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A new species of *Pertusaria* from China

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Abstract: The saxicolous species, *Pertusaria weii* Q. Ren (*Pertusariaceae*, Ascomycota) from China, is described as new to science. Diagnostic characters for the new species are a brownish, marginally unzoned thallus; numerous, solitary and lecanorate verrucae with heavily pruinose discs that are black; a strongly K+ violet epithecial reaction; 1-spored cylindrical asci with single, smooth-walled, untrimmed and ovoid spores; and, the presence of stictic acid. It grows on calcareous rock and is known only from the Tianshan Mountains in Western China.

Key words: lichenized fungi, *Pertusariaceae*, taxonomy, Western China

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Introduction

The genus *Pertusaria* DC. is widespread, with over 520 species worldwide (Kirk *et al.* 2008). Its morphology is remarkably variable. The chemistry of the genus is very complex and is of particular value in the identification of taxa (Archer 1997), and molecular data also support secondary chemistry as an important character in the classification of the *Pertusariaceae* (Schmitt & Lumbsch 2004).

In 1991, 54 *Pertusaria* taxa (including 44 species, 9 varieties and 1 form) were reported from China (Wei 1991). Despite an increased number of studies on the genus *Pertusaria* from China in recent years, there is still no up to date information on this genus from Xinjiang Uygur Autonomous Region in Western China. Recent examination of Chinese specimens has revealed a new saxicolous species, described here as *Pertusaria weii* Q. Ren, which is recorded from the Tianshan Mountains in Western China. The new taxon superficially resembles *P. qilianensis* Q. Ren & Z. T. Zhao, but differs in the number of ascospores per ascus, and in chemistry and habitat (Ren *et al.* 2008).

Materials and Methods

Specimens were collected from calcareous rock in the Tianshan Mountains, Western China, and are deposited in SDNU (Lichen Section of the Botanical Herbarium, Shandong Normal University). The morphology of the lichen specimens was examined using an Olympus SZ 51 stereomicroscope. Hand-cut sections were examined with an Olympus CX 21 compound microscope. Photographs of the thallus were taken with an OLYMPUS SZX16 camera with DP72, and photographs of ascospores were taken using an OLYMPUS BX61 with DP72. Measurements of well-developed ascospores lying outside the asci were made on material mounted in 10% KOH (K). Colour reactions (spot tests) were carried out using standard methods (Orange *et al.* 2001). Chemical constituents were identified using thin-layer chromatography (TLC) (Culberson 1972).

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The Species

Pertusaria weii Q. Ren sp. nov.

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Similar to *Pertusaria qilianensis*, but differs in the number of ascospores per ascus, chemistry and habitat.

Type: China, Xinjiang, Urumqi, Tianshan Mountains, Glacier No.1 at the headwaters of Urumqi River, alt. 3500 m, on calcareous rock, 27 August 2011, *Li Lin* 20125913 (SDNU—holotype).

(Fig. 1)

Thallus crustose, epilithic, whitish grey to brownish grey, continuous to fissured or fissured-areolate, thin to moderately thick, lacking soredia or isidia, margins entire and unzoned. Surface initially tuberculate, later heavily rugose-plicate, matt, epruinose. Fertile verrucae lecanorine and concolorous with thallus, numerous, solitary, *c.* (0·5–) 1·0–1·5(–2·0) mm diam., the verrucal margin always lacerate. *Disc* grey to black,

