

subcylindraceae vel obclavatae, hyalinae, laeves, 6.5-10.5 X 3-5 [ $\bar{x}$  = 8.4 X 3.9]  $\mu\text{m}$ , usque ad ter prolificantes. Conidia elongatoellipsoidea vel obovata, extremitatibus aliquantum rotundatis, dictyoseptata, hyalina, tenuitunicata, laevia, 30-39(-40) X 11-19(-20) [ $\bar{x}$  = 34.5 X 15]  $\mu\text{m}$ ; appendices mucosae, initio irregulares, tandem tentaculiformes; ratione conidii long./lat. = 2.3:1.

Foliicolous. Conidiomata pycnidial, hypophyllous, scattered, deeply immersed in the host mesophyll with only the ostiole visible in surface view, globose to subglobose in sectional view, 140-160  $\mu\text{m}$  wide, 190-250  $\mu\text{m}$  deep, unilocular, glabrous, ostiolate; wall up to 25  $\mu\text{m}$  thick, of colourless textura angularis in the outermost layer and of colourless textura prismatica in the inner layers, but around the ostiolar region of almost colourless to dark brown, thick, lenticular textura angularis or textura globulosa with thick-walled cells; ostiole circular or oval, 30-40  $\mu\text{m}$  diam., neck canal lined with unbranched or branched, sparsely septate, smooth-walled, recurved periphyses 10-17 X 1-2.5  $\mu\text{m}$ . Conidiophores arising all around the cavity of the conidioma, sparsely septate, branched only at the base and 15-22  $\mu\text{m}$  long, or often reduced to conidiogenous cells, invested in mucus. Conidiogenous cells subcylindrical to obclavate, colourless, smooth-walled, 6.5-10.5 X 3-5 [ $\bar{x}$  = 8.4 X 3.9]  $\mu\text{m}$ , with up to 3 proliferations. Conidia elongate-ellipsoid to obovoid with somewhat rounded ends, dictyoseptate, colourless, thin- and smooth-walled, 30-39(-40) X 11-19(-20) [ $\bar{x}$  = 34.5 X 15]  $\mu\text{m}$ ; appendages initially irregular, eventually tentaculiform; mean conidium length/width ratio = 2.3:1.

Habitat: On leaf of *Litsea* sp.

Specimen examined: DAOM 215257 [Holotype], Somwarpet, Coorg, India, 30.VI.1962, T.R.Nag Raj.

Known distribution: India.

The fungus is associated with leaf spots.

### 137. *ZELANDIOCOELA* Nag Raj anam.-gen. nov.

Conidiomata stromatica, pycnidioidea, initio immersa, deinde erumpentia, irregulatim plurilocularia loculis convolutis, glabra, atrobrunnea vel nigra, initio clausa, postremo per aliquot foramina circularia vel ovalia parietis apicalis dehiscentia, globulo viscido vel cirrho conidiorum albido vel eburneo velata; paries e textura angulari cellulis crassitunicatis, brunneis vel atrobrunneis compositus. Conidiophora circum cavitatem loculorum enascentia, ad cellulas conidiogenas redacta, in muco involuta. Cellulae conidiogenae discretae, subcylindraceae vel late conicae, hyalinae, laeves. Conidiogenesis: ontogenea holoblastica; maturatio conidiorum cum ontogenea synchrona; delimitatio per septum duplex; secessio schizolytica; proliferatio cellularum conidiogenarum enteroblastica, conidia plura ad locos eisdem aut altiores successive producens; cellulae conidiogenae in zona collaruli crassitiebus periclinalibus notatis praeditae; regeneratio cellularum conidiogenarum nulla. Conidia fusiformia, extremitatibus aliquantum apiculatis, unicellularia, hyalina, tenuitunicata, laevia, utrinque appendices mucosas infundibuliformes vel irregulares ferentia; appendices per gelatisationem zonarum certarum parietis ad polos conidiorum crescentium orientes.

Conidiomata stromatic, pycnidioid, immersed, eventually becoming erumpent, irregularly plurilocular with convoluted locules, glabrous, dark brown to black, initially closed, ultimately dehiscing by several circular to oval openings in the apical wall and covered with a pearl white or cream, gloeoid globule or conidial cirrhi; wall of textura angularis with thick-walled, brown to dark brown cells. Conidiophores lining the locules, reduced to conidiogenous cells and invested in mucus. Conidiogenous cells discrete, subcylindrical to broadly conical, colourless, smooth. Conidiogenesis: ontogeny by apical wall building in the first conidium and by replacement wall-building in subsequent conidia; maturation by diffuse wall-building synchronous with ontogeny; delimitation by a double septum; secession schizolytic; proliferation of conidiogenous cell enteroblastic-percurrent to produce additional conidia at the same or slightly higher level; conidiogenous cells with marked periclinal thickenings in the collarette zone; regeneration of conidiogenous cells absent. Conidia fusiform with somewhat apiculate ends, unicellular, colourless, thin-walled, smooth, with funnel-shaped to irregular, mucoid appendages of type H at both ends, arising by gelatinization of appendage primordia at the poles of the developing conidia.

