
Discomycetes of tropical China. VI. Additional species from Guangxi

Wen-Ying Zhuang

Systematic Mycology and Lichenology Laboratory, Institute of Microbiology, Chinese Academy of Sciences, Beijing 100080, China; e-mail: zhuangwy@sun.im.ac.cn

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Sixteen species belonging to 14 genera of discomycetes were recorded from tropical Guangxi, China, of which *Dicephalospora damingshanica*, *Dicephalospora pinglongshanica*, and *Lambertella caudatoides* are described as new species. Morphological features of a collection reported as *Arachnopeziza* cf. *cornuta* are discussed.

Kew words: *Dicephalospora damingshanica*, *Dicephalospora pinglongshanica*, *Lambertella caudatoides*

Introduction

Since previous reports of discomycetes from tropical Guangxi (Zhuang, 1998, 1999, in prep.), additional specimens have been identified and new species found. The known records of discomycetes in Guangxi show that Damingshan, Wuming County has the highest species diversity in December compared with other areas explored. This is quite possibly due to the very high humidity at the elevations of 700-1300 m where specimens were collected. In this paper, sixteen species belonging to 14 genera of both inoperculate and operculate discomycetes, which have not been recorded from Guangxi are reported. This includes 3 new species in *Dicephalospora* and *Lambertella*. Morphological features of *Arachnopeziza* cf. *cortuna* are discussed.

Taxonomy

1. *Arachnopeziza* cf. *cornuta* (Ellis) Korf, *Lloydia* 14: 158 (1951).

(Figs. 1-3)

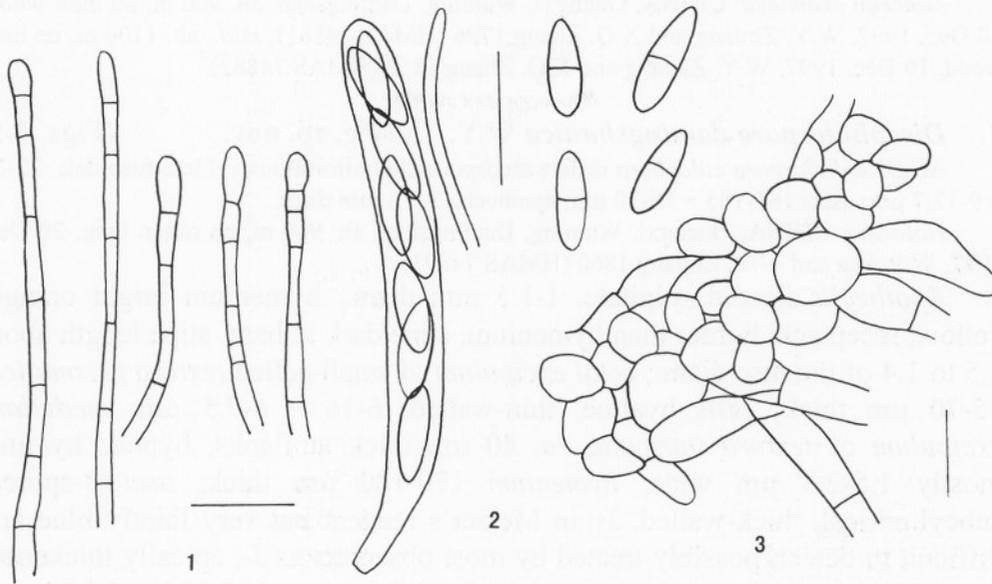
Apothecia gregarious, on whitish, copious subiculum, flat, sessile, broadly attached to substrate, margin surrounded by hairs, 0.3-0.5 mm diam., hymenium white and translucent, receptacle white, hairy; *hairs* rigid, septate, cylindrical except capitate to clavate at apex and enlarged at basal cell, septa

