoides crenata*: **New South Wales**; Mountain Lagoon, 15 Nov. 1981, C. Nuzum (DAR 43142).

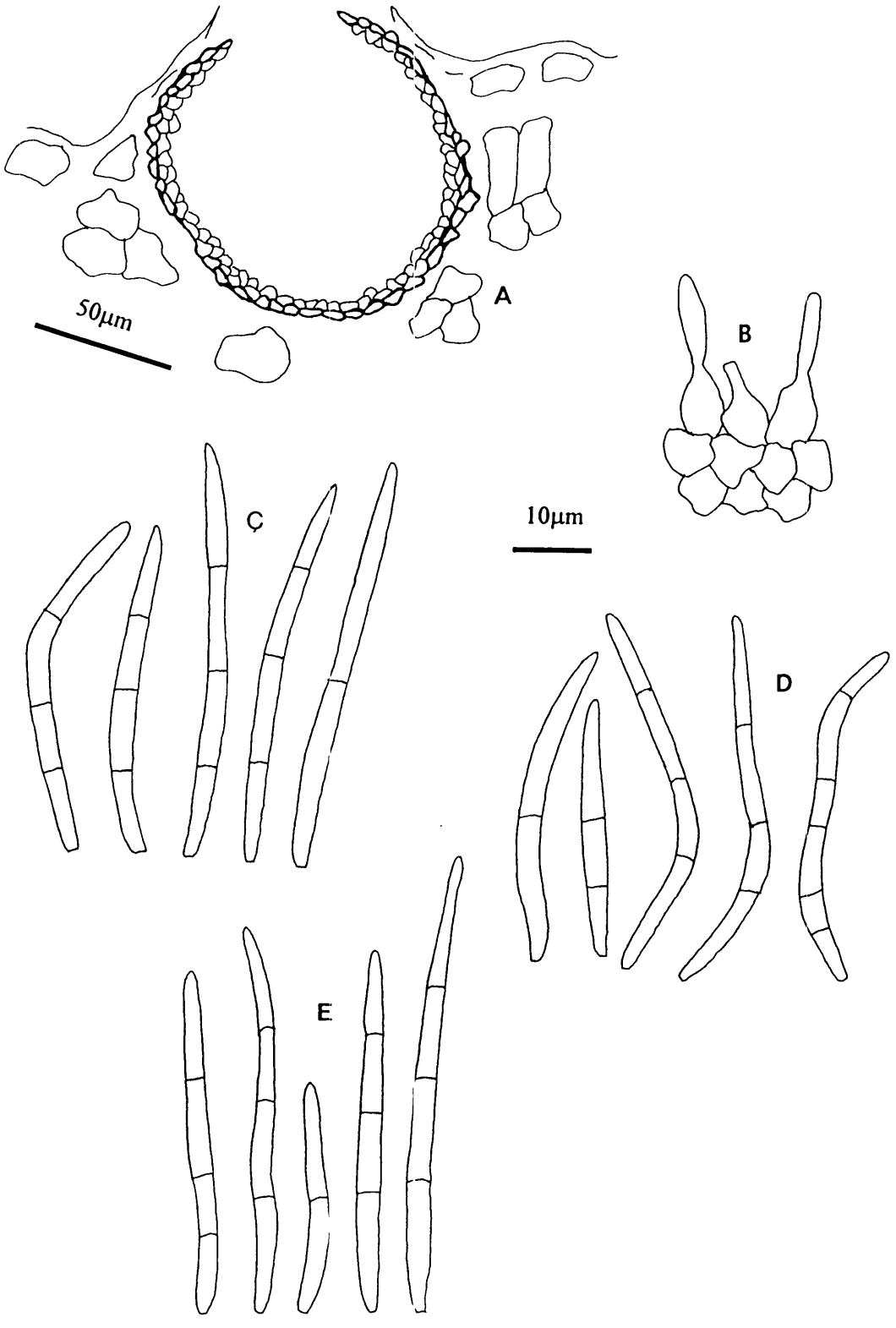

Fig.81. *Septoria menyanthis*; (A) v.s conidioma DAR 43142; (B) conidiogenous cells DAR 43142; C-E conidia (C) DAR 43142; (D) IMI 20084 as *S. villarsiae*; (E) Fungi Columbiani No. 3874 as *S. menyanthis*

EXTRALIMITAL COLLECTIONS:

Septoria menyanthis on *Menyanthes trifoliata*; London, Ontario, **Canada**, July 1911, J. Dearness, *Fungi Columbiani* No. 3875 (DAR);

Septoria villarsiae on *Limnathemum nymphaeoides*; **Roumania**, 26 July 1926, Tr. Savulescu & C. Sandu, *Herb. Mycol. Romanicum* No.171 (IMI 20084); Ely, **United Kingdom**, C.B. Plowright, *J.E. Vize Microfungi Britannici* No. 421 (VPRI 6343) host as *Villarsia nymphaeoides*.

MIMOSACEAE

Four species of *Septoria* are recognised on hosts in the Mimosaceae in Australia, all occurring on *Acacia*. *Mycosphaerella aureocorona* sp. nov., is described as the probable teleomorph of *S. aureocorona*. A collection previously identified as *S. phyllodiorum* on *A. retinodes* is provisionally referred to *S. aureocorona*

Key to Australian species of *Septoria* on the Mimosaceae

(adapted from Sutton & Pascoe 1987)

1 Conidia greater than 3μm wide.....2

1: Conidia less than 3μm wide.....3

2 Conidia up to 30μm long, fusiform.....***S. phyllodiorum***

2: Conidia greater than 30μm long.....***S. lamentana***

3 Conidia 2-2.5μm and 2-septate.....***S. aureocorona***

3: Conidia 2.5μm and 4-5 septate..... .....***S. grampianensis***

Septoria acaciae Neergard, *Friesia* **5**: 330 (1956)

Described from phyllodes of *Acacia paradoxa* DC. (given as *A. armata*) in Denmark and causing severe phyllode drop. Fully described and illustrated by Sutton & Pascoe (1987). Although the host is Australian in origin, no collections are known from Australia.

Septoria aureocorona Sutton & Pascoe, *Trans. Br. Mycol. Soc.* **89**: 530-532 (1987)

(Fig. 82)

Lesions on phyllodes, amphigenous, orbicular, 1mm diam., occasionally confluent, on both surfaces pale brown in the centre becoming pale grey brown, with a dark brown raised margin. *Conidiomata* amphigenous, scattered on lesions, separate, immersed, globose, mid-brown to black, 75-90µm diam., pycnidial. *Ostiole* single, apical, 5-10µm, cells around the opening darkened. *Conidiomatal wall* 3-4 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layers mid-brown, inner layers pale brown. *Conidiogenous* cells arising from the inner wall layer, discrete, hyaline, doliiform to ampulliform, 4-7 x 4-5m, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding at the same level from narrow conidiogenous loci. *Conidia* hyaline, filiform, 2-septate, straight to slightly curved, (22-)30-48 x 2-2.5µm, with truncate base and sub-acute apex.

Mycosphaerella aureocorona Priest **sp. nov.**

Etymology: from the anamorph; with reference to common name of the type host

(Fig. 83)

Ascomata epigena, immersa, separata, globosa, 70-90µm diam., crassitudine 3-4 cellularum, parieties pseudoparenchymtici, textura angulari, brunnea compositi. *Asci* bitunicati, aparaphysati, ellipsoidea 36-45 x 9-12µm. *Ascosporae* hyalina, laevia, 1-3 seriati, cylindrica vel ellipsoidea, 1-septata, 12-16 x 2-3.5µm.

Holotypus: in foliis *Acacia saligna* (Labill.) H. Wendl., Cheltenham Park Native Flora Sanctuary, Cheltenham, Victoria, Australia, 27 June 1986, I.G. Pascoe & B.C. Sutton (DAR 59701).

Ascomata epigenous, scattered to aggregated, associated with pycnidia on older lesions, discrete, immersed, black, globose, 70-90µm diam., with a single non-papillate, apical ostiole 7-10µm. *Ascomatal wall* 3-4 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layers dark to fuscous brown and slightly thickened. *Asci* bitunicate, aparaphysate, ellipsoidal, 36-45 x 9-12µm, sessile, 8-spored. *Ascospores* hyaline, smooth-walled, 1-3 seriate, cylindrical to occassionally ellipsoidal, with rounded apex and base, centrally 1-septate, 12-16 x 2-3.5µm.

Hosts: *Acacia retinodes* Schlecht., *A. saligna* (Labill.) H. Wendl., *Acacia* sp. (? *suaveolens* Willd.), *Acacia* sp.

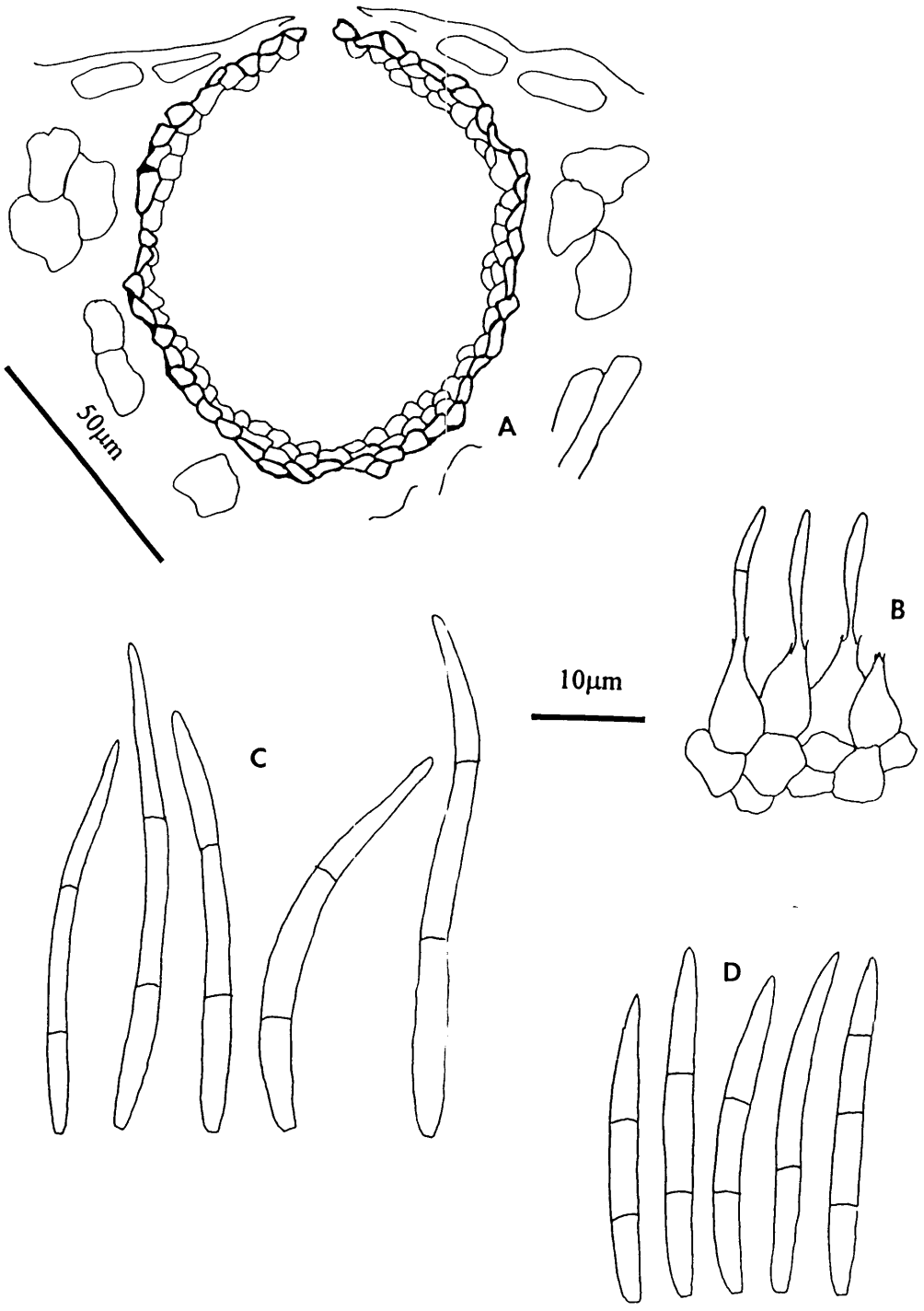

Fig.82. *Septoria aureocorona*; (A) v.s conidioma DAR 59031a isotype; (B) conidiogenous cells DAR 59031a; (C) conidia DAR 59031a; (D) conidia VPRI 14974

