

A New Record Species of Lichen Genus *Carbacanthographis* to China^①

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Abstract *Carbacanthographis chionophora* (Redinger) Staiger & Kalb reported as new record to China, is characterized by its closed disc, completely carbonized exciple, entire and closed labia, warty periphysoids, hyaline and trans-septate ascospores with 6-9-loculus, $20-25 \times 6-8 \mu\text{m}$, and the presence of protocetraric acid as major substance. The specimen examined was collected from Xishuangbanna Tropical Garden in Yunnan Province.

Key words lichenized Ascomycota; Ostropales; Graphidaceae; taxonomy

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In last decade, with continuous taxonomic revision of Graphidaceae from China^[1-9], some small genera such as *Carbacanthographis* in this family were focused on, in which 25 species are included worldwide^[10-12]. Up to now, only one species *Carbacanthographis marcescens* (Fée) Staiger & Kalb has been known in China, reported from Guangxin by Jia et al.^[9] and Hong Kong by Aptroot & Sipman as *Graphina marcescens*^[13]. In the present paper, another species, *C. chionophora* (Redinger) Staiger & Kalb is reported as new record to China.

1 Materials and Methods

The specimen is deposited in the Lichen Section of Herbarium of Kunming Institute of Botany, the Chinese Academy of Sciences (KUN-L). Dissecting microscope (OLYMPUS SZX12) and optical microscopes (OLYMPUS BX51 & NIKON Eclipse-55i) were used for the morphological and anatomical studies. Sections of thalli and ascomata were mounted in water, 10% KOH (K), and Lugol's solution (I). The lichen substances were identified by thin-layer chromatography (TLC)^[14].

2 Results and Discussions

Carbacanthographis chionophora (Redinger) Staiger & Kalb Fig. 1 A-D in Staiger, *Bibliotheca Lichenol.* 85:105 (2002). -*Graphis chionophora* Redinger, *Ark. Bot.* 27A(3): 4 (1935).

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Thallus crustose, greyish to grey-white, smooth to rough. Apothecia lirelliform, conspicuous, white, sessile (completely raised above thallus surface), partially straight or curved, single, 0.5-3 mm long, 0.5-0.8 mm wide, with a conspicuous powdery thalline margin (often concolorous with thallus). Labia entire and closed. Disc concealed. Proper exciple completely carbonized. Epithecium absent. Hymenium hyaline, not inspersed, 80-100 μm high, I-. Paraphyses simple, 1-1.5 wide. Periphysoids short, distinctly warty. Asci 8-spored; ascospores hyaline, ellipsoid, trans-septate, with 6-9-loculus, 20-25 \times 6-8 μm , I-.

Chemistry: protocetraric acid (major) and lichexanthone (minor).

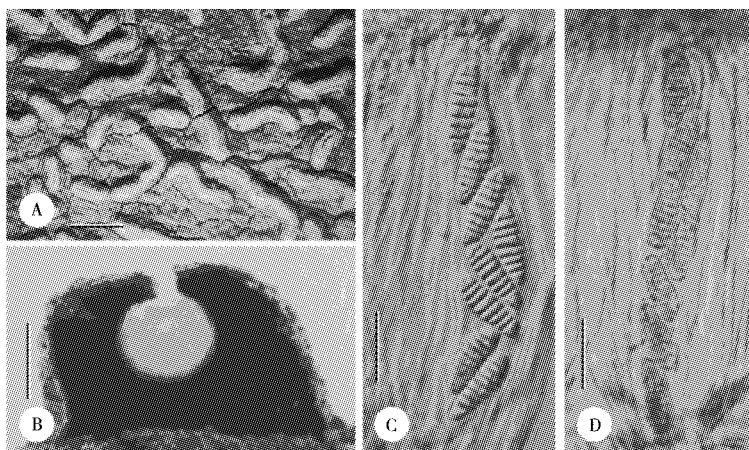


Fig. 1 *Carbacanthographis chionophora* (specimen: L. S. Wang et al. 14-44565). A: Thallus with apothecia (Scale bar=1 mm); B: Section of apothecium (Scale bar=100 μm); C: Ascus with ascospores (Scale bar=20 μm); D: Ascospores I- (Scale bar=20 μm)

Specimen examined: China. Yunnan Province: Mengla County, Xishuangbanna Tropical Botanical Garden, Lvshilin, alt. 547 m, on bark, 27/VII/2014, L. S. Wang et al. 14-44565 (KUN-L 46452).

Distribution and ecology: *Carbacanthographis chionophora* as corticolous species distributed in tropical forest. It has been reported in Brazil and South America^[15,16]. The material collected from China grows on the bark of tropical forest, in south China. It is the first report of this species from China.

Remarks *Carbacanthographis chionophora* is easily distinguished from other species in *Carbacanthographis* by completely carbonized exciple, the trans-septate ascospores (20-25 \times 6-8 μm , with 6-9-loculus) and the presence of protocetraric acid and lichexanthone. It is similar to *C. marcescens* already reported from China, but the latter differed in the lateral carbonized exciples, the smaller muriform ascospores (12.5-20 \times 5-7.5 μm , with 4-5/1-2-loculus) and the presence of salazinic acid as major substance^[9].

Key to the species of *Carbacanthographis* known from China

- 1a. Exciple completely carbonized; ascospores with transverse septa, 20-25 \times 6-8 μm , 6-9-locular; protocetraric acid present *C. chionophora* (Redinger) Staiger & Kalb
 1b. Exciple laterally carbonized; ascospores muriform, 12.5-20 \times 5-7.5 μm , 4-5/1-2-locular; salazinic acid present *C. marcescens* (Fée) Staiger & Kalb

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中国炭刺文衣属地衣一新记录种

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摘要 本文报道了文字衣科炭刺文衣属地衣一新记录种——白脉炭刺文衣 (*Carbacanthographis chionophora*), 该种特征为子囊盘面闭合, 果壳完全炭化, 盘唇全缘闭合, 类缘丝具疣, 子囊孢子横隔双透镜型, 具 6-9 胞室, 20-25×6-8 μm, 主要次生代谢物质为原冰岛苔酸. 该种作为中国新记录的凭证标本来自云南西双版纳热带植物园.

关键词 地衣型子囊菌; 厚顶盘目; 文字衣科; 分类学

中图分类号 Q949.325

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