distributed more densely in the upper portion and sometimes moniliform, with yellow to brown contents, walls hyaline and slightly roughened at upper part, 50-150 μm long, 2.5-4.5 μm wide at apex, 2-3 μm in the middle, and 3.3-4.3 μm wide at very base; *ectal excipulum* of *textura angularis*, 10-35 μm thick, cells angular, hyaline, thin-walled, ca. 3-8(-10) μm diam; *medullary excipulum* of *textura intricata*, 13-20 μm thick, hyphae hyaline, 1-1.5 μm wide; *hymenium* 50-52 μm thick; *asci* 8-spored, clavate, arising from croziers, J+ in Melzer's reagent, 45-54 \times 5-6.4 μm ; *ascospores* ellipsoidal to long-ellipsoidal, biseriate to irregularly uniseriate, 0-1-septate, 6.5-8(-13) \times 2.5-3 μm ; *paraphyses* filiform, equal to or less than 1 μm wide.

Material examined: CHINA, Guangxi, Napo, Defu, alt. 1100 m, on rotten wood, 10 Jan. 1998, S.L. Chen and W.Y. Zhuang 2387 (HMAS 74892).

Notes: The most similar species to this Guangxi collection in spore morphology are *Arachnopeziza aranea* (De Not.) Boud. and *A. japonica* Korf (Korf, 1951, 1959; Malengon and Bertault, 1958; Batista *et al.*, 1960; Batista and Benerra, 1961; Dennis, 1963; Korf and Zhuang, 1985a). The collection differs from *A. aranea* in that the apothecia are flat and broadly attached to substrate when dry, instead of urceolate to turbinate. The hairs are also somewhat capitate to enlarged apically, sometimes moniliform at the upper portion, 50-150 μm long, 1.5-2.5 μm wide in the middle, and 2.5-4.5 μm at apex. In *A. aranea* the hairs are 35-40(-75) μm long, and 2-3.4 μm wide at the base, and taper to a blunt apex. The collection differs from *A. japonica* in hair morphology and ascospore shape, size, and septation (6.5-8(-13) \times 2.5-3 μm vs. 13-15.5(-17) \times 2.5-3 μm ; 0-1-septate vs. (0-)1-2(-3)-septate). HMAS 74892 is characterized by the long, straight, and capitate hairs combined with its small ascospores and patellate, broadly attached apothecia.

The apothecia of HMAS 74892 are gregarious, and seated on copious subiculum. Hairs are roughened at upper part, rigid, with more septa at upper portion and the taxon occurs on decorticated, rotten wood. These characters are similar to *Arachnopeziza cornuta* (Ellis) Korf. The collection HMAS 74892 however differs from *A. cornuta* as the hairs are enlarged apically, are narrower in the middle portion, and wider at base, instead of slightly narrowed at the apex. Asci and ascospores are also smaller (asci: 45-54 \times 5-6.4 μm vs. 57-68 \times 7.5-8.9 μm ; ascospores: 6.5-8(-13) \times 2.5-3 μm vs. 8.9-14.3 \times 2-2.7(-3.4) μm) and 0-1-septate instead of (0-)1-3-septate. The excipulum is also much thinner, the apothecia are larger and not urceolate to turbinate on drying, but are very broadly attached to substrate. The fungus is therefore tentatively treated as *Arachnopeziza* cf. *cornuta*, but may require separate species status once more material has been observed.



Figs. 1-3. *Arachnopeziza* cf. *cornuta* (from holotype). **1.** Hairs. **2.** Ascus, ascospores and a paraphysis apex. **3.** Ectal excipulum. Bars: 1 = 20 μ m, 2, 3 = 10 μ m.

2. *Ascocoryne cylichnium* (Tul.) Korf, Phytologia 21: 202 (1971).

Material examined: CHINA, Guangxi, Wuming, Damingshan, alt. 900 m, on rotten wood, 20 Dec. 1997, W.Y. Zhuang 1869 (HMAS 74884).

3. *Ascocoryne sarcoides* (Jacq.: Fr.) J.W. Groves and D.E. Wilson, Taxon 16: 40 (1967).