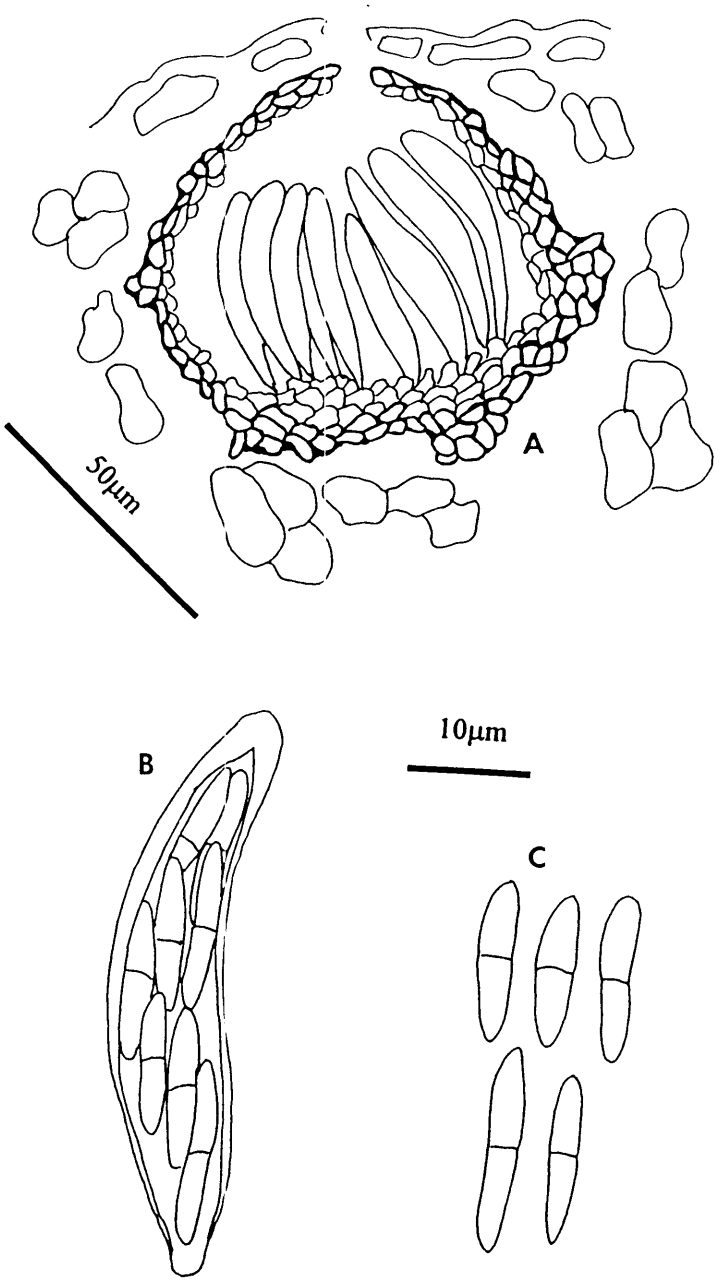

Fig.83. *Mycosphaerella aureocorona* DAR 59701b holotype; (A) v.s ascoma; (B) ascus; (C) ascospores

Distribution: South Australia (Sutton & Pascoe 1987), Victoria (Sutton & Pascoe 1987), Western Australia (Shivas 1989 as *Septoria* sp.).

In the original description of *S. aureocorona*, Sutton & Pascoe (1987) included only collections principally from *Acacia saligna* and one collection from *Acacia* sp. (? *suaveolens*) with conidia at the lower end of the conidial length range for *S. aureocorona*. Examination of the *A. ? suaveolens* collection (VPRI 14571) shows conidia as reported, morphologically similar to a collection on *Acacia retinodes* (VPRI 14974) and identified by Sutton & Pascoe (1987) as *S. phyllodiorum* Sacc. This latter collection has conidia which are filiform (not fusiform), much narrower than those of *S. phyllodiorum*. This collection is closer to *S. aureocorona* and is placed here. All of the collections examined not on the type host *A. saligna* probably represent another taxon but more detailed examination and further collections are needed to resolve the problem. Examination of one collection (DAR 59701) revealed a species of *Mycosphaerella* present on the lesions and accompanied by *S. aureocorona* and is described herein as a probable teleomorph of *S. aureocorona*. Two other species of *Mycosphaerella* have been described from *Acacia*. *Mycosphaerella aureocorona* has ascospores smaller than *M. acaciae* (Cooke & Harkness) Tomilin (ascospores 25 x 7μ) on *Acacia* sp. in the U.S.A. and, larger than *M. koae* Petrak (ascospores 7.5-10 x 2.5-3μm) described from *A. koae* in Hawaii. On a collection from Western Australia (VPRI 15264) spermatia are present but no *Mycosphaerella* was found.

Specimens examined:

Septoria aureocorona;

on *Acacia retinodes*: **Victoria**; Wilsons Promontory, 18 Sept. 1986, I.G. Pascoe & B.C. Sutton (VPRI 14974);

on *Acacia saligna*: **South Australia**; Morialta Falls, Adelaide, 18 Sept. 1986, B.C. Sutton & D.E. Ellis (VPRI 14688); **Victoria**; Forest Caves Reserve, Phillip Island, 11 Mar. 1986, I.G. Pascoe & B.C. Sutton (VPRI 13583) **Holotype**, (DAR 59031) **Isotype**; Cheltenham Park Native Flora Sanctuary, Cheltenham, 27 June 1986 (VPRI 14020, DAR 59701); *ibid* (VPRI 14021); Rutherglen Research Station, Rutherglen, 6 June 1990, I.G. Pascoe (VPRI 16759); **Western Australia**; 50 km north of Bunbury, 11 Apr. 1984, M. Morris (DAR 50150);

on *Acacia* sp.; **Victoria**; Tidal River, Wilsons Promontory, 11 Sept. 1986, S. Isaacs (VPRI 14571) host as ? *A. suaveolens*; **Western Australia**; Cape Naturaliste, 13 Feb. 1986, V. Beilharz (VPRI 15264).

Mycosphaerella aureocorona;

on *Acacia saligna*; **Victoria**; Cheltenham Park Native Flora Sanctary, Cheltenham, 27 June 1986, I.G. Pascoe & B.C. Sutton (DAR 59701) **holotype**.

Septoria epiphylloidea Cooke, *Handbook of Australian Fungi* 356 (1892)

Cooke (1892) substituted *S. epiphylloidea* for *S. phyllodiorum* Sacc. apparently unaware that *S. phyllodiorum* Cooke & Massee predated *S phyllodiorum* Sacc.. Saccardo (1892) had already substituted *S. martiniana* for the later Cooke & Massee name leaving *S. phyllodiorum* Sacc. as legitimate. Cooke's *S. epiphylloidea* is therefore superfluous.

Septoria grampianensis Sutton & Pascoe, *Trans. Brit. Mycol. Soc.* **89**: 526-528 (1987)

(Fig. 84)

Lesions on phyllodes, hologenous, orbicular to irregular, 2-4mm diam., occasionally confluent, on both surfaces pale grey-brown in the centre with a raised dark brown margin and pale green chlorotic halo. *Conidiomata* amphigenous, scattered on lesions, separate, immersed, globose, pale brown, 90-130µm diam., pycnidial. *Ostiole* single, apical, 10-15µm, cells around opening unthickened. *Conidiomatal wall* 1-3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layer pale brown, inner layer sub-hyaline. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, lageniform, 7-10 x 3-6µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, (2-)3-5 septate, straight to curved, 35-67 x 2-2.5µm with a truncate base and tapering to a rounded or sub-acute apex.

Host: *Acacia myrtifolia* (Sm.) Willd.

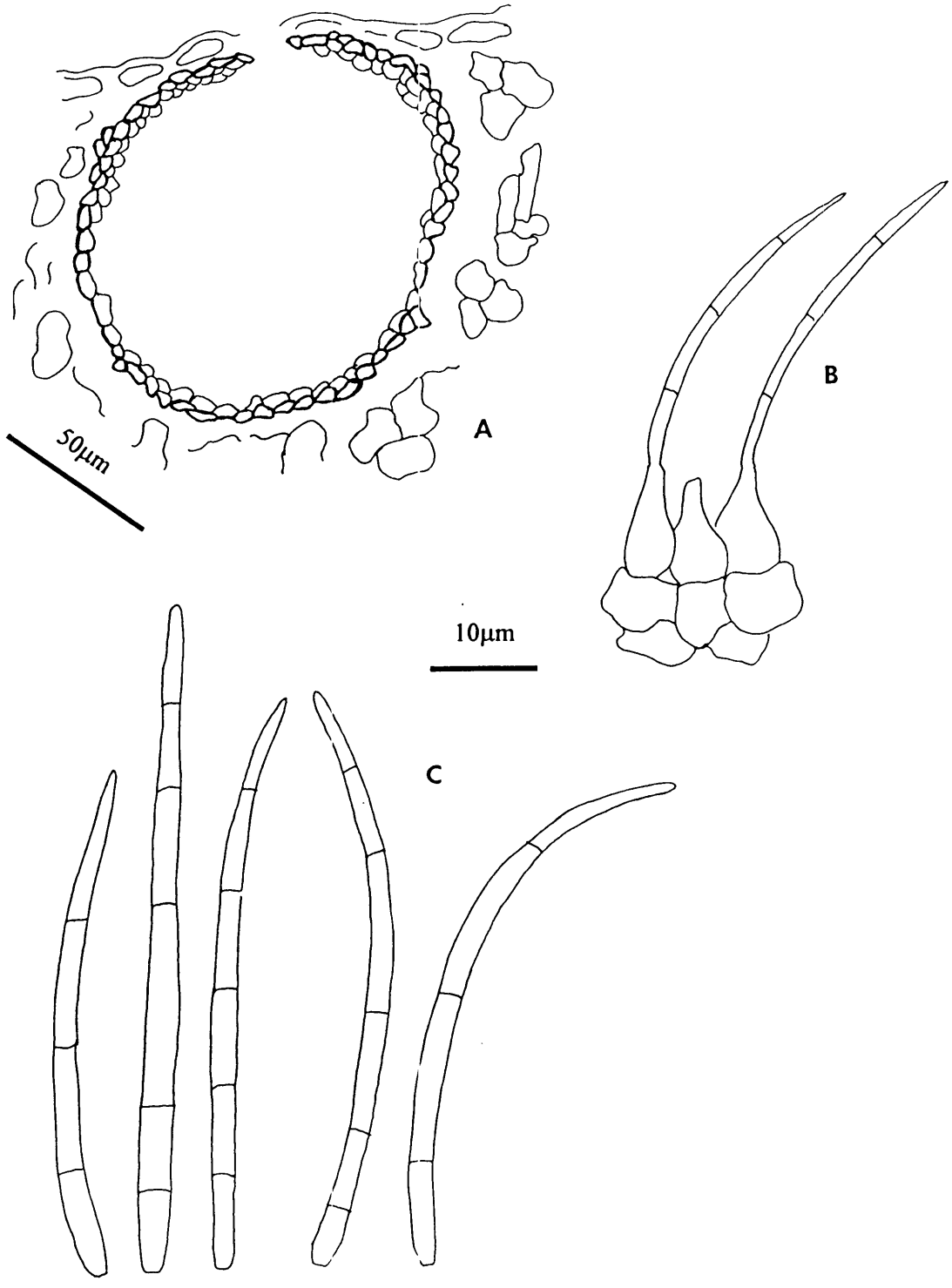

Fig.84. *Septoria grampianensis* VPRI 14458 holotype; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

Distribution: Victoria (Sutton & Pascoe 1987).

Septoria grampianensis was fully described and illustrated by Sutton & Pascoe (1987). It is still only known from the type collection.

