

Studies on the genus *Physconia* from Qinling Mountains of Shaanxi in China

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Abstract: Eight species of the genus *Physconia* are reported from Qinling Mts of Shaanxi according to morphology, anatomy and chemistry. Of those taxa, *P. elegantula*, *P. lobulifera* are new to Shaanxi and *P. venusta* is reported again in Chinese lichen flora. Key to the species of *Physconia* and the simple discussion of these taxa are provided.

Key words: *Physconia*; Qinling Mts; Shaanxi; China

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The genus *Physconia* was divided from *Physcia* mainly founded on the spore type, anatomy of the upper and lower cortices, conidium type, and the chemistry by Poelt (1965). This view was supported by Morberg (1977) and still valid. Briefly the genus is characterized by the scleroplectenchymatous upper cortex of lobes, the lower cortex of the pulverulenta type, the thin-walled spores of the *Physconia* type, and the lack of atranorin.

Eight species of *Physconia* from China were reported by lichenologists (Wei, 1991). They are *P. detersa*, *P. distorta*, *P. enteroxantha*, *P. grisea*, *P. grumosa*, *P. muscigena*, *P. tentaculata*, *P. venusta*. After 1991 one new species (*P. chinensis* J. B. Chen et G. R. Hu, 2003) and four new records (*P. hokkaidensis*, *P. kurokawae*, *P. lobulifera*, Chen & Hu, 2003; *P. elegantula*, Wang et al., 2005) were reported. However, *P. venusta* was excluded from Chinese lichen flora, for the specimens of *P. venusta* were reidentified as *P. distorta* (Chen & Hu, 2003).

In the present paper, we report 8 species of *Physconia* from Qinling Mts. Among them, two are new

records to Shaanxi and *P. venusta* is reported again in Chinese lichen flora. So far, about 13 species of *Physconia* are known in China.

Materials and Methods

The present study is based on the specimens collected in July-August, 2005. All the specimens are preserved in the Lichen Section of Botanical Herbarium, Shandong Normal University.

Dissecting microscope (Motic K-400L) and compound microscope (JNOEC XS-213) were used for the observation and measurements. Photographs were taken with OLYMPUS SZ51 and BX51. Microscopical measurements were made in water mounts and thin layer chromatography (TLC) was performed using standard methods (Culbertson, 1972).

Key to the species of *Physconia* from Qinling Mts

1. Thallus with either isidia or soredia; apothecia present or absent 2
2. Thallus with true isidia 3 *P. elegantula*
2. Thallus with soredia or isidioid, without true isidia 3

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3. Marginal soredia linear or lip-shaped to strongly isidioid 1 *P. detersa*
 3. Marginal soredia isidioid to narrow, weakly dorsiventral lobules 4 *P. grumosa*
 1. Thallus without soredia or isidia, with or without apothecia 4
 4. Thallus with marginal lobules, with or without apothecia 5
 5. Medulla C+rose, KC+rose-red 6 *P. lobulifera*
 5. Medulla C-, KC 5 *P. hokkaidensis*
 4. Thallus not regularly lobulate, often fertile 6
 6. Lower surface pale, usually near the lobe ends lacking a cortex 8 *p. venusta*
 6. Lower surface pale tan to brown on the lobe ends and black inward, corticate throughout 7
 7. Upper cortex scleroplectenchymatous ... 2 *P. distorta*
 7. Upper cortex paraplectenchymatous 7 *P. muscigena*

1. *Physconia detersa* (Nyl.) Poelt, Nova Hedwigia 9:30. (1965)

The species is with marginal liner or lip-shaped soredia (Kashiwa, 1975). It is like *Physconia leucoleiptes*, the latter's lip-shaped soredia are K+ yellow which contain secalonic acid, while that of *Physconia detersa* are K-.

Chemistry: medulla K-, C-; TLC: no lichen substances.

Habitat: on bark or rocks. Distribution: Europe, East Asia and North America; Shaanxi, Yunnan, Hubei, Neimenggu, Jilin, Xinjiang, Heilongjiang and Beijing in China.

