

MYCOTAXON

Vol. XXIX, pp. 195-198

July-September 1987

A SPECTACULAR LOCULOASCOMYCETE FROM VENEZUELA

MARGARET E. BARR

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

RICHARD T. HANLIN

*Department of Plant Pathology, University of Georgia,
Athens, GA 30602 USA*

L. CEDAÑO, J. PARRA, AND R. HERNANDEZ

*Facultad de Ciencias Forestales, Universidad de Los Andes,
Mérida 5101, Venezuela*

A spectacular fungus that infects branches of *Polylepis sericea* Wedd. (Rosaceae) "Coloradito" was collected on the slopes of the Cordillera de Mérida of the Venezuelan Andes, above 3,400 m. The taxon is unique in producing large, conspicuous galls, 3-14 cm in diam, weighing 1.8-335 g. Microscopic features are also unusual, in particular large dictyospores whose septa break down at maturity, followed by the formation of minute hyaline "conidia." These structures are not endoascosporic cells (Morgan-Jones, 1973), for they are much smaller and more numerous than the cells of intact ascospores. Neither ascospores nor the supposed conidia have been observed to germinate as yet, although fully mature ascomata have the centrum permeated by contorted hyphae that apparently developed from ascospores.

The collection area is a paramos region of high rainfall, limited sunshine and low temperature at tree line, with woodlands in sheltered cirques. *Polylepis sericea* occurs as scattered stunted trees or in more favorable conditions forms small forests with closed canopy. Dennis (1970), who spent two weeks in the general region, noted in a corrie woodland at Laguna Negra the presence of the trees with the endemic *Uredo polylepidis* (Arthur) Saccardo & Trotter "and bearing conspicuous galls colonised by *Flagelloscypha*

polylepidis" Reid (Cyphellaceae). This is the sole mention found in the literature to the fungus described here, despite the noticeable size of galls.

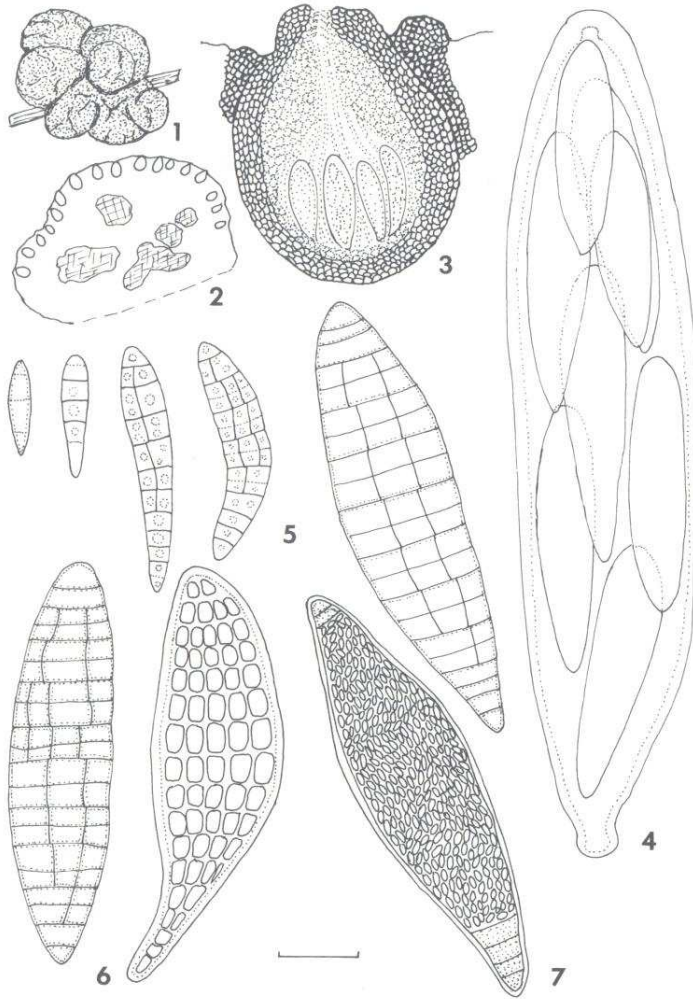
The fungus causes galls that remind one of *Apiosporina morbosa* (Schweinitz: Fr.) von Arx, on branches of *Prunus* species in temperate North America. It differs markedly from *A. morbosa* in shape of ascomata and in sizes, pigmentation, and septation of ascospores (Barr, 1963). Among dictyosporous Loculoascomycetes, *Shiraia bambusicola* P. Hennings produces tuberculate stromata up to 3.5 x 2 cm and large dictyospores. This organism is parasitic on various bamboos in Japan and China, and the stroma is fleshy and pinkish. The ascomata are globose or sphaeroid and remain immersed in the stromatic tissues, and the peridium is narrow, composed of a single layer of cells (Amano, 1980).