Specimens examined: on *Acacia myrtifolia*; **Victoria**; 4 km from turnoff, Mount William Road, Grampians National Park, 27 Aug. 1986, B.C. Sutton, I.G. Pascoe & M.J. Priest (VPRI 14458) **holotype**, (DAR 59033) **isotype**.

Septoria lamentana Sutton & Pascoe, *Trans. Brit. Mycol. Soc.* **89**: 528-529 (1987)

(Fig. 85)

Lesions on phyllodes, hologenous, orbicular, up to 1mm diam., on both surfaces slightly raised, pale brown with irregular margin and narrow chlorotic halo. *Conidiomata* amphigenous, scattered on lesions, separate, immersed, globose, mid-brown 110-175µm diam., pycnidial. *Ostiole* single, apical, 40-75µm, cells around opening slightly darkened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layers pale brown, inner layer sub-hyaline. *Conidiogenous cells* arising from the inner wall layer, hyaline, lageniform, 7-10 x 3-6µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding holoblastically from sympodially proliferating conidiogenous loci. *Conidia* hyaline, filiform, cylindrical, 3-4(-5) septate, straight to slightly curved, 34-54 x 3.5-4µm, with a truncate base and rounded apex.

Host: *Acacia verniciflua* A. Cunn.

Distribution: Victoria (Sutton & Pascoe 1987).

Sutton & Pascoe (1987) fully described and illustrated *S. lamentana* from a single collection on *A. verniciflua* in Victoria. It is still currently only known from the type collection.

Specimens examined: on *Acacia verniciflua*; **Victoria**; Forestry Nursery, Wail, 25 Aug. 1986, B.C. Sutton, I.G. Pascoe & M.J. Priest (VPRI 13342) **holotype**, (DAR 59032) **isotype**.

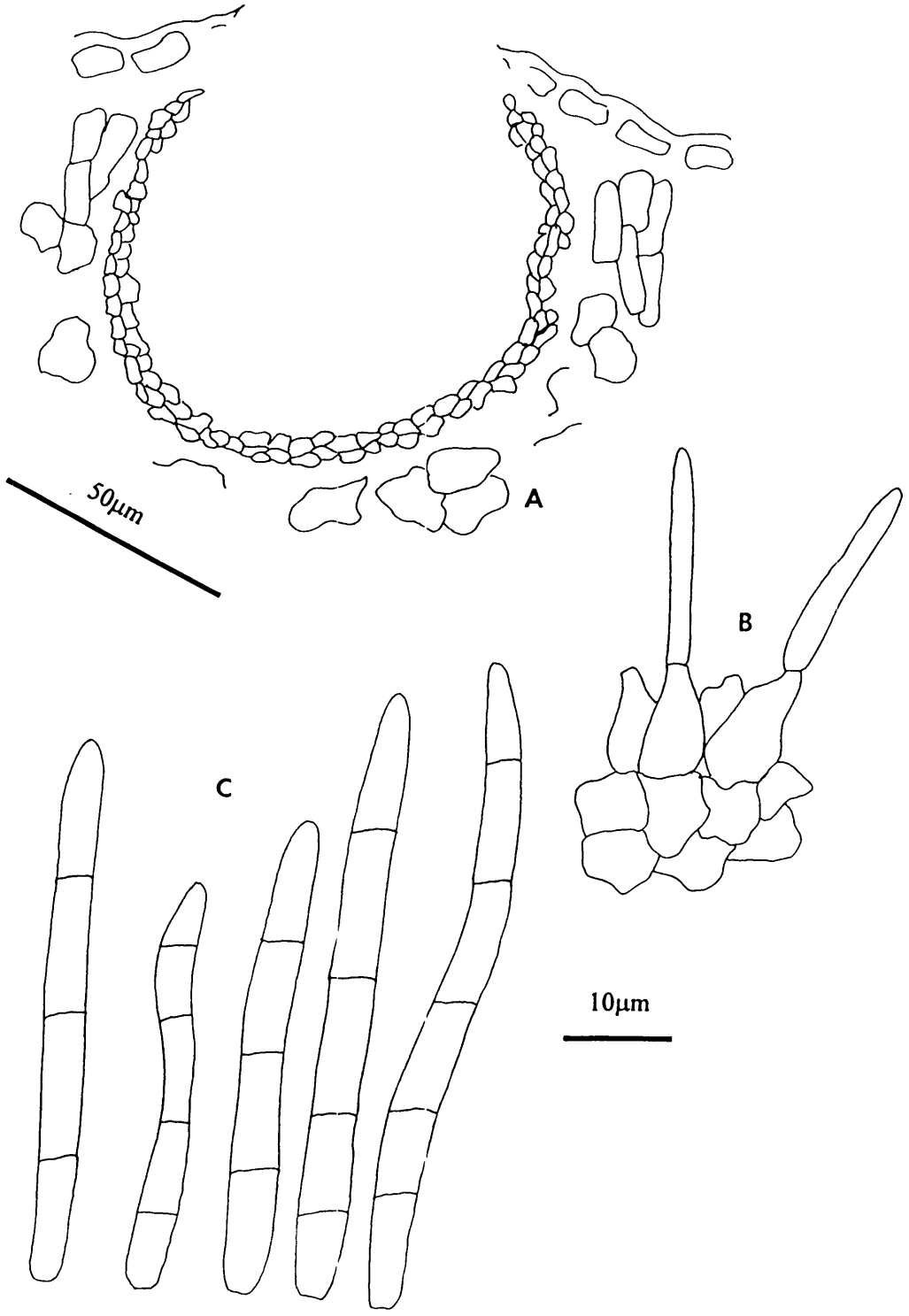

Fig.85. *Septoria lamentana* DAR 59032 isotype; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

Cytostagonospora martiniana (Sacc.) Sutton & Swart, *Trans. Brit. Mycol. Soc.* **87**: 99 (1986)
≡ *Septoria martiniana* Sacc., *Syll. Fung.* **10**: 351 (1892)
≡ *Septoria phyllodiorum* Cooke & Massee, *Grevillea* **19**: 47 (Dec.1890) non *S. phyllodiorum* Sacc., *Hedwigia* **29**: 156 (June 1890)

This species has been fully illustrated by Sutton & Swart (1986). The transfer of *Septoria martiniana* to *Cytostagonospora* Bubák is based on the eustromatic nature of the conidiomata. The conidiogenesis was interpreted as phialidic from short doliiform to ampulliform conidiogenous loci which is in conflict with the interpretation for the type species of *Cytostagonospora* which was illustrated by Sutton (1980) as simple holoblastic. Examination of the type material and two other collections confirms the enteroblastic nature of conidiogenesis and the multi-locular nature of the conidioma which places this taxon outside *Septoria*. One of the collections examined (ADW 7424, the type collection of *Guignardia acaciae* Hansf.) has, in addition to *Guignardia acaciae*, both *Cytostagonospora martiniana* and a species of *Mycosphaerella* with ascospores measuring 8-10 x 2.5µm, much smaller than those of *M. aureocorona*. The relationship of this *Mycosphaerella* to *Cytostagonospora* is uncertain.

Host: *Acacia longifolia* (Andr.) Willd., *A. longifolia* var. *sophorae*.

Distribution: South Australia (Warcup & Talbot 1981,Cook & Dube 1989; as *S. martiniana*, Victoria (Cooke & Massee 1890, Cooke 1892 as *S. phyllodiorum* Cooke & Massee, Cobb 1893 as *S. phyllodiorum* Cooke & Massee, McAlpine 1895 as *S. phyllodiorum* Cooke & Massee, Brittlebank 1937-1940, Chambers 1982 as both *S. martiniana* and *S. phyllodiorum* Sacc.).

Specimens examined:

on *Acacia longifolia*; **Victoria**; Mrs Martin (VPRI 19767 slides ex K) **holotype** of *S. phyllodiorum*;

on *A. longifolia* var *sophorae*; **South Australia**; Meningie, April 1956, L.D. Williams (ADW 7427); Meningie, April 1956, L.D. Williams (ADW 7424).

Septoria phyllodiorum Cooke & Massee, *Grevillea* **19**: 47 (Dec.1890)

This name is a later homonym of *S. phyllodiorum* Sacc., see under *Cytostagonospora martiniana.*

Septoria phyllodiorum Sacc., *Hedwigia* **29**: 156 (June 1890)
≡ *Septoria epiphylloidea* Cooke, *Handbook of Australian Fungi* 356 (1892) *superfluous name*

(Fig. 86)

Lesions on phyllodes, often marginal, amphigenous, irregular, 2-4 x 2mm, on both surfaces pale brown in the centre with a distinct raised margin. *Conidiomata* scattered on lesions, immersed becoming erumpent, black, globose to ampulliform, 120 x 60μm, pycnidial. *Ostiole* single, apical, papillate, 10-15μm, cells around the opening darkened. *Conidiomatal wall* 2-3 cells thick around the base and sides, up to 8 cells thick at the ostiole, composed of pseudoparenchymatous tissue, textura angularis, outer layer dark brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, ampulliform, 5-8 x 4μm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, fusiform, 1-3 septate, straight to slightly curved, 11-24 x (2.5-)3-3.5(-4)μm, tapering to conical apex and truncate to rounded base.

Hosts: *Acacia harpophylla* Benth., *Acacia* sp.

Distribution: Queensland, Victoria (Cooke 1892 as *S. epiphylloidea*, Cobb 1893 as ? *S. epiphylloidea*, McAlpine 1895 as *S. epiphylloidea*, Brittlebank 1937-1940 as *S. epiphylloidea*, Chambers 1982 on *A. longifolia*; probably in error).

Sutton & Pascoe (1987) redescribed *S. phyllodiorum* from the type collection and included another collection from *Acacia retinodes* which this author regards as being better placed under *S. aureocorona* (see discussion under that species) The distinctive feature of *S. phyllodiorum* is the wide fusiform conidia. Apparent type material is also present in MEL and has been examined. The morphological features are identical to those recorded by Sutton & Pascoe (1987). An additional collection from Queensland on *A. harpophylla* extends the known geographic range of this species.

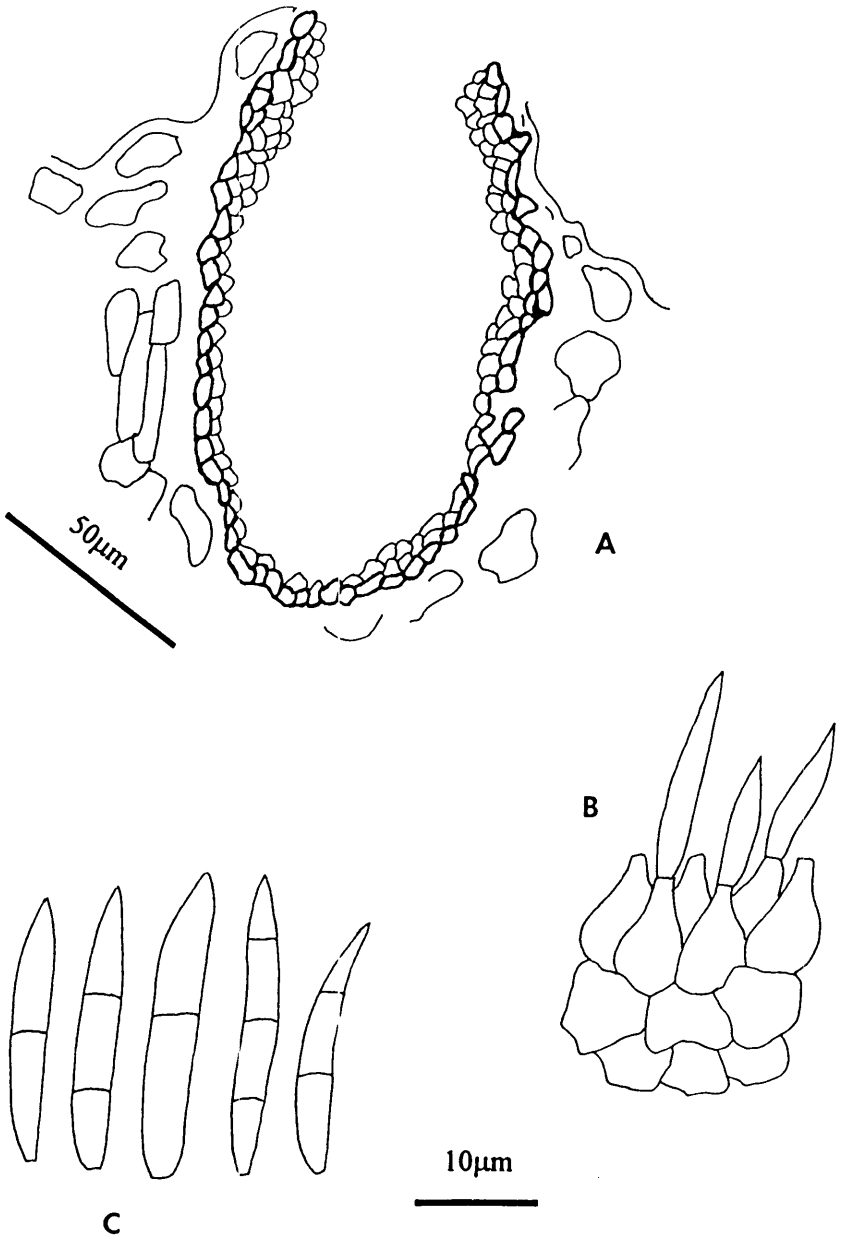

Fig.86. *Septoria phyllodiorum* VPRI 1840 type; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

Specimens examined:

on *Acacia harpophylla*; **Queensland**; Hatton Vale, 4 Nov. 1986, B.C. Sutton, J. Alcorn & D. Shaw (VPRI 15083);

on *Acacia* sp.; Victoria; Caromby, 28 Oct. 1899, J.G.O. Tepper (VPRI 1840, MEL 1054842) **type**.