Specimens examined: Ningshan County: Pingheliang, alt. 2 100—2 350 m, Wang CL & Yang F NSW010, NSW020, NSW157; Baiyangling, alt. 1 690 m, Guo SX & Shi XL SH320, SH329; Wang CL & Yang F NSW018-1; Xunyangba, alt. 1 120 m, Li YJ & Fu W L-488, L-490, L-491; Zhongshansi, alt. 1 610 m, Guo SX & Shi XL Ql580; Shangbaiyuan, alt. 1 825 m, Guo SX Ql393.

2. *Physconia distorta* (With.) Laundon, Lichenologist 16(3):218. (1984)

Among the specimens collected, the lobes of some specimens are very narrow but pruinose. This is one of the most common species of *Physconia* in China and mainly on trees.

Chemistry: medulla K-, C-; TLC: no lichen substances.

Habitat: on bark. Distribution: Europe, East Asia,

North America and South America; Shaanxi, Yunnan, Xizang, Neimenggu, Jilin, Xinjiang, Heilongjiang and Beijing in China.

Specimens examined: Ningshan County: Pingheliang, alt. 2 010—2 350 m, Guo SX & Shi XL SH125, SH288, SH290, SH432; Li YJ & Fu W L-496, L-560, L-638, L-674, L-704, L-739, L-760, L-938, L-947, L-969; Banqiaogou, alt. 1 530—1 610 m, Li YJ & Fu W L-608, L-774; Baiyangling, alt. 1 620—1 700 m, Guo SX & Shi XLSH318-1, SH324, SH326; Li YJ & Fu W L-514, L-888, L-914; Mt. Taibai: Shangbaiyun, alt. 1 800—1 850 m, Guo SX & Shi XL Ql392, Ql395; Baiyunguan, alt. 2 100—2 150 m, Guo SX & Shi XL Ql371, 491; Wang CL & Yang F TBW054; Luotuosi, alt. 2 000—2 100 m, Guo SX & Shi XL Ql362, Ql366; Wang CL & Yang F TBW212, TBW352.

3. *Physconia elegantula* Essl., Mycotaxon 51:92. (1994) This species is first reported in Shaanxi, which is unique in the genus characterized by the distinctive true isidia. The isidia is sparse to abundant, arising as spherical papillae, becoming cylindrical-coralloid and at times growing into lobules; Most of the sorediate species of *Physconia* can produce strongly isidioid soredia at times, especially in older specimens or older parts of thallus, but lack a true cortex.

Chemistry: medulla K-, C-; TLC: no lichen substances.

Habitat: on bark. Distribution: North America; Xinjiang in China.

Specimens examined: Mt. Taibai: Shangbaiyun, alt. 1 860 m, Guo SX & Shi XL Ql569; Dadian, alt. 2 240 m, Guo SX & Shi XL Ql78.

4. *Physconia grumosa* Kashiw. et Poelt, Ginkgoana 3:56. (1975)

It resembles *Physconia detersa*, from which it can be distinguished by the presence of granular lobules, but the specimens examined are quite difficult to distinguish.

Chemistry: medulla K-, C-; TLC: no lichen substances.

Habitat: on bark or rocks. Distribution: East Asia; Shanxi, Hubei, Heilongjiang, Jilin, Neimenggu, Sichuan, Anhui and Hebei in China.

Specimens examined: Ningshan County, Pingheliang, alt. 2 100—2 350 m, Guo SX & Shi XL SH125, SH177, SH288, SH290; Mt. Taibai; Yingtou, alt. 1 180 m, Guo SX & Shi XL Q1213; Dadian, alt. 2 240—2 300 m, Wang CL & Yang F TBW192.

5. *Physconia hokkaidensis* Kashiw., *Ginkgoana* 3: 57. (1975)

This species is on moss or trees, which is characterized by the marginal lobules. It differs from *P. lobulifera* by the lack of Gyrophoric acid in the medulla.

Chemistry: medulla K-, C-; TLC: no lichen substances.