Type anamorph-species: *Zelandiocoela ambigua* (Nag Raj & Kendrick) Nag Raj.

Teleomorph: Unknown.

*Zelandiocoela*, with its bipolar mucoid conidium appendages, is likely to be confused with several other coelomycete genera. The conidium appendages in *Allantophomopsis* Petrak, *Hymenopsis* Saccardo, and

*Koorchaloma* Subramanian are of type C, while the appendages in *Miromyces* Nag Raj, *Tiarospora* Saccardo & Marchal, and *Zelandiocoela* are of type H. In *Miromyces*, the appendage arises from a torus of mucus resulting from gelatinization of appendage primordia - convex lens-shaped wall areas, subapical in position, and delimited at an early stage of conidium development. In *Tiarospora* and *Zelandiocoela*, the appendage primordia on the developing conidia are bipolar, conic and obconic in shape. The differences between *Tiarospora* and *Zelandiocoela* outweigh the similarity. The conidia in *Tiarospora* are thick-walled, eventually pigmented and 1-septate, while in *Zelandiocoela* the conidia are thin-walled, colourless and unicellular. Another feature present in *Tiarospora*, but absent in *Zelandiocoela*, is the microconidiogenous cells lining the ostiolar channel in the neck region of the conidioma.

137.1. *Zelandiocoela ambigua* (Nag Raj & Kendrick) Nag Raj comb. nov.

Fig. 137.1

≡ *Apostrasseria ambigua* Nag Raj & Kendrick, Can. J. Bot. 61: 15, 1983.

Foliicolous. Conidiomata stromatic, pycnidoid, amphigenous, scattered to gregarious and confluent, intra-epidermal in origin, immersed, eventually becoming erumpent, elongate-oval to irregular in outline, broadly conical in section, up to 300 µm long, 170-230 µm wide and 90-140 µm deep, irregularly plurilocular with convoluted locules, glabrous, dark brown to black, initially closed, ultimately with one to three, circular to oval, openings in the apical wall, 30-40 µm diam., covered with a pearl white or cream, gloeoid globule or conidial cirrhi; wall 15-20 µm thick, of textura angularis with thick-walled, brown to dark brown cells. Conidiophores reduced to conidiogenous cells, lining the locules, and invested in mucus. Conidiogenous cells subcylindrical to broadly conical, mostly colourless, occasionally darker in the lower part, smooth, 5-8 X 2-4 ( $\bar{x}$  = 6.5 X 2.9) µm, with two to three proliferations. Conidia fusiform with somewhat apiculate ends, unicellular, colourless, thin- and smooth-walled, 8.5-14 X 3-4.5 ( $\bar{x}$  = 11.5 X 3.9) µm, with funnel-shaped to irregular, mucoid appendages at both ends.

Habitat: On leaves of *Podocarpus hallii*, *P. totara* and *Podocarpus* sp. in litter.

Specimens examined: 1. PDD 41572 [Holotype], on *P. totara*, Forest Hill Scenic Reserve, 18 mi. N of Invercargill, New Zealand, 18.IV.1974, B.Kendrick (KNZ 707); 2. DAOM 215263, on *Podocarpus* sp. in litter, Tunnel entrance, Milford, New Zealand, 1.IV.1980, B.Kendrick; 3. DAOM 315326, on leaves of *Podocarpus hallii*, Governor's Bush Track, Mt. Cook National Park, South Island, New Zealand, 3.IV.1980, B.Kendrick.

Known distribution: New Zealand.

138. *ZELOSATCHMOPSIS* Nag Raj

apud Saikawa, Castañeda, Kendrick & Nag Raj, Can. J. Bot. 69: 633, 1991.

Conidiomata sacciform or cupulate, superficial, sessile, unilocular, brown to dark brown; periclinal wall 1-cell thick, cells pale brown, smooth, and each cell (except for the top two to three rows of dark brown and somewhat encrusted cells bordering the wide open apical end) functioning as a conidiogenous cell. Conidiogenous cells discrete, ampulliform, pale brown, smooth. Conidiogenesis: ontogeny holoblastic by apical wall-building in the first conidium and by replacement wall-building in subsequent conidia; maturation by moderate diffuse wall-building asynchronous with ontogeny or somewhat delayed; delimitation by a double septum; secession schizolytic; proliferation enteroblastic-percurrent to produce additional conidia at the same level; conidiogenous cells with moderate periclinal thickenings in collarette zone; regeneration of conidiogenous cells absent. Conidia fusiform to falcate, unicellular or euseptate, colourless, smooth-walled, with a cellular, unbranched, attenuated, excentric basal appendage of type A, maintaining protoplasmic continuity with the conidium body.

Type anamorph-species: *Zelosatchmopsis sacciformis* (Castañeda) Nag Raj & Castañeda.

Teleomorph: Unknown.

The genus has remained monotypic.