MYOPORACEAE

Septoria colensoi Cooke, *Grevillea* **14**: 89 (1886)

= *Septoria myopori* Cooke & Massee, *Grevillea* **16**: 113 (1887)

≡ *Phloeospora myopori* (Cooke) Hansford, *Proc. Linn. Soc. NSW* **81**: 45 (1956) as *Phleospora*

(Fig. 87)

Leaf lesions hologenous, orbicular to irregular, 2-4mm diam., on both surfaces grey-white in the centre with a raised dark purple-brown margin and often with a necrotic purple-brown halo. *Conidiomata* amphigenous, scattered on lesions, separate, immersed becoming erumpent, black, globose, 120-150μm, pycnidial. *Ostiole* single, apical, 35-50μm, at maturity opening up to 100μm, cells around the opening darkened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer dark and slightly thickened, inner layers pale-mid brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, cylindrical, 10-12 (-18) x 2-3μm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced and seceding from both sympodially proliferating and percurrently proliferating conidiogenous loci. *Conidia* hyaline, filiform, 1 (-2) septate, straight to curved, (17-)25-40 x (2-)2.5 (-3)μm, with a truncate base and rounded apex.

Hosts: *Myoporum debile* (Andr.) R. Br., *M. insulare* R. Br., *M. montanum* R. Br., *M. viscosum* R. Br.

Distribution: New South Wales (Anon. 1963 as *S. myopori*), South Australia (Warcup & Talbot as *Septoria myopori*, Cook & Dube 1989 as *Phloeospora myopori*), Victoria (Cooke 1892, Cobb 1893, McAlpine 1895, Brittlebank 1937-1940, Chambers 1982; all as *S. myopori*).

Septoria colensoi was originally described from an unknown plant in New Zealand collected by Colenso. However Colenso (1886) named the host as *Myoporum laetum* G. Forst. Examination of the

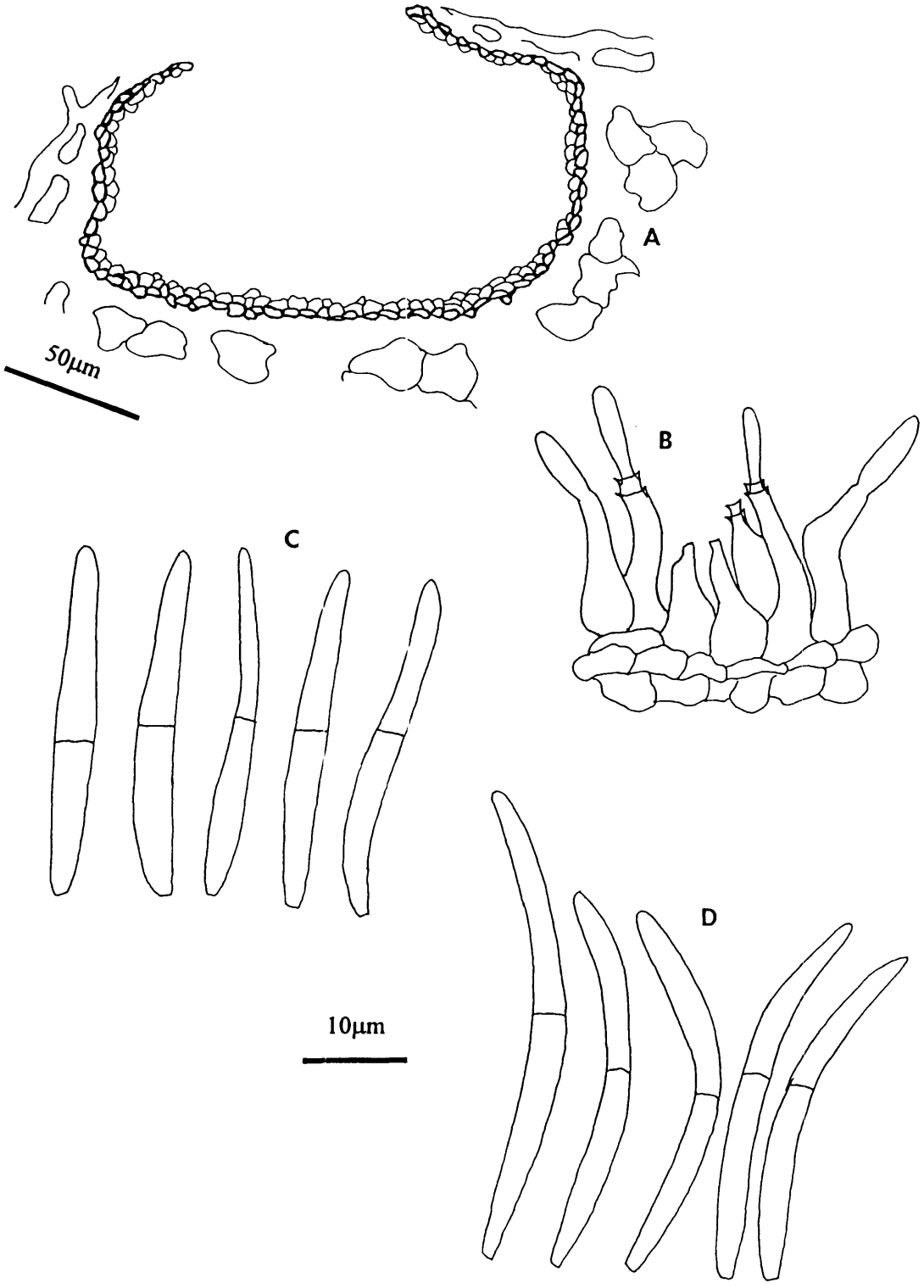

Fig.87. *Septoria colensoi*; (A) v.s. conidioma DAR 71669; (B) conidiogenous cells DAR 71669; (C) conidia DAR 71669; (D) holotype ex K

type collection of *S. colensoi* shows that it is identical with Australian collections of *S. myopori*. Hansford (1956) examined the type collection of *S. myopori* in K which contained only two leaf spots and gave conidial measurements as 40-50 x 3-3.5μm in contrast to the original description which gave conidia as 40-50 x 2μm. In addition, Hansford (1956) transferred *S. myopori* to *Phloeospora* on the basis of lack of a pycnidial wall or pore. Examination of Australian and New Zealand collections have shown a clearly defined wall and apical pore, the presence of both being also clearly illustrated by Blair (1962) for material from New Zealand. *Septoria colensoi* is the earliest name for this species occurring on species of *Myoporum* in Australia and New Zealand.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Myoporum debile*; **Australian Capital Territory**; National Botanic Gardens, Canberra, May 1984, I.K. Sharma (DAR 49510);

on *Myoporum insulare*; **New South Wales**; Junee Reefs, 10 Sept. 1962, Mrs. McKay (DAR 7600); National Botanic Gardens, Canberra, 12 Oct. 1988, H.Y. Yip (DAR 63836); Nundera Point, near Kioloa, 13 Dec. 1979, J. Walker (DAR 71669); **South Australia**; Narrung, Sept. 1956, L.D. Williams (ADW 7624); **Victoria**; Black Rock, 12 July 1987, H.Y. Yip (DAR 59790); Mothers Beach, Mount Martha, 18 July 1987, H.Y. Yip (DAR 59792);

on *Myoporum montanum*; **New South Wales**; Junee Reefs, 10 Sept. 1962, Mrs. McKay (DAR 7601); Wellington, no date or collector (DAR 58762);

on *Myoporum viscosum*; **Victoria**; Yarra Bend Park, 15 Dec. 1986, H.Y. Yip (DAR 59037); *loc. cit.*, 21 Dec. 1986 (DAR 59040); Beach Road, Melbourne, 27 Jan. 1987, H.Y. Yip (DAR 59041);Yarra Bend, 14 July 1987, H.Y. Yip (DAR 59791); Burnley Gardens, Dec. 1993, I.G. Pascoe (DAR 71670).

EXTRALIMITAL COLLECTIONS:

on *Myoprum laetum* G. Forst.; **New Zealand**; 1886, Colenso 6579(K), slides as DAR 61367, **holotype** of *S. colensoi*; Canterbury, 21 Mar. 1974, R.E. Beever (DAR 62684 ex PDD 34051).

MYRTACEAE

No species of *Septoria* are currently known from hosts in the Myrtaceae in Australia. Literature reports of *Septoria* spp. occurring on hosts in the family are rejected due to lack of herbarium material being available for examination.

Septoria ceuthosporoides (Cooke & Harkness) Sacc. *Sylloge Fungorum* **3**: 490 (1884)

Listed by Brittlebank (1937-1940) and Chambers (1982) as occurring on *Eucalytpus* sp. in Victoria prior to 1940. According to Walker *et al.* (1992) examination of the type collection has shown that it is synonymous with *Pilidium acerinum* Kunze. No herbarium collection has been located under this name and the identity of the fungus is unknown.

Septoria eucalypti Winter & Roum., *Revue Mycologique* **9**: 41 (1887)

Listed by Brittlebank (1937-1940) on *Eucalyptus amygdalina* Labill. and Chambers (1982) on *Eucalyptus radiata* DC. spp. *robertsonii* (Blakely) Johnson & Blaxell in Victoria in 1914. This species was originally described from almost dead leaves of *Eucalytpus* in Algeria. *Septoria eucalypti* was discussed by Walker *et al.* (1992) in relationship to *Kirramyces* but the type collection was not examined since the description did not relate to any of the taxa under consideration. No herbarium collection has been located under this name and the identity of the fungus concerned is unknown.

Septoria mortolensis Penz. & Sacc., *Sylloge Fungorum* **3**: 490 (1884)

Listed by Brittlebank (1937-1940) on *Eucalyptus amygdalina* and Chambers (1982) as occurring on *Eucalyptus radiata* ssp. *robertsonii* in Victoria prior to 1940. Originally described from fallen leaves of several hosts including *Eucalyptus* in Northern Italy, the status of this species is uncertain and was discussed by Walker *et al.* (1992). No herbarium collection under this name has been located.

Septoria normae Heather

This name was never validly published but was listed as occurring on *Eucalyptus viminalis* Labill. in Tasmania by Sampson & Walker (1982) who also noted the invalid status of the name. The collection

listed by Sampson & Walker (1982) has been referred to *Kirramyces eucalypti* (Cooke & Massee) J. Walker, B. Sutton & I. Pascoe (Walker *et al.* 1992). *Kirramyces* spp. are now referred to the genus *Phaeophleospora* Rangel.