Material examined: CHINA, Guangxi, Wuming, Damingshan, alt. 1100 m, on rotten wood, 19 Dec. 1997, W.Y. Zhuang 1823 (HMAS 74885); *ibid.*, alt. 900 m, on rotten wood, 20 Dec. 1997, W.Y. Zhuang 1870 (HMAS 74886).

4. *Bisporella claroflava* (Grev.) Lizon and Korf, Mycotaxon 54: 474 (1995).

Material examined: CHINA, Guangxi, Napo, Nonghua, alt. 1000 m, on rotten twig, W.Y. 11 Jan. 1998, Zhuang and S.L. Chen 2418 (HMAS 72708).

5. *Calycellina carolinensis* Nag Raj and W.B. Kendr., Monograph of *Chalara*. p. 183 (1975).

Material examined: CHINA, Guangxi, Wuming, Damingshan, alt. 900 m, on rotten bark, 20 Dec. 1997, W.Y. Zhuang 1869 (HMAS 74900); Nanning Forest Park, alt. 100 m, on rotten leaves, 25 Dec. 1997, W.P. Wu and W.Y. Zhuang 1941 (HMAS 74901).

6. *Chlorosplenium chlora* (Schwein.: Fr.) M.A. Curtis in Sprague, Proceedings of the Boston Society of Natural History 5: 330 (1856).

Material examined: CHINA, Guangxi, Wuming, Damingshan, alt. 900 m, on hard wood, 18 Dec. 1997, W.Y. Zhuang and X.Q. Zhang 1796 (HMAS 74881); *ibid.*, alt. 1100 m, on hard wood, 19 Dec. 1997, W.Y. Zhuang and X.Q. Zhang 1852 (HMAS 74882).

7. *Dicephalospora damingshanica* W.Y. Zhuang, **sp. nov.** (Figs. 4-5)

Ab *Dicephalospora calochora* differt ascosporis limoniformibus vel late fusoides, 22-32 × 9-12.7 µm; ascis 165-185 × 16-20 µm; apotheciis 1-1.5 mm diam.

Holotype: CHINA, Guangxi, Wuming, Damingshan, alt. 900 m, on rotten twig, 20 Dec. 1997, W.P. Wu and W.Y. Zhuang 1860 (HMAS 74893).

Apothecia discoid, stipitate, 1-1.5 mm diam., hymenium bright orange-yellow, receptacle lighter than hymenium, stipe dark at base, stipe length about 1.5 to 1.4 of the disc diam.; *ectal excipulum* of small-celled *textura prismatica*, 35-70 µm thick, cells hyaline, thin-walled, 6-16 × 4-7.5 µm; *medullary excipulum* of *textura intricata*, ca. 80 µm thick at flanks, hyphae hyaline, mostly 1.5-2.5 µm wide; *hymenium* 170-180 µm thick; *asci* 8-spored, subcylindrical, thick-walled, J+ in Melzer's reagent but very faintly blue and difficult to detect, possibly treated by most observers as J-, apically thickened, spores filling up almost the entire length of the ascus, 165-185 × 16-20 µm; *ascospores* lemon-shaped to elliptical-fusoid, with a hyaline mucilaginous cap at both ends, uniseriate, with one to several irregular guttules and a dark-stained area when mounted in cotton blue solution, 22-32 × 9-12.7 µm; *paraphyses* slightly enlarged at apex, 3-5.5 µm wide at upper portion, 1.8-2.5 µm below.