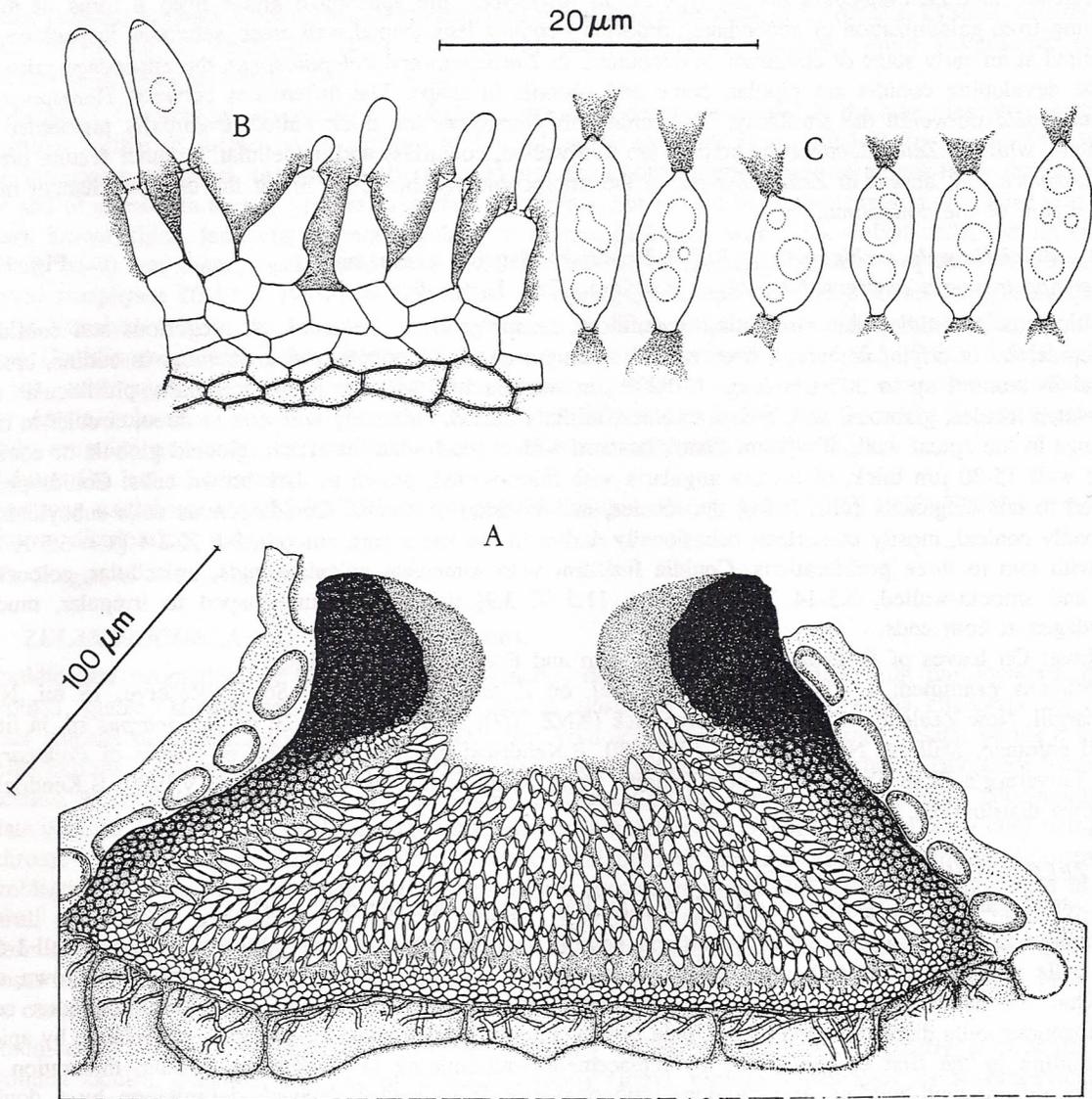


Figure 137.1. *Zelandiocoela ambigua* ex DAOM 315326. A. Vertical section of a conidioma. B. Conidiogenous cells with developing conidia. C. Mature conidia.

138.1. *Zelosatchmopsis sacciformis* (Castañeda) Nag Raj & Castañeda

Fig. 138.1

apud Saikawa, Castañeda, Kendrick & Nag Raj, Can. J. Bot. 69: 633, 1991.

≡ *Satchmopsis sacciformis* Castañeda, Fungi Cubenses II (La Habana, Cuba: Instituto de Investigaciones Fundamentales en Agricultura tropical "Alejandro de Humboldt": 18, 1987.

Foliicolous. Conidiomata epiphyllous, scattered, sometimes gregarious, superficial, sessile, sacciform to cupulate, pale brown to brown with dark brown rims bordering the wide aperture at the apex, collabent when dry, 40-70 µm wide at the base, 30-60 µm wide at the apex and 60-80 µm deep, with the mature conidia collecting in a pearl-white gloeoid mass; wall 1-cell thick, cells subglobose or ampulliform, pale brown and smooth, uppermost row of cells bordering the rim of the conidioma cylindrical to subcylindrical, dark brown,