Septoria tristaniae P. Henn., Verh. Bot. Prov. Brand. **40**: 169 (1898)

Listed by Brittlebank (1937-1940) on *Tristania laurina* R.Br. in Queensland. No herbarium material under this name has been located and the record is unsubstantiated. *Septoria tristaniae* was originally described from the Botanic Gardens in Berlin, Germany on *T. laurina* with conidia given as 15-21 x 0.5-1μm.

Septoria sp. on *Leptospermum*

Listed by Goss (1964) and Shivas (1989) on *Leptospermum* sp. at Watermans Bay, Western Australia in 1956. No herbarium collection under this name has been located and the record is unsubstantiated.

NYCTAGINACEAE

Septoria pisoniae Priest **sp.nov.**

Etymology: from the host genus *Pisonia*

(Fig. 88)

Maculae hologenae, orbiculare, 1-4mm diam., pallide brunneae cum margine distincto. *Conidiomata* amphigena, pycnidialia, immersa, separata, 120-150 x 50-70μm diam., crassitudine 2-3 cellularum, parietes pseudoparenchymatici, textura angulari, brunnea compositi. *Ostiolum* singulum, apicale, 26-38μm diam. *Cellulae conidiogenae* e cellulis interioribus conidiomatum formatae, discretae, lageniformes vel cylindrici, 8-10 x 2-3μm, holoblastica, proliferatione percurrente conidia producentes. *Conidia* hyalina, filiforma, (1-) 3 (-5) septata, recta vel curvata, laevia, (30-)45-72 x 2-2.5(-3)μm, deminuta versus basim truncatum et apicem rotundatum.

Holotypus: in foliis vivis *Pisonia grandis* R.Br., Masthead Island, Queenslandia, Australia, Dec. 1972, F.D. Hockings (BRIP 8791).

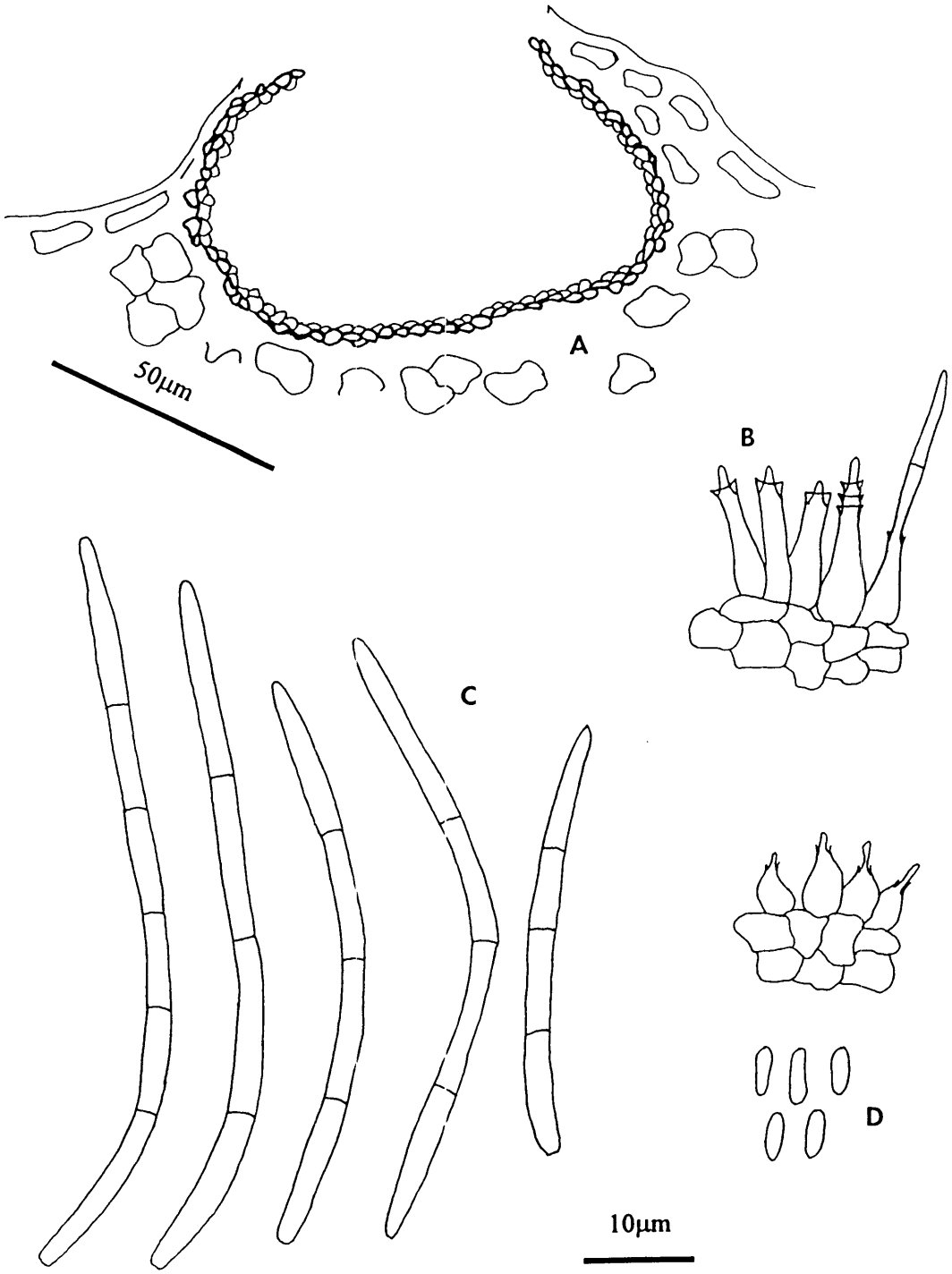

Fig.88. *Septoria pisoniae* BRIP 8971 holotype; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia; (D) conidia and conidiogenous cells of *Phoma* synanamorph

Leaf lesions hologenous, orbicular, 1-4mm diam., on both surfaces mid-brown becoming pale creamy-brown in the centre, raised with a cream to very pale brown margin. *Conidiomata* amphigenous, scattered on lesions, separate, immersed, pale brown to black, 120-150 x 50-70µm, pycnidial. *Ostiole* single, apical, 26-38µm, opening widely at maturity to 50µm, cells around the opening darkened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer dark brown and slightly thickened, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, lageniform to cylindrical, 8-10 x 2-3µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding from percurrently proliferating conidiogenous loci. *Conidia* hyaline, filiform, (1-)3(-5) septate, straight to slightly curved, (30-)45-72 x 2-2.5(-3)µm, with a truncate base and rounded apex.

Synanamorph:

Phoma sp. In same conidiomata with *Septoria pisoniae*. *Conidia* produced from discrete enteroblastic doliiform conidiogenous cells, hyaline, elliptical to ellipsoidal, aseptate, 4-6 x 1.5-2µm.

Host: *Pisonia grandis* R.Br.

Distribution: Queensland

There are no species of *Septoria* previously described on hosts in the Nyctaginaceae. The accompanying micro-conidial synanamorph accords morphologically with *Phoma* Sacc. *Pisonia grandis* is widely distributed throughout the Indo-Pacific region, its sticky fruits responsible for the deaths of many nesting seabirds (Cribb & Cribb 1985).

Specimens examined: all on *Pisonia grandis*; **Queensland**; North West Island, 19 Aug. 1968, G. McDonald (BRIP 8674); Heron Island, 24 May 1974, K.G. Pegg (BRIP 5845); Masthead Island, Dec. 1972, F.D. Hockings (BRIP 8791) **holotype**; Heron Island, 15 Nov. 1982, A. Bell (DAR 73858); North East Herald Cay, Aug 1996, S. Donaldson (DAR 73857).

OLEACEAE

Septoria olivae Pass. & Thuem., *Contr. Myc. Lusit.* No. 609 (?1881)

Listed by Brittlebank (1937-1940), Fisher & Freeman (1959) and Washington & Nancarrow (1983) as occurring on *Olea europea* L. (Olive) in Mildura, Victoria in 1940. No herbarium material under this name has been located and the record is unable to be verified.

Septoria syringae Sacc. & Speg., *Michelia* **1**: 176 (1878)

Reported by Brittlebank (1937-1940) and Chambers (1982) as occurring on *Syringa vulgaris* at Bendigo, Victoria prior to 1940. No herbarium material has been located and the record remains unverified.

Septoria sp. on *Ligustrum ovalifolium*

(Fig. 48E)

A *Septoria* sp. was recorded by Sampson & Walker (1982) as occurring on *Ligustrum ovalifolium* Hassk. in Tasmania. Examination of two collections available shows a *Septoria* sp. present on dead leaves or dead leaf tissue only and not associated with discrete leaf lesions. The conidia are produced holoblastically, are 0-1(-2) septate and measure (10-) 12-16 x 1-1.5µm on the host and up to 24µm long in culture.This taxon is morphologically identical with those seen on *Hedera* (Araliaceae), *Stephanotis* (Asclepiadaceae), *Lonicera* (Caprifoliaceae) and *Rosa* and *Prunus* (Rosaceae) all being associated with incubated or old dead leaf material. Of the species of *Septoria* described from *Ligustrum*, *S. japonica* Thuem. described from *L. japonicum*, has conidia 12-15 x 2-2.5µm and *S. ligustri* (Desm.) Kickx described from languid leaves of *L. vulgaris* has, according to Saccardo (1884), conidia measuring 15 x 1µm. The taxon here under consideration would appear to be saprophytic in habit, occurring on a wide range of hosts and to apply a name to it would appear to be premature.

Specimens examined: on *Ligustrum ovalifolium*; **Tasmania**; New Norfolk, 18 July 1978, J.A.L. Wong (DAR 72945); on *Ligustrum* sp.; **Tasmania**; Sorell, Oct. 1977, G.R. Johnston (DAR 44158).

ONAGRACEAE

Septoria gaurina Ellis & Kellerman, *Am. Nat.* **17**: 1165 (1883)

(Fig. 89)

Leaf lesions hologenous, orbicular to irregular, 6-15mm diam., on both surfaces pale yellow-brown to mid-brown with a slightly raised narrow margin and reddish-purple necrotic halo. *Conidiomata* amphigenous, mostly epigenous, scattered on lesions, immersed, becoming erumpent, separate, globose, black, 190-220µm diam., pycnidial. *Ostiole* single, apical, 20-35µm, cells around the opening thickened. *Conidiomatal wall* 3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer two layers dark brown and thickened, inner layer sub-hyaline. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, doliiform, 7-11 x 7-10µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding at the same level from narrow conidiogenous loci. *Conidia* hyaline, filiform, 4-7 septate, straight to slightly curved, 42-62(-80) x (3-)3.5-4µm, with truncate to rounded base and rounded apex.

Host: *Oenothera* spp. (Evening Primrose) variously given as *O. biennis* auct. non L. and *O. stricta* Ledeb. ex Link.

Distribution: Tasmania, Victoria (Brittlebank 1937-1940, Chambers 1982 as *S. oenotherae* Westend. on *O. stricta* and *Oenothera* sp.).

This taxon has been previously reported in Australia as *S. oenotherae* (Chambers 1982) but examination of collections named as that species shows conidia narrower than those seen in Australian material. Australian collections are identical with exsiccatus collections examined under the name *S. gaurina* from the U.S.A. *Septoria gaurina* is also recorded on *Oenothera* in the U.S.A. (Farr *et al.* 1989). The short doliiform conidiogenous cells and conidia suggest perhaps *Stagonospora* but no evidence of percurrent proliferation was observed.

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Oenothera biennis* auct. non L.; **Tasmania**; Winnaleah, 12 Sept. 1986, S. Grice (DAR 43871); on *Oenothera* sp.; **Victoria**; Lakes Entrance, no date, Temple-Smith (VPRI 1751).