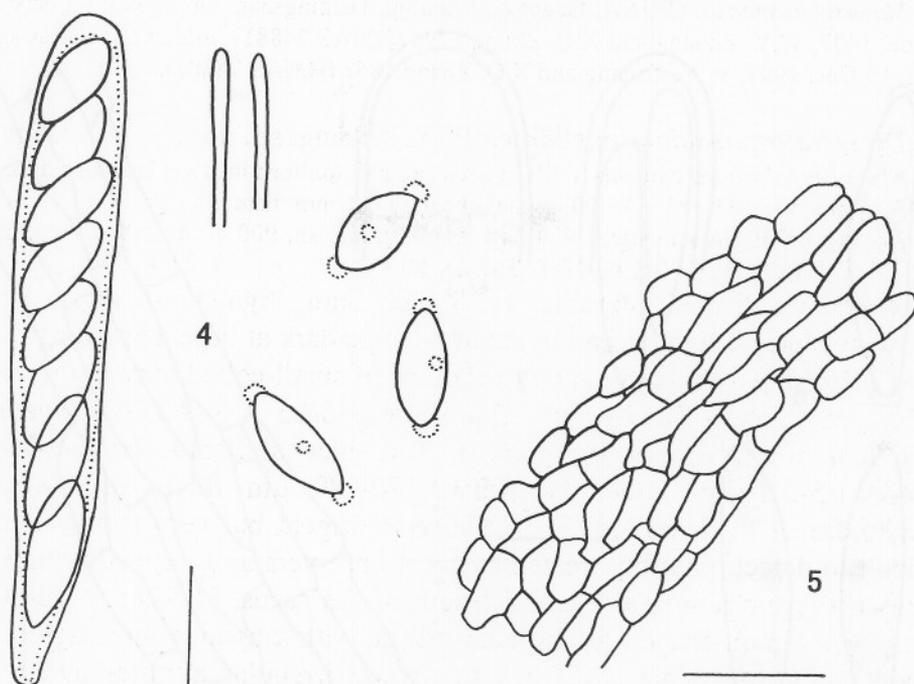
Notes: *Dicephalospora* Spooner (1987) was established to accommodate two species in the *Sclerotiniaceae*. The most distinguished features of the genus are thick-walled asci and a mucilaginous cap at both ends of ascospores. A recent collection from Damingshan has lemon-shaped to elliptical-fusoid ascospores, which are 22-30 × 9-12.7 µm and almost J- asci (very faintly blue in Melzer's reagent, which is easily overlooked). This new species differs from the two existing species of *Dicephalospora*, especially in ascospore shape. Type material is sparse, containing only seven apothecia. However, the fungus is very distinct and illustrates diversity in the genus. It is therefore treated as a new species here.

8. *Dicephalospora pinglongshanica* W.Y. Zhuang, **sp. nov.** (Figs. 6-8)

Ab *Dicephalospora calochora* differt ascosporis angustis, fusoides, 20-28 × 4.5-5.7 µm; ascis J-, apice truncatis, 96-115 × 10-14 µm; apotheciis 0.3-0.6 mm diam.

Holotype: CHINA, Guangxi, Shangsi, Pinglongshan, alt. 500 m, on twigs, 2 Jan. 1998, S.L. Chen, W.P. Wu and W.Y. Zhuang 2363 (HMAS 74894).

