

1 **A new species of *Neococcomyces* (Rhytismatales, Ascomycota) from China**

2 by

3 Jian Gao

4 International centre of Bamboo and Rattan, Beijing 100102, P. R. China

5 Cheng-Lin Hou\*

6 <sup>1</sup>Forestry Department, Anhui agricultural University, Hefei 230036, P. R. China

7 With 6 figures

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\* Corresponding author, Chenglin Hou, email: [houchenglincn@yahoo.com](mailto:houchenglincn@yahoo.com)

1 **Abstract:** A fungus belonging to the Rhytismatales found on leaves of *Rhododendron*  
2 sp. in Yunnan province, southwestern China, is described as a new species in the  
3 genus *Neococomyces*. It differs from the type species *Neocomyces rhododendri* by  
4 subcuticular ascomata and aseptate ascospores.

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6 **Key words:** Ericaceae, *Neococomyces yunnanensis*, Rhytismataceae, taxonomy

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## Introduction

2 Species of *Neococcomyces* are characterized by multi-angular ascomata opening by  
3 several radial or irregular splits and by bifusiform ascospores with septa (Lin et al.).  
4 They are similar to species of *Coccomyces* and *Duplicaria*. However, species of  
5 *Coccomyces* have filiform to fili-fusiform ascospores that are rarely septate, and  
6 species of *Duplicaria* have elliptical ascomata (Lin et al. 1999).  
7 The shapes of ascospores and ascomata have traditionally been used as important  
8 features for the definition of genera in Darker's system (Cannon & Minter 1986,  
9 Darker 1967). Although most mycologists argue that some aspects of Darker's system  
10 are artificial and unsatisfactory, no suitable alternative has been proposed yet (Cannon  
11 & Minter 1986, Hou 2004). Recently part molecular data show that relationships  
12 between the members in the Rhytismatales are very complicated (Hou 2004).  
13 Therefore, for the time being, we still adopt the system elucidated by Darker (1967)  
14 and Cannon and Minter (1986) in this paper.

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## Materials and methods

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18 Sections of different thickness of ascomata were made by hand using a razor blade.  
19 Microscopic preparations were made in water, Melzer's reagent, 5% KOH, or 0.1%  
20 (w/v) cotton blue in lactic acid. For the observation of ascomatal outlines in vertical  
21 section, sections were mounted in lactic acid or cotton blue with pretreatment in water.  
22 Gelatinous sheaths surrounding ascospores and paraphyses were observed in water or

1 cotton blue in lactic acid. Ascospore contents are drawn based on observations in  
2 water.  
3 Measurements were made using material mounted in 5% KOH or Melzer's reagent.  
4 20 ascospores and asci were measured in this study.

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## 6 **Results**

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8 *Neococcomyces yunnanensis* C.-L. Hou & J. Gao, **sp. nov.** Figs 1-6

9 ETYMOLOGY: Yunnan is the province where the specimen has been collected.

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11 Ascomata 600-1400  $\mu\text{m}$  diam., epiphylla, subcuticularia, nigra, multiangularia;  
12 paraphyses filiformes, apicibus ad 3-5  $\mu\text{m}$  incrassatis; asci 80-110 x 9-13  $\mu\text{m}$ , clavati;  
13 ascosporae 35-45 x 2.5-3.5  $\mu\text{m}$ , bifusiforme, in tunica gelatinosa inclusae.

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15 HOLOTYPUS: On *Rhododendron* sp. (Ericaceae), China, Yunnan province,  
16 Chuxiong, Zixishan, alt. ca. 2400 m, 2 August 2001, C.-L. Hou 115 (HMAS).