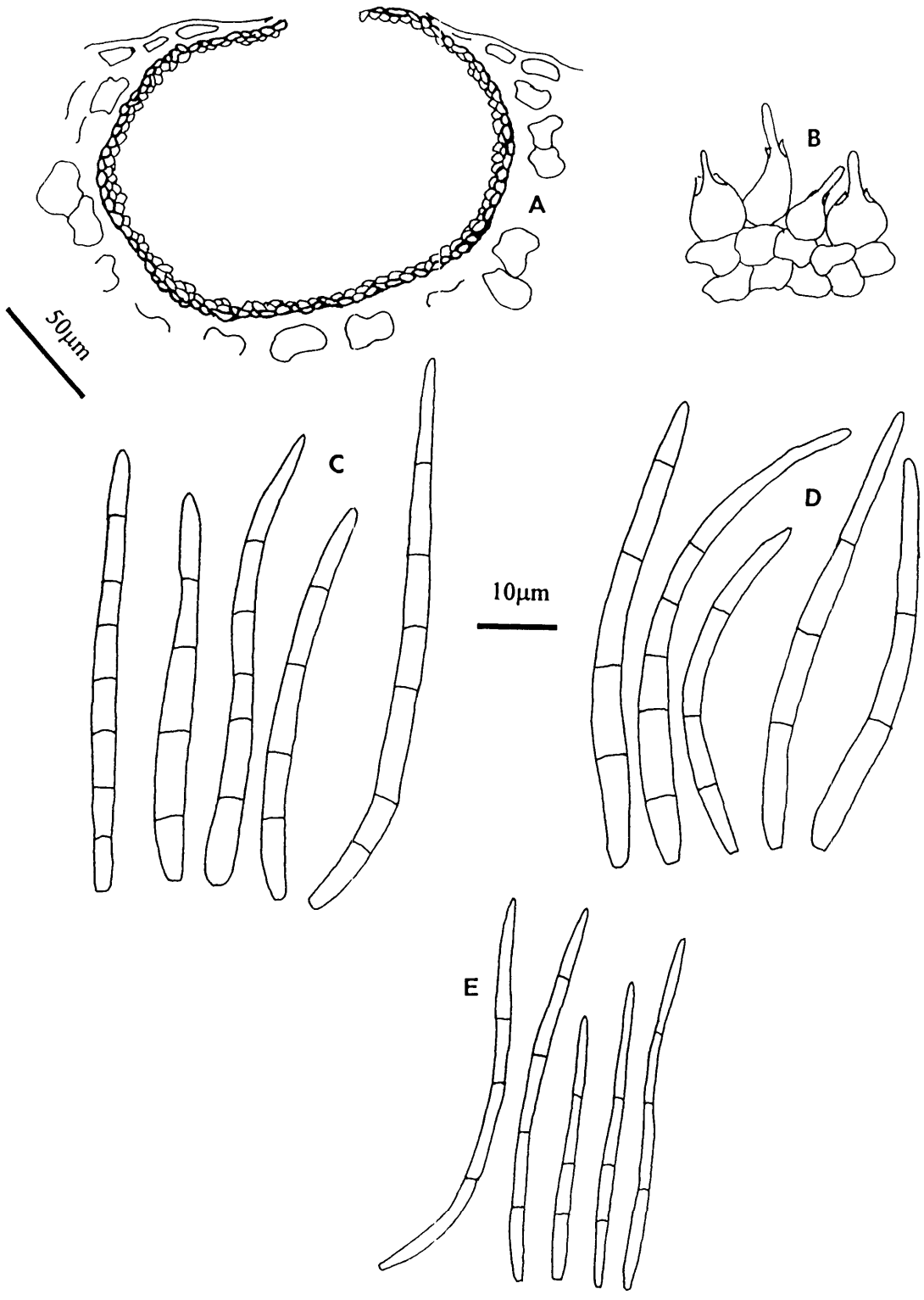

Fig.89. *Septoria gaurina*; (A) v.s conidioma DAR 43871; (B) conidiogenous cells DAR 43871; C-E conidia (C) DAR 43871; (D) DAR 53924 (Fungi Columbiani No. 780); (E) *S. oenotherae* (Migula Crypt. No. 314)

EXTRALIMITAL COLLECTIONS:

Septoria gaurina; on *Gaurina parviflora* Doug. ex Hook.; Kansas, **U.S.A.**, Aug. 1894, C.L. Shear, *Fungi Columbiani* No. 780 (DAR 53924); Kansas, **U.S.A.**, 6 Aug. 1894, C.L. Shear (DAR 10127 ex BPI 4287); Rooks County, Kansas, **U.S.A.**, Aug. 1896, E. Bartholomew, *Fungi Columbiani* No. 1056 (DAR 54148); Louisville, Kansas, **U.S.A.**, 18 Oct. 1911, E. Bartholomew (DAR 10101 ex BPI 4548);

Septoria oenotherae; on *Oenothera biennis*; North Carolina, **U.S.A.**, 27 June 1938, G.G. Hedgecock (DAR 10123 ex BPI); Newfield, New Jersey, **U.S.A.**, *Fungi Columbiani* No. 283 (DAR 53432); Syracuse, New York, **U.S.A.**, 8 July 1892, B.D. Halsted, *Seymour & Earle Economic Fungi* No. 283 (DAR 50958); Thuringen, **Germany**, 30 Aug. 1927, W. Migula, *Cryptogamie Germaniae, Austriae et Helveticae Exs.* No. 314 (DAR);

Depazea oenotherae Lasch; on *Oenothera biennis*; Bayreuth, Bavaria, **Germany**, Aest 1875, von Thümen, *Mycotheca Universalis* No. 494 (MEL).

Septoria fuchsiae Roum., *Fungi Gallici Exsiccati* No. 54 (1879)

Reported by Brittlebank (1937-1940) and Chambers (1982) as occurring on *Fuschia* sp. in Victoria in 1916. No herbarium material under this name has been located and the record remains unverified.

ORCHIDACAEAE

Septoria selenophomoides is recognised as the only taxon occurring in Australia on hosts in the Orchidaceae. Examination of the type collection and several collections shows that it does not belong in *Septoria* but no genus is currently available for it. *Septoria thelymitrae* is transferred to the genus *Selenophoma.*

Septoria orchidearum Westend., *Bull. Acad. R. Sci. Bruxelles* **18**: 399 (1851)

Listed by Brittlebank (1937-1940) and Chambers (1982) as occurring on an unidentified orchid at Ripponlea, Victoria in 1912. No herbarium material under this name has been located and the record remains unverified.

Septoria selenophomoides Cash & Watson, *Mycologia* **47**: 740-742 (1955)

(Fig. 90)

Leaf lesions hologenous, orbicular to irregular, 4-5mm diam., on both surface green-grey with a wide dark brown margin up to 2mm, often coalescing to form large blotches covering most of the leaf surface. *Conidiomata* aggregated on lesions, amphigenous, mostly hypogenous, separate becoming confluent and separated by vertical strands of hyphal tissue, arising from a basal layer of pseudoparenchymatous tissue several layers deep, immersed, scarcely erumpent, black, globose, to flattened in cross-section, 100-200 x 80-160µm diam., eustromatic, apex of conidioma composed of hyphal tissue of textura prismatica which ruptures, opening 10-50µm. *Conidiomatal wall* 4-5 cells thick at the sides and base, of dark brown pseudoparenchymatous tissue, outer layer *textura prismatica*, inner layers of pale brown *textura angularis*. *Conidiogenous cells* arising from the inner wall layer, hyaline, integrated, rarely discrete, producing conidia holoblastically, secession schizolytic, occasional synchronous conidiogenous loci present. *Micro-conidia* hyaline, falcate, aspetate, 6-10 x 1-1.5µm, with a truncate base and rounded apex. *Macro-conidia* filiform, 1-septate, 12-14 x 1.5µm.

Hosts: *Bulbophyllum* sp., *Cattleya* sp., *Dendrobium attenuatum* Lindl., *D. bigibbum* Lindl., *D. canaliculatum* R.Br., *D. discolor* Lindl., *D. kingianum* Bidw. ex Lindl., *D. semifuscum* (H.G. Reichb.) Lavarack & Gibb, *D. schneiderae* F.M. Bailey, *D. smilliae* F. Muell., *D. speciosum* Sm., *Dendrobium* sp.

Distribution: New South Wales (Walker, Fahy & McLeod 1985).

Septoria selenophomoides is not a true *Septoria*. The conidiomata are stromatic arising from a deep seated basal layer of pseudoparenchymatous tissue and have an outer wall layer of textura prismatica. In addition the conidiomata become aggregated and separated by strands of hyphal tissue. The presence of synchronous (polyblastic) conidiogenous loci also places this genus outside *Septoria* as defined by Sutton (1980). Only micro-conidia were found on the type collection and these are falcate and aseptate. Other extralimital collections examined show macro-conidia as described by Cash & Watson and these are filiform and up to three septate measuring 14-23 x 1.5-2µm. Only in one Australian collection were a few 1-septate conidia found (DAR 49450), the remainder being micro-conidial only. There is no genus currently available for *S. selenophomoides*.

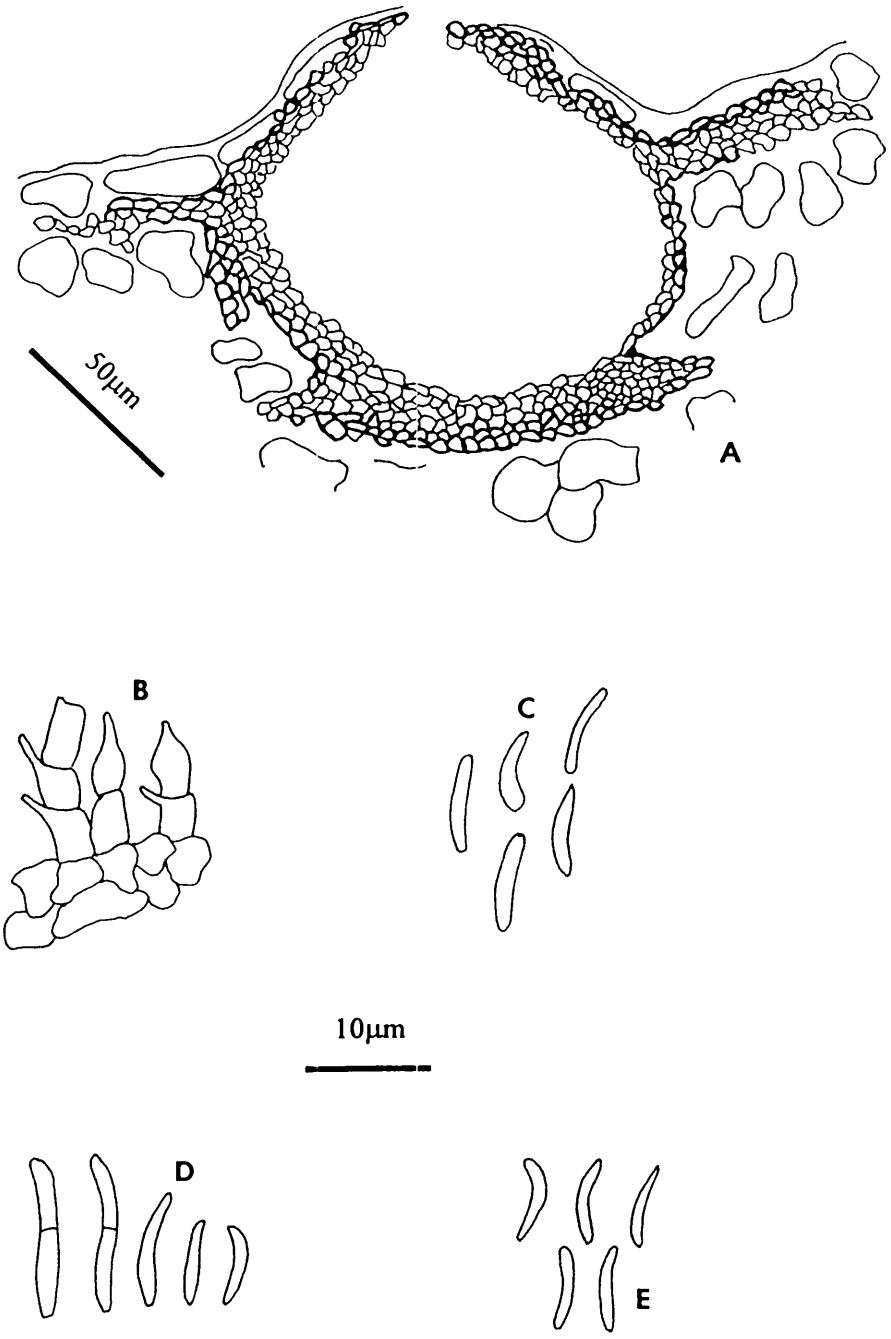

Fig.90. *Septoria selenophomoides*; (A) v.s. conidioma DAR 65133; (B) conidiogenous cells DAR 65133; C-E conidia (C) DAR 65133; (D) DAR 49450; (E) type ex BPI