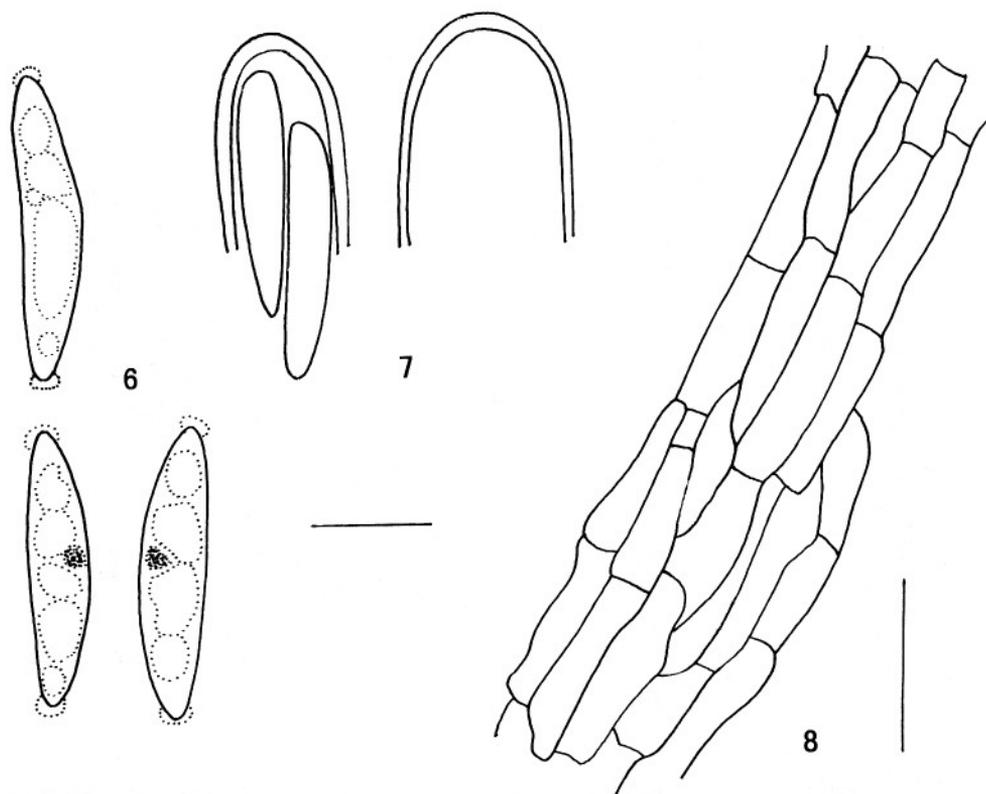
Apothecia surface convex, stipitate, 0.3-0.6 mm diam., hymenium yellow to reddish orange when fresh and brownish red when dry, stipe base



Figs. 4-5. *Dicephalospora damingshanica*. 4. Ascus, ascospores and paraphysis apices. 5. Ectal excipulum. Bars: 4 = 25 μm , 5 = 20 μm

dark; *ectal excipulum* of *textura prismatica*, ca. 15-25 μm thick, cells hyaline, thin-walled, rectangular, 7-10 \times 2-3 μm ; *medullary excipulum* of *textura intricata*, hyphae hyaline, ca. 1.5 μm wide; *hymenium* ca. 115 μm thick; *asci* 8-spored, clavate, with a truncate apex, thick-walled, not papillate apically, J-, pore walls not blue in Melzer's reagent, 96-115 \times 10-14 μm ; *ascospores* fusoid, sometimes curved slightly on one side and flat on the other, with a hyaline mucilaginous cap at both ends, irregularly biseriate, unicellular, 4-6-guttulate, 20-28 \times 4.5-5.7 μm ; *paraphyses* slightly enlarged at apex, 2-3.5 μm wide at apex and 1.5-1.8 μm below.

Notes: This fungus is similar to *Dicephalospora calochroa* (Syd.) Spooner in ascospore size, but is slightly narrower. It has much smaller apothecia (0.3-0.6 mm vs. 2.5-4 mm diam.), and shorter asci (96-115 \times 10-14 μm vs. 165-185 \times 14-15 μm) with a truncate apex, which are J- in Melzer's reagent. In *D. calochroa* asci are apically papillate and J+ in Melzer's reagent. The shape of ascus apex in *Dicephalospora pinglongshanica* is not common for the genus.



Figs. 6-8. *Diccephalospora pinglongshanica* (from holotype). 6. Ascospores. 7. Ascus apices. 8. Ectal excipulum. Bars = 10 μ m.

9. *Galiella javanica* (Rehm) Nannf. and Korf, Mycologia 49: 108 (1957).

Material examined: CHINA, Guangxi, Napo, Defu, alt. 1100 m, on rotten wood, 10 Jan. 1998, S.X. Sun, S.Y. Guo and W.Y. Zhuang 2376 (HMAS 72177).

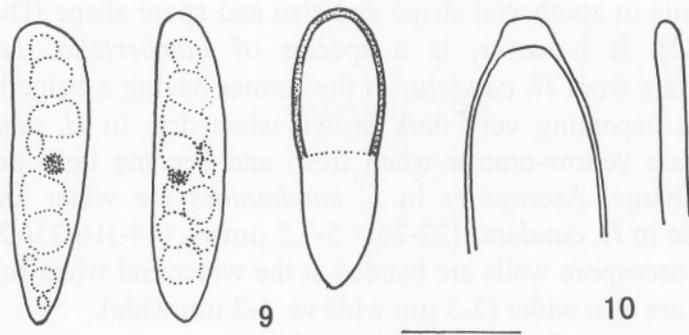
10. *Lachnum pygmaeum* (Fr.) Bres., Annales Mycologici 1: 121 (1903).