The species on *Polylepis* has the characteristics of the Pleosporales ss. str.; the obpyriform ascomata and layered peridium are typical of members of the Pyrenidiaceae, in which *Teichospora* is the dictyosporous genus. Species of *Teichospora* do not form stromatic tissues or only a thin crustose layer, and do not cause conspicuous gall formation of the host plant. Other dictyosporous genera differ in other aspects, for example, some species of *Cucurbitaria* cause deformation but produce turbinate, globose, or ovoid ascomata on a basal subiculum or thin stroma. None of the dictyosporous genera now known could accommodate this species, so that a new genus must be described for it.

Grandigallia dictyospora Barr, Hanlin, Cedeño, Parra & Hernandez, gen. et sp. nov. Figs. 1-7

Stromata atra gallaeficientes 3-14 cm diametro magnorum pseudoparenchymatorum cellularum et lignorum substratorum composita; ascomata peripherae obpyriformia 440-550 μ m diametro apicibus late papillatis et ostioliis periphysatis; cellulae peridii externae pseudoparenchymatae badiae interior compressae pallidae; asci bitunicati basales 105-220 X 26-40 μ m oblongi vel ellipsoidei latis endotunicis; pseudo-paraphyses cellulosae 2-2.5 μ m latae; ascosporae hyalinae vel badiae 60-80 X 15-20 μ m fusioideae vel ellipsoideae muriformes 15-22 transverse septatae et 1-4 longitudinaliter septatae septa ad maturitas fatiscientia et contenta repleta numerosis hyalinis conidiis 2-2.5 X 0.5-1 μ m.

Parasitatur in *Polylepi sericea* Wedd., loco dicto "Paramo de la Culata, Mérida, Venezuela," supra 3,400 m, Dec 1984, a L. Cedeño, J. Parra, et R. Hernandez lecti (holotypus, MER; isotypi GAM, MASS, NY).



Figs. 1-7. *Grandigallia dictyospora*. 1. Habit of gall, X1. 2. Portion of gall in section showing position of ascomata and patches of wood cells, X ca. 10. 3. Ascoma in vertical section with part of surrounding stromatic tissue. 4. Ascus. 5. Stages in enlargement and septation of young ascospores. 6. Mature ascospores. 7. Ascospore showing numerous conidia. Standard line = 150 μ m for Fig. 3, 15 μ m for Figs. 4-7.

Causing malformations of branch as dull black, rough galls, 3-14 cm diam, firm but sectioning readily, composed of stromatic tissues formed of large thick-walled, blackish pseudoparenchymatous cells (contents bluing in Melzer's), and incorporating isolated patches of wood cells. Ascomata peripheral in stroma, bases embedded, upper regions becoming erumpent, obpyriform, 440-550 μm diam, tapered to the broadly papillate apex, cells light reddish brown, ostiolar canal periphysate; peridium externally of large dark red brown, thick-walled pseudoparenchymatous cells, internally of several rows of paler, thinner-walled, somewhat compressed cells. Asci bitunicate, basal, 105-220 X 26-40 μm , oblong or ellipsoid, endotunica wide, without apical ring, fissitunicate, cytoplasm dextrinoid, octosporous or sometimes four or less maturing. Pseudoparaphyses cellular, 2-2.5 μm wide. Ascospores hyaline for some time, becoming clear reddish brown, 60-80 X 15-20 μm , fusoid or ellipsoid, often with long taper to base; septa becoming numerous, up to 10 transverse A-septa formed before longitudinal septa, followed by B-septa, finally 15-22-septate with 1-4 longitudinal septa, at maturity septa broken down and contents replaced by numerous, small, hyaline "conidia" ca. 2-2.5 X 0.5-1 μm ; wall thick, smooth.

Parasitic on *Polylepis sericea*, Paramo de la Culata, Mérida, Venezuela, above 3,400 m, Dec 1984, collected L. Cedeño, J. Parra, and R. Hernandez (holotype, MER; isotypes GAM, MASS, NY).

We thank Dr. C. T. Rogerson for reviewing the manuscript. This study was funded in part by National Science Foundation Grant INT-8501713 to RTH.

LITERATURE CITED

- Amano, N. 1980. Studies on the Japanese Loculoascomycetes II. Taxonomic position of the genus *Shiraia*. Bull. Nat'l Sci. Mus. Ser. B (Botany) 6: 55-60.
- Barr, M. E. 1968. The Venturiaceae in North America. Canad. J. Botany 46: 799-864.
- Dennis, R. W. G. 1970. Fungus flora of Venezuela and adjacent countries. Kew Bull. Addit. Ser. 3. J. Cramer. 531 p.
- Morgan-Jones, G. 1973. Endoascosporic cells in three pyrenocarpous lichen genera. Canad. J. Botany 51: 493-495.