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Bulbophyllum* sp.; **New South Wales**; Royal Botanic Gardens, Sydney, 10 Aug. 1988 (DAR 63691a);

on *Cattlyea* sp.; **New South Wales**; Chittaway Point, 5 Sept .1986, P.W. Collins (DAR 56807);

on *Dendrobium attenuatum*; **New South Wales**; Kurrajong, 16 Apr 1984, M. Harrison (DAR 49449); *Dendrobium bigibbum*; Kurrajong, 16 Apr. 1984, M. Harrison (DAR 49452); *Dendrobium canaliculatum*; Kurrajong, 16 Apr. 1984, M. Harrison (DAR 49451); *Dendrobium discolor*; Baulkham Hills, 10 June 1987, M. Schmidt (DAR 60355); *Dendrobium kingianum*; Wilberforce, 26 Sept. 1985, M. Harrison (DAR 54638); *Dendrobium schneiderae*; Kurrajong, 4 Apr. 1984, M. Harrison (DAR 49488); *Dendrobium semifuscum*; Kurrajong, 4 Apr. 1984, M. Harrison (DAR 49442); Kurrajong, 16 Apr. 1984, M. Harrison (DAR 49450); *Dendrobium smilliae*; Kurrajong, 16 Apr. 1984, M. Harrison (DAR 49453); *Dendrobium speciosum*; Raymond Terrace, 11 Aug. 1989, J.B. Taylor (DAR 65335); *Dendrobium* sp. cult.; Grafton, 30 June 1989, J.E. Betts (DAR 65133).

EXTRALIMITAL COLLECTIONS:

Septoria selenophomoides; on *Odontoglossum* sp.; **Mexico**, 27 Nov. 1951, Mr. Lewis (ex BPI, microscope slides as DAR 49928) **holotype**; **Mexico**, 23 Sept. 1954, J.A. Lindsay (ex BPI, microscope slides as DAR 49930).

Selenophoma thelymitrae (McAlp.) Priest **comb. nov.**

≡ *Septoria thelymitrae* McAlp., *Proc. Linn. Soc. N.S.W.* **28**: 101 (1903)

(Fig. 91)

Leaf lesions epigenous, orbicular to irregular, 1-3mm diam., in the centre of lesions dark brown becoming pale grey-brown with age, raised with a brown-black margin. *Conidiomata* scattered on lesions, immersed, scarcely erumpent, separate, globose, dark brown to black, 110-150μm diam., pycnidial. *Ostiole* single, apical, 25-30μm, cells around the opening slightly darkened and thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, textura angularis, outer layers dark brown, inner layer sub-hyaline. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, ampulliform to lageniform 8-10 x 3 μm, producing conidia holoblastically,

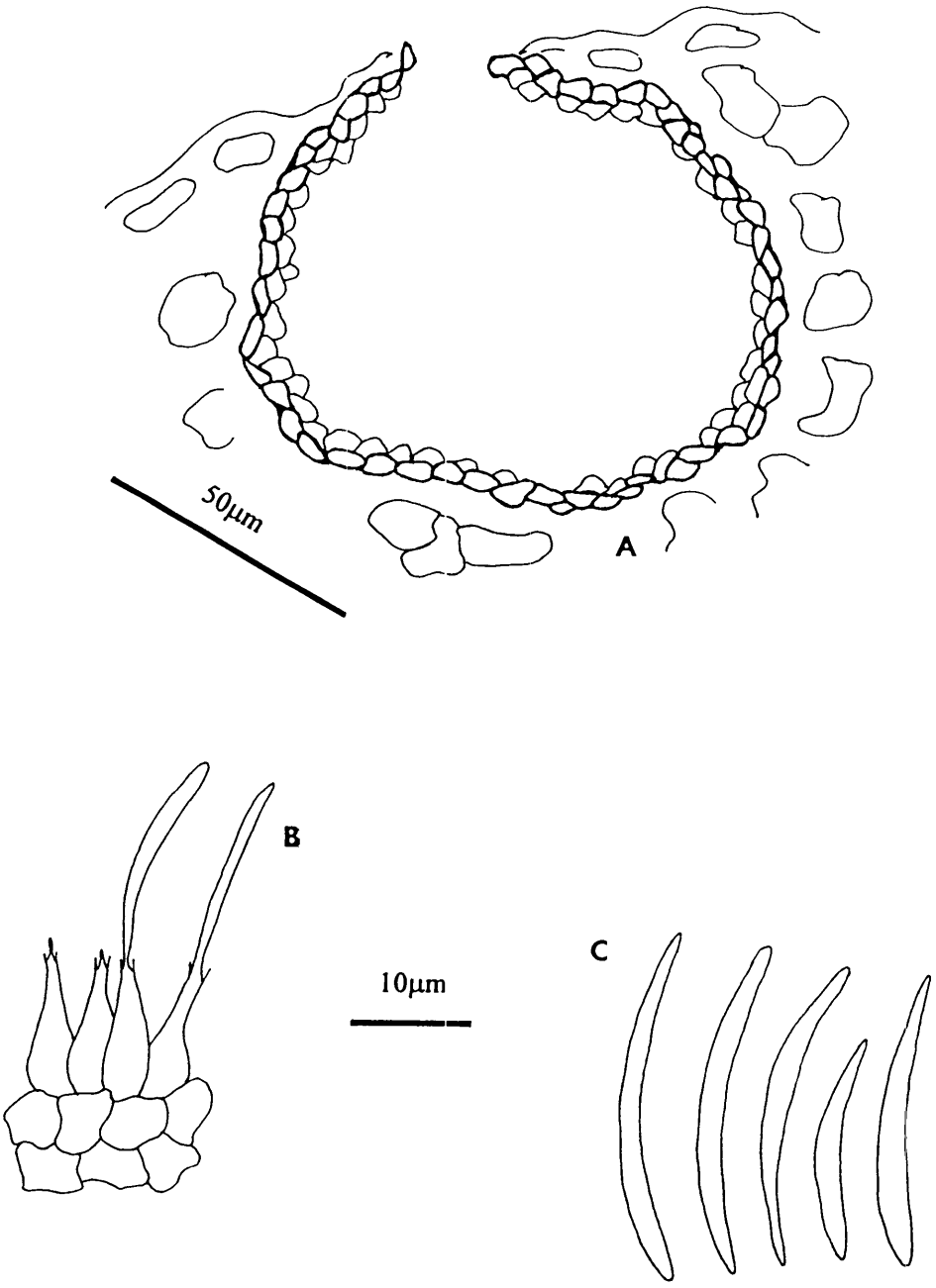

Fig.91. *Selenophoma thelymitrae* VPRI 1895 holotype; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

subsequent conidia produced enteroblastically and seceding from narrowing conidiogenous loci, collarettes and periclinal thickening present. *Conidia* hyaline, falcate, aseptate, 15-25 x 1.5-2μm, tapering to a sub-acute apex and with a rounded base.

Host: *Thelymitra aristata* Lindl.

Distribution: Victoria (McAlpine 1903, Brittlebank 1937-1940, Chambers 1982).

The type collection of *S. thelymitrae* consists of three microscope slides and two leaves. Examination of the slides revealed only the presence of pycnidial conidiomata with ostioles up to 30μm, little else was discernible due to the age of the slides. The presence of the falcate aseptate conidia produced from phialides places this species in the genus *Selenophoma* Maire as defined by Sutton (1980) with the exception that the conidiomata in *S. thelymitrae* are truly pycnidial and do not appear to dehisce by rupture of the upper wall. *Selenophoma thelymitrae* has conidia longer and narrower than the taxa dealt with by Sutton (1980) and they are also narrower than the recently described *S. eucalyti* Crous, C.L. Lennox & B. Sutton (conidia 8-15 x 2-3.5μm) and *S. elaeocarpi* Sutton & Sankaran with conidia 11-16 x 2-2.5μm and poorly developed conidiomata. At present this species is only known from the type collection.

Specimen examined: on *Thelymitra aristata*; **Victoria**; Ringwood, 26 Oct. 1902, C. French Jnr. (VPRI 1895) **holotype** of *Septoria thelymitrae*.

PAEONIACEAE

Septoria paeoniae Westend. var. ***berolinensis*** Allesch., *Hedwigia* **35**: 34 (1896)

(Fig. 92)

Lesions on leaves and stems. On leaves hologenous, orbicular to irregular, 2-4mm diam., occasionally confluent, on both leaf surfaces pale brown in the centre with a raised red-purple margin. On stems, lesions are elongated, fusiform, 2-4mm in length and 2mm wide, pale brown in the centre with a purple-red raised margin. *Conidiomata* scattered on lesions, immersed, scarcely erumpent, globose to depressed-ovate, rarely convoluted, 80-140μm diam., pycnidial. *Ostiole* single, apical, 10-25μm, cells around the opening dark brown and thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, cells of the lower wall dark brown becoming

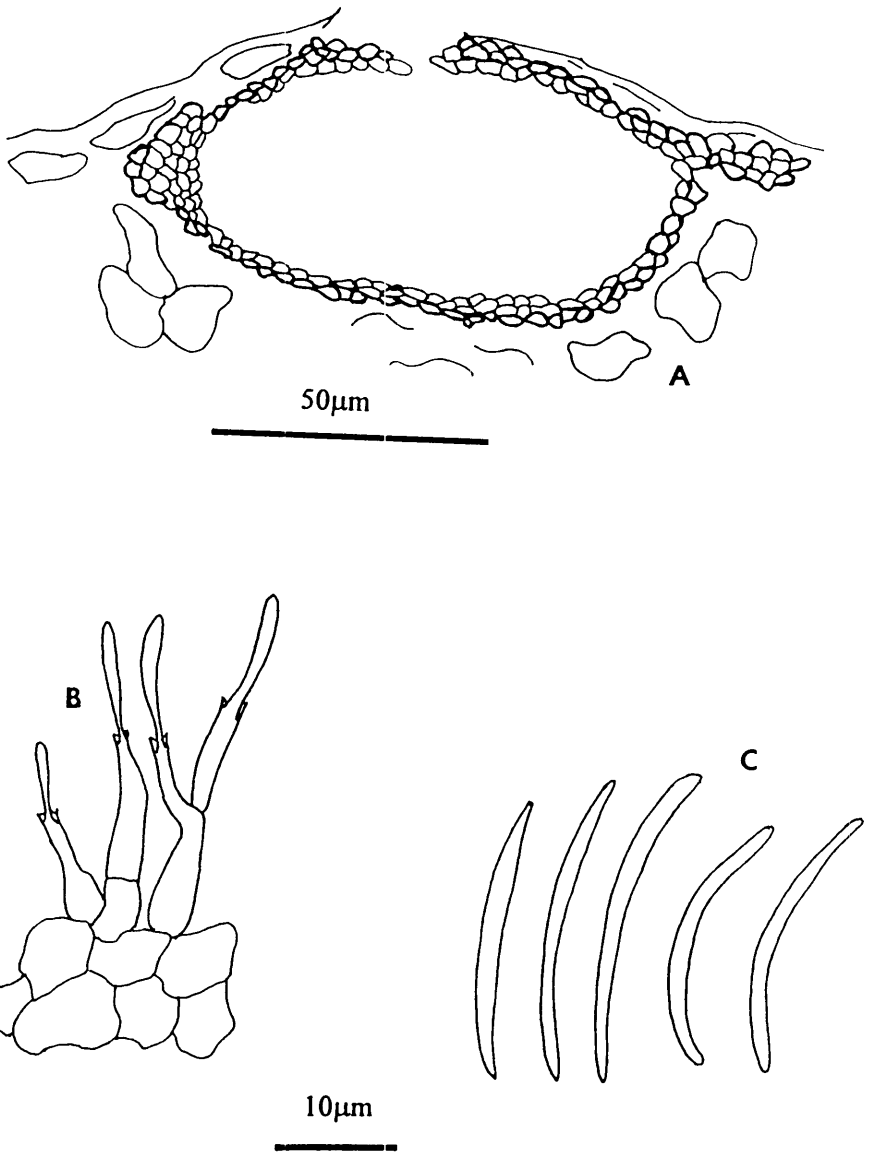

Fig.92. *Septoria paeoniae* var. *berolinensis* DAR 71672; (A) v.s. conidioma; (B) conidiogenous cells; (C) conidia

thickened towards the opening. *Conidiogenous cells* arising from the inner wall layer, hyaline, discrete, often integrated, cylindrical 12-15 x 2-2.5µm, producing conidia holoblastically, secession schizolytic, subsequent conidia produced enteroblastically and seceding at the same level from narrow conidiogenous loci, periclinal thickening evident. *Conidia* hyaline, falcate, aseptate, 15-28 x 1.5µm, with rounded base and apex.