Material examined: CHINA, Guangxi, Wuming, Damingshan, alt. 900 m, on rotten wood, 20 Dec. 1997, W.Y. Zhuang 1873 (HMAS 74902).

11. *Lambertella caudatoides* W.Y. Zhuang, **sp. nov.** (Figs. 9-10)

Ab *Hymenoscypho caudato* et speciebus aliis *Lambertellae* differt ascosporis latiuculis, 21.5-26 \times 5.3-7.5 μ m, brunneolis, vittatis; hymeniis exsiccatis badiis.

Holotype: CHINA, Guangxi, Wuming, Damingshan, alt. 1100 m, on a leaf, 19 Dec. 1997, W.Y. Zhuang 1841, (HMAS 74895).



Figs. 9-10. *Lambertella caudatoides* (from HMAS 74895). 9. Two hyaline and one brown ascospores. 10. An ascus and a paraphysis apex. Bars = 10 μ m.

Apothecia surface convex, stipitate, up to 0.7 mm diam., hymenium beige when fresh and very dark brown when dry, receptacle very dark brown when dry, stipe beige, not dark at base, much lighter than hymenium and receptacle when dry, equal to disc diam. or slightly longer; *ectal excipulum* of *textura prismatica*, 25-43 μ m thick at flanks, not gelatinous, cells hyaline, walls slightly glassy, 5-17.5 \times 4.5-8 μ m; *medullary excipulum* of *textura intricata*, ca. 40-100 μ m thick, hyphae hyaline, thin-walled, hyphae 1.5-4 μ m wide; *hymenium* ca. 135 μ m thick; *asci* 8-spored, cylindrical-clavate, conical at apex, J+ in Melzer's reagent, as two blue lines, 112-129 \times 13-15 μ m; *ascospores* subfusoid to somewhat scutuloid, with upper end rounded and faintly hooked, lower end narrower, with a dark-stained area when mounted in cotton blue solution, hyaline within asci, becoming pale to light brown after discharge, with the wider end banded (walls thicker and darker), cell at broader end light brown and that at narrower end pale brown, irregularly biserial, unicellular, multiguttulate when young, becoming nonguttulate when fully mature, 21.5-26 \times 5-7.5 μ m; *paraphyses* filiform, 2-3 μ m wide.

Notes: *Lambertella* contains ca. 50 species and is a fairly large genus in the *Sclerotiniaceae* (Dumont, 1971; Korf and Zhuang, 1985b). The species share common characteristics of brown ascospores, rectangular cells in the ectal excipulum, and black stromatal lines at base of the apothecia. Most species possess ellipsoidal ascospores of various sizes, which may be of punctate, banded or striate at maturity. *Lambertella torquata* W.Y. Zhuang (1995) and *L. verrucosispora* W.Y. Zhuang (1990) have a peculiar spore morphology.

A collection of a discomycete on a leaf blade from Damingshan had

somewhat scutuloid ascospores, and was similar to *Hymenoscyphus caudatus* (P. Karst.) Dennis in apothecial shape and size and spore shape (Dumont and Carpenter, 1982). It however, is a species of *Lambertella*. *Lambertella caudatooides* differs from *H. caudatus* in the former having a beige hymenium when fresh and becoming very dark brown when dry. In *H. caudatus* the hymenium is pale yellow-orange when fresh and become light brown after ascospores discharge. Ascospores in *L. caudatooides* are wider and slightly longer than those in *H. caudatus* ($22-26 \times 5-7.5 \mu\text{m}$ vs. $(14-16-23(-28) \times 4-5(-6) \mu\text{m})$) and the ascospore walls are banded at the wider end when fully mature and paraphyses are also wider ($2-3 \mu\text{m}$ wide vs. $1-2 \mu\text{m}$ wide).