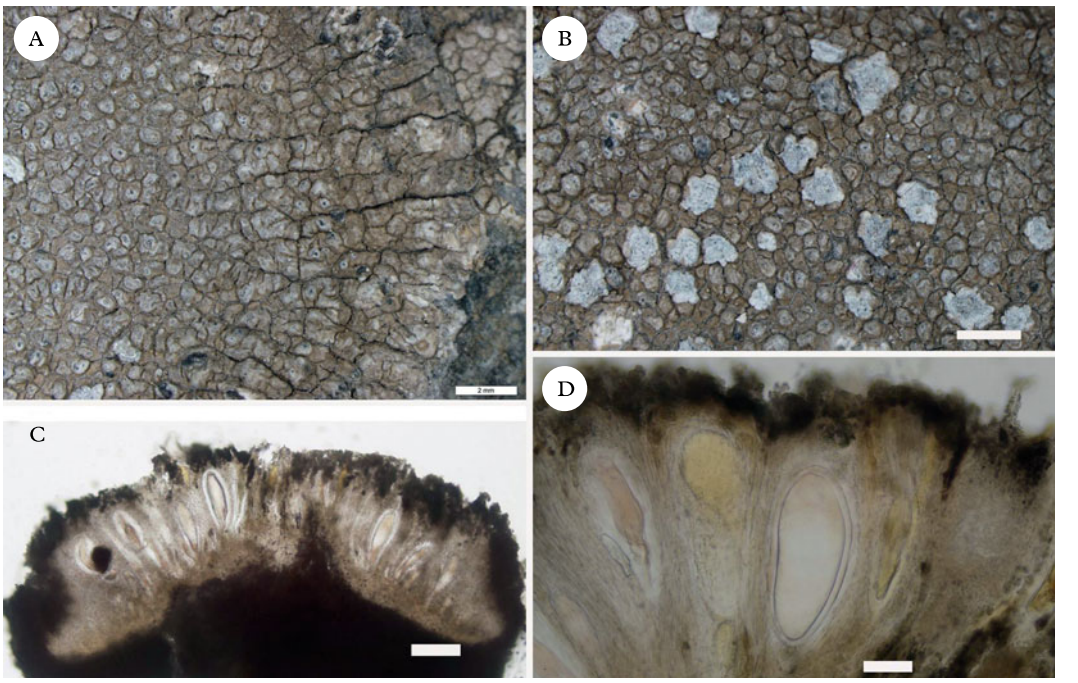

FIG. 1. *Pertusraia weii* Q. Ren. A, thallus showing margin; B, thallus showing fertile verruca; C, cross-section of apothecium; D, ascus with one spore (*Li Lin* 20125913). Scales: A & B = 2 mm; C = 100 μm; D = 50 μm. In colour online.

sunken to level, generally covered by heavy, white or greyish pruina.

Apothecia 1 per verruca. *Hypothecium* brownish. *Epithecium* dark brown to black, K+ violet. *Hymenium* hyaline. *Paraphysoids* reticulate, branched. *Asci* cylindrical, 1-spored, IKI+ blue-green to black. *Ascospores* hyaline, non-septate, ellipsoid to ovoid, K−, 150·0–192·5 × 67·5–82·5 μm; spore walls smooth, not trimmed, *c*. 2·5–7·5 μm thick, 1-layered.

Pycnidia not seen.

Chemistry. Cortex all chemical tests negative, UV−; medulla K+ yellow, C−, KC−, Pd+ orange. Major substance: stictic acid.

Etymology. The new species is named after Jiangchun Wei, a founder of lichenology in China, who has made outstanding contributions to the development of lichenology over recent decades.

Habitat and distribution. The new species grows on calcareous rock at an elevation of 3500 m. It is known only from the type locality.

Notes. *Pertusaria weii* is rare in the Tianshan Mountains of Xinjiang Uygur Autonomous Region. This species has *β*-orcinol depsidone (stictic acid), lacks chlorinated xanthones, and has disciform apothecia and 1- spored asci with single-walled ascospores. The above characters indicate that this new species belongs to the *Variolaria* group of the *Pertusariaceae* (Schmitt & Lumbsch 2004).

Diagnostic characters for the species are a brownish thallus, apothecia somewhat verruciform at first becoming disciform at maturity, asci with one ascospore and stictic acid as the major lichen substance. It superficially resembles the lignicolous *P. qilianensis*, which occurs in the western areas of China. *Pertusaria qilianensis* contains planaic acid, has 2 spores per ascus and grows on rotten wood.

Specimen examined. **China:** *Xinjiang*: Urumqi, Tianshan Mountains, Glacier No.1 at the headwaters of Urumqi River, alt. 3500 m, on calcareous rock, 2011, *Li Lin* 20125916 (SDNU).

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References

Archer, A. W. (1997) The lichen genus *Pertusaria* in Australia. *Bibliotheca Lichenologica* **69:** 1–249.

Culberson, C. F. (1972) Improved conditions and new data for the identification of lichen products by a standardized thin layer chromatographic method. *Journal of Chromatography* **72:** 113–125.

Kirk, P. M., Cannon, P. F., Minter, D. W. & Stalpers, J. A. (eds) (2008) *Ainsworth & Bisby's Dictionary of the Fungi*. 10th edn. Wallingford: CAB International.

Orange, A., James, P. W. & White, F. J. (2001) *Microchemical Methods for the Identification of Lichens*. London: British Lichen Society.

Ren, Q., Sun, Z. S. & Zhao, Z. T. (2008) Two new species of *Pertusaria* (*Pertusariaceae*) from China. *Mycotaxon* **106:** 441–444.

Schmitt, I. & Lumbsch, H. T. (2004) Molecular phylogeny of the *Pertusariaceae* supports secondary chemistry as an important systematic character set in lichen-forming ascomycetes. *Molecular Phylogenetics and Evolution* **33:** 43–55.

Wei, J. C. (1991) *An Enumeration of Lichens in China*. Beijing: International Academic Publishers.