Hosts: *Paeonia lactiflora* Pall., *P. officinalis* L.

Distribution: New South Wales (Anon. 1950 as *S. paeoniae*)

Australian collections are identical with the original description of *S. paeoniae* var. *berolinensis* in which the conidia were given as fusiform, curved and measuring 25-30 x 1.5-2µm. Grove (1935), Smith & Ramsbottom (1914), Jørstad (1965 as *S. paeoniae* Westend.) and Ellis & Ellis (1985) also gave the conidia of this species as falcate, aseptate and measuring (16-)20-30 x 1.5-2µm. It is clearly not a species of *Septoria* but a probable species of *Selenophoma*. However, generic redisposition must await examination of the type collection. Other species of *Septoria* described from *Paeonia* are *S. paeoniae* Westend. (no conidial size given), *S. macropora* Sacc. (conidia 45-55 x 1.5-2µm and 4-6 guttulate-pseudoseptate), *S. martinioffiana* Thüm. (conidia 45-60 x 2-2.5µm and 1-2 septate), *S. paeoniae* var. *montana* Ferraris (conidia 24-35 x 1.5µm and indistinctly septate), *S. broterii* Gonz. Frag. (conidia 20-30 x 1.5-2µm) and *S. serbica* Syd. with conidia 45-68 (-120) x 2µm.

Specimens examined: on *Paeonia lactiflora*; **New South Wales**; Oberon, 10 Nov. 1993, Hughes (DAR 71671); Oberon, Nov. 1994, Hughes (DAR 71672); on *Paeonia officinalis*; **New South Wales**; Mount Wilson, Jan. 1950, P.G. Valder (DAR 3952).

PASSIFLORACEAE

Septoria passifloricola Punith., *CMI Descriptions of Pathogenic Fungi and Bacteria No. 670* (1980) = *Septoria passiflorae* Louw, *Sci. Bull. Dept. Agr. and For., Union of S. Afr. (Stellenbosch series No.44) No. 229*: **34** (1941) non *S. passiflorae* Syd., *Ann. Mycol.* **37**: 408 (1939)

(Fig. 93)

Lesions on fruit and leaves. *Leaf lesions* hologenous, orbicular to irregular, 7-20mm diam., on the upper surface mid-brown with a dark brown margin later becoming pale yellow-brown with a distinct

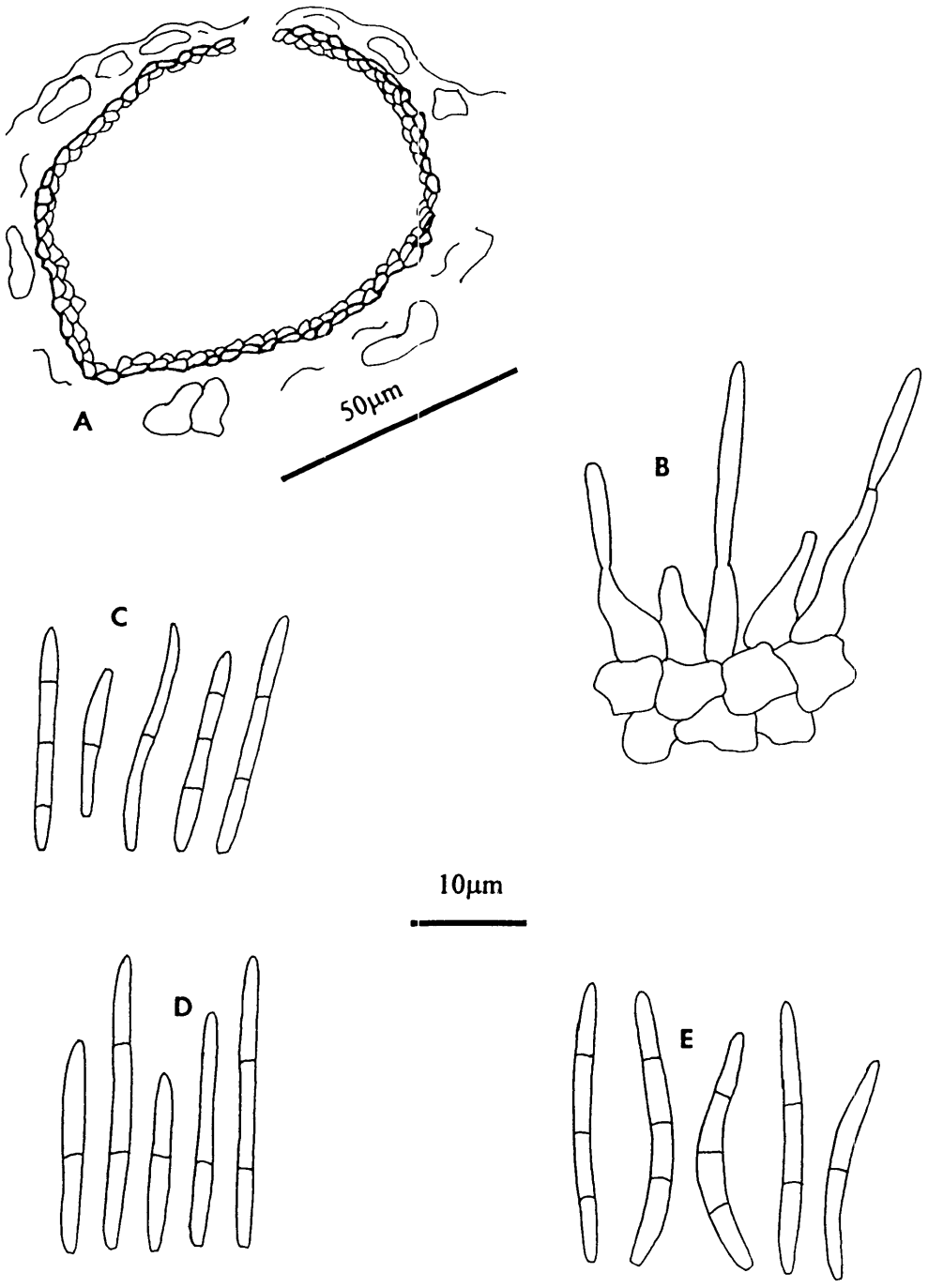

Fig.93. *Septoria passifloricola*; (A) v.s. conidioma DAR 59325; (B) conidiogenous cells DAR 59325; C-E conidia (C) DAR 59325; (D) PREM 34186; (E) BRIP 5841 ex culture

dark brown margin or occasionally with a pale brown margin and chlorotic halo, lower surface lesions pale yellow brown and lacking margin. *Conidiomata* mostly epigenous, scattered on lesions, immersed becoming erumpent, pale-mid brown, globose, 75-125µm diam., pycnidial. *Ostiole* apical, central, 10-25µm, cells around the opening slightly thickened. *Conidiomatal wall* 2-3 cells thick, composed of pseudoparenchymatous tissue, *textura angularis*, outer layer mid-brown, inner layers pale brown. *Conidiogenous cells* arising from the inner wall layer, discrete, hyaline, cylindrical to lageniform, 9-12 x 3-6µm, producing one or more conidia holoblastically, secession schizolytic, subsequent proliferation of the conidiogenous locus not observed. *Conidia* hyaline, filiform, 1-2(-3) septate, straight, rarely curved, (7-)13-32 x 1.5-2µm with a truncate base and rounded apex.

Hosts: *Passiflora edulis* Sims (Passionfruit), *P. edulis* x *flavicarpa*, *P. flavicarpa*, *P. quadrangularis* R.Br.

Distribution: New South Wales (Anon. 1944 as *Septoria* sp., Anon. 1951a as *S. passiflorae*), Queensland (Simmonds 1966 as *S. passiflorae* Louw), Victoria (Washington & Nancarrow 1983 as *Septoria sp.*, report only), Western Australia (Shivas 1989, report only).

Septoria passifloricola Punith. was originally described from South Africa as *S. passiflorae* Louw and the cause of a destructive disease of grenadilla or passionfruit. Doidge (1950) listed Louw's species as a synonym of *S. fructigena* Berk. & Curt. based on advice from E.W. Mason at CMI that it was not different from it. However in 1954, Mason redetermined the South African material as being different from *S. fructigena* on the basis that *S. fructigena* produces "walking stick spores not found in *S. passiflorae* Louw" (B.A. Louwrens, PREM, *in litt.*). Clearly *S. fructigena* appears to be a species of *Phomopsis* and it is to be noted that in the original description, conidia were described as filiform, hamate and 35µm long. Examination of authentic material confirms that Australian collections are identical to *S. passiflorae* Louw. As a later homonym of *S. passiflorae* Syd., Punithalingam (1980) renamed Louw's species as *S. passifloricola*. In New South Wales a *Mycosphaerella* sp. has been reported as occurring on old fruit lesions kept in a moist chamber. Ascospores from the *Mycosphaerella* gave rise to cultures of *Septoria* (Anon. 1948a).

Specimens examined:

AUSTRALIAN COLLECTIONS:

on *Passiflora edulis*; **New South Wales**; Sydney, 3 Feb. 1948, R.J. Benton (DAR 4054); Coffs Harbour, Jan.1948 (DAR 4055); Roseville, Feb 1945, C.J. Magee (DAR 4056); in glasshouse, Sydney (artificial inoculation), June 1948, L.R. Fraser (DAR 4057); Toongabbie, 21 Jan. 1956, J. Walker (DAR 5689); Toronto, 11 Jan. 1961, L.R. Fraser (DAR 7307); Tumblegum, 3 June 1966, R. Allen (DAR 59325); Tweed District, 22 Sept. 1967, F. Chalker (DAR 59328); **Queensland**; Thornlake, 16 Apr. 1947, Tiffet (BRIP 5810); Noosa Heads, 12 Jan. 1971, I.F. Muirhead (BRIP 5841); Kallangur, 18 July 1969, R.A. Peterson (BRIP 5842); Tallebudgera, 23 Nov. 1995, D. Anderson (BRIP 22979);

on *Passiflora edulis* x *flavicarpa*; **Queensland**; in glasshouse, Indooroopilly, 25 June 1970, J.L. Alcorn (BRIP 5840);

on *Passiflora flavicarpa*; **Queensland**; Nambour, 6 Sept. 1989, D.G. Hutton (BRIP 16807);

on *Passiflora quadrangularis*; **Queensland**; Cairns, 12 July 1949, F.W. Blackford (BRIP 5812).

EXTRALIMITAL COLLECTIONS:

Septoria passifloricola; on *Passiflora edulis*, Franschhoek, **South Africa**, 15 Sept. 1938, A.J. Louw (PREM 34186 ex STE 1063) **? type** (as *S. passiflorae*).

PHYTOLACCACEAE

Septoria phytolaccae Cav., *Atti. Int. Bot. dell'Univ. di Pavia* (Ser. 2) **2**: 267 (1892)

This species was listed by Brittlebank (1937-1940) and Chambers (1982) as occurring on *Phytolacca americana* L. at Myrniong in Victoria in 1917. No herbarium material under this name has been located and the record remains unsubstantiated.