Lambertellinia Korf and Lizon (1994) is another genus in the *Sclerotiniaceae* which has light brown, scutuloid ascospores. The only species of the genus, *Lambertellinia scutuloides* Korf and Lizon, differs from *Lambertella caudatooides* in that the ectal excipulum comprises *textura porrecta* instead of *textura prismatica* with thick-walled, gelatinous, and elongate cells. *Lambertellinia scutuloides* also has much smaller ascospores ($(13.8-15.4-16.9(-18.5) \times (2.3-3.1-3.5(-3.8) \mu\text{m}$ vs. $21.5-26 \times 5-7.5 \mu\text{m})$) with evenly colored walls and black substratal stromata at base of apothecia. In *Lambertella caudatooides* ascospores are banded at the wider end and black substratal stromata are absent.

Black stromata lines at the base of the apothecia which is a common character of *Lambertella* are lacking in *L. caudatooides*. *Lambertella caudatooides* may be similar to *L. torquata* in ascospore shape and coloration, but differs in their much smaller size and lack of hyaline, refractive, infundibuliform collar at the narrow end. The taxon is treated tentatively here as a new species of *Lambertella* since the light brown, banded ascospores, and rectangular cells in the ectal excipulum, which are slightly refractive and non-gelatinous, distinguished it from any other species in the genus. Species of *Lambertella* which have banded ascospores usually have darker and thicker walls at one side, while in the walls *L. caudatooides* are banded at the wider end. *Lambertella caudatooides* does not fit well in any of the genera mentioned above. The present collection may establish a linkage between *Hymenoscyphus*, *Lambertella* and *Lambertellinia*.

12. *Neobulgaria pura* (Pers.: Fr.) Petr., Annales Mycologici 19: 45 (1921).

Material examined: CHINA, Guangxi, Napo, Defu, alt. 1100 m, on rotten wood, 10 Jan. 1998, S.L. Chen and W.Y. Zhuang 2404 (HMAS 74889).

13. *Orbilbia* cf. *inflatula* (P. Karst.) P. Karst., Notiser ur Sällskapet pro Fauna and Flora Fennica Förhandlingar 11: 248 (1870).

Material examined: CHINA, Guangxi, Wuming, Damingshan, alt. 900 m, on rotten bark, 20 Dec. 1997, W.Y. Zhuang 1868, 1871 (HMAS 74903, 74904); *ibid.*, alt. 700 m, 23 Dec. 1997, W.Y. Zhuang 1926, (HMAS 74905); Nanning, Herb Plantation, on rotten wood, 24 Dec. 1997, W.P. Wu and W.Y. Zhuang 1932 (HMAS 75512).

14. *Plectania nigrella* (Pers.) P. Karst., Acta Fauna et Flora Fennica 2: 119 (1885).

Material examined: CHINA, Guangxi, Shiwandashan, Shangsi, alt. 240 m, on rotten bamboo, 28 Dec. 1997, W.P. Wu and W.Y. Zhuang 1978 (HMAS 74682).

15. *Pyronema omphalodes* (Bull.: Fr.) Fuckel, Jahrbücher des Nassauischen Vereins für Naturkunde 23-24: 319 (1870).

Material examined: CHINA, Guangxi, Nanning Forest Park, alt. 100 m, on charcoals, 25 Dec. 1997, W.Y. Zhuang 1938 (HMAS 74887); Shangsi, Shiwandashan, alt. 240 m, on charcoals, 28 Dec. 1997, W.Y. Zhuang 1975 (HMAS 74888).

16. *Sarcoscypha coccinea* (Jacq.: Fr.) Lambotte, Flora Mycologique de Belge, Suppl. 1: 302 (1887).

Material examined: CHINA, Guangxi, Napo, Defu, alt. 1100 m, on rotten twigs, 10 Jan. 1998, S.L. Chen and W.Y. Zhuang 2382 (HMAS 72173).

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