17 Ascomata developing on fallen leaves, epiphyllous, in slightly bleached areas,  
18 associated with thin black zone lines. Ascomata 600-1400  $\mu\text{m}$  diam., mostly  
19 triangular, quadrate, or polygonal, sometimes irregularly round or elliptical, black,  
20 shiny, raising above the surface of the substrate, with obvious preformed dehiscence  
21 lines, opening by 3-4 or more irregular teeth. In median vertical section, ascomata  
22 subcuticular, 350-400  $\mu\text{m}$  deep, covering stroma 30-40  $\mu\text{m}$  thick, consisting of an

1 outer layer of host cuticle and an inner layer of dark brown, thick-walled textura  
2 angularis-globulosa with cells of 4-7  $\mu\text{m}$  diam. The triangular space between the  
3 covering stroma and the basal stroma is filled with hyaline, slightly thick-walled  
4 angular cells of 8-15  $\mu\text{m}$  diam. Basal stroma medium- to well-developed, slightly  
5 concave, composed of dark brown, thick-walled textura globulosa-angularis, 10-15  
6  $\mu\text{m}$  thick. Excipulum absent. Subhymenium consisting of textura angularis, 6-10  $\mu\text{m}$   
7 thick, with cells of 4-7  $\mu\text{m}$  diam. Paraphyses 100-125 x 1-1.5  $\mu\text{m}$ , filiform, septate,  
8 unbranched, and swollen up to 3-5  $\mu\text{m}$  at the apex, embedded in gelatinous sheaths.  
9 Asci ripening sequentially, 80-110 x 9-13  $\mu\text{m}$ , clavate with a conspicuous stalk,  
10 slightly thick-walled and rostrate at the apex, J-, 8-spored. Ascospores 35-45 x 2.5-3.5  
11  $\mu\text{m}$ , bifusiform, rounded at the apex and slightly acute at the base, hyaline, aseptate,  
12 with thin gelatinous sheaths.

13 Conidiomata in bleached areas near the ascomata, light brown to dark brown, round,  
14 120-240  $\mu\text{m}$  diam., often 3-5 conidiomata confluent, opening by one ostiole. In  
15 vertical section, conidiomata subcuticular, 40-55  $\mu\text{m}$  deep, upper layer 15  $\mu\text{m}$  thick,  
16 composed of host cuticle and brown textura angularis. Basal layer 10-16  $\mu\text{m}$  thick,  
17 composed of brown thick-walled textura angularis. Conidiogenous cells and conidia  
18 not observed.

19 *Distribution:* *Neococcomyces yunnanensis* is only known from the cited collection.

20 *Habitat:* *Neococcomyces yunnanensis* was collected on leaves in litter.

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## Discussion

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3 The new taxon is morphologically similar to species of *Coccomyces* and  
4 *Neococcomyces*, but more closely to species of *Neococcomyces* based on ascospore  
5 shapes. *Neococcomyces yunnanensis* is similar to the type species, *Neococcomyces*  
6 *rhododendri* Y.-R. Lin, C.-T. Xiang & Z.-Z. Li on leaves of *Rhododendron*  
7 *maculiferum* Franch. ssp. *anhweiensis* (Wils.) Chamb. (Ericaceae) (Lin et al. 1999),  
8 but differs from it by larger, epiphyllous, subcuticular ascomata and by aseptate  
9 ascospores. *N. rhododendri* has intraepidermal ascomata and 1-4 septate ascospores.  
10 In addition, ascospores of *N. rhododendri* have a lot of guttules, looked as if  
11 ascospores had over 4 septa.  
12 Material is studied for comparison: *Neococcomyces rhododendri* Y.-R. Lin, C.-T.  
13 Xiang & Z.-Z. Li on *Rhododendron maculiferum* Franch. ssp. *anhweiensis* (Wils.)  
14 Chamb. (Ericaceae), China, Anhui province, Huangshang, Tianhai, alt. 1600m 13 July  
15 1994 Yu, S.-M., Deng, B. Xing, H.-W. et Lin, Y.-R. L1552a (AAUF 67660a).

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1 **Figure Legends**

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3 **Figs 1-6** *Neococcomyces yunnanensis* on *Rhododendron* sp. **1.** Leaf bearing  
4 ascomata and conidiomata. **2.** Ascomata and conidiomata as seen under a dissecting  
5 microscope. **3.** Ascoma in vertical section. **4.** Detail of an ascoma in vertical section.  
6 **5.** Detail of a conidioma in vertical section. **6.** Paraphyses, a young ascus, mature  
7 asci with ascospores, and liberated ascospores with gelatinous sheaths.

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