Habitat: on bark and rocks. Distribution: Japan; Shaanxi Xizang, Hubei, Hunan, Heilongjiang, Neimenggu, Anhui, Yunnan, Chongqing, Shanxi, Jilin and Sichuan in China.

Specimens examined: Mt. Taibai; Fangyangsi, alt. 3 100—3 200 m, Guo SX & Shi XL Q1255, Q1405, Q1759; Li YJ & Fu W L-017, L-103, L-115, L-188; Ren Q 05-023, 05-052, 05-075, 05-100; Wengongmiao, alt. 3 360—3 600 m, Guo SX & Shi XL Q1144, Q1270; Li YJ & Fu W L-129, L-130.

6. *Physconia lobulifera* Kashiw., *Ginkgoana* 3: 60. (1975)

It is another new record species to Shaanxi, which is characterized by the marginal lobules, the C+ rose reaction in the medulla and the present of gyrophoric acid.

Chemistry: medulla K-, C+ rose; TLC: gyrophoric acid.

Habitat: on bark. Distribution: Japan; Jilin in China.

Specimens examined: Ningshan County, Pingheliang, alt. 2 290 m, Li YJ & Fu W L-705, L-708.

7. *Physconia muscigena* (Ach.) Poelt, *Nova Hedwigia* 9: 30. (1965)

The species is determined by the ascending growth form, concave lobes, the distinctive substrate moss, and the paraplectenchymatous upper cortex.

Chemistry: medulla K-, C-; TLC: no lichen substances.

Habitat: on moss. Distribution: Europe, East Africa and North America; Shaanxi, Xinjiang, Hunan, Xi-

zang, Shanxi, Jilin and Sichuan in China.

Specimens examined: Mt. Taibai; Shangbansi, alt. 3 500 m, Guo SX & Shi XL Q1063; Wengongmiao, alt. 3 620 m, Ren Q 05-125.

8. *Physconia venusta* (Nyl.) Poelt

This species is most similar to *P. distorta*. The lower surface of the latter is pale brown to black, while that of the former is pale tan and lacking a cortex near the lobe ends. In China it was only reported by Tchou (1935), but the specimens were reidentified as *P. distorta*. As a result, *P. venusta* was excluded from Chinese lichen flora (Chen & Hu, 2003). In our study, the specimens collected from Qinling is identified as *P. venusta* because of the pale tan lower surface and the lack of a lower cortex near the lobe end.

Chemistry: medulla K-, C-; TLC: no lichen substances.

Habitat: on bark. Distribution: South Europe.

Specimens examined: Mt. Taibai; Shangbaiyun, alt. 1 700—1 850 m, Guo SX & Shi XL Q1053, Q1136-1, Q1208, Q1227, Q1228, Q1554, Q1569, Q1675; Ningshan County, Pingheliang, alt. 2 100 m, Li YJ & Fu W L-758, L-759; Changan County, Jiwozi, alt. 1 780 m, Li YJ & Fu W L-458, L-459.

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无籽(少籽)罗汉果培育成功(简报)

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广西植物研究所和桂林亦元生现代生物技术有限公司经过多年共同的研究,对桂林特色植物罗汉果进行了品种资源调查、多倍体诱导、不同倍性配子杂交与品种选育,成功研究出无籽(少籽)罗汉果。

通过栽培试验研究表明,该无籽(少籽)罗汉果品种表现出良好的适应性和生长发育状况;现蕾开花早,抗逆性强,丰产稳定,多为大中果以上,果实无籽或极少籽;且果型好,口感好,果皮韧性强,采收包装时不易破损,常温下存放时间长;甜甙含量和提取率均高于当前罗汉果主栽品种,制作各种产品时原

料利用率高;在农业生产上适合各地区种植并值得大力推广。

无籽(少籽)罗汉果将使新型罗汉果品种资源的培育和推广应用进入一个新的阶段;在罗汉果提取加工行业应用前景十分可观,可大幅增加农民收益;对于提高罗汉果产品的核心竞争力,促进产业升级,增加出口创汇,形成可持续发展的产业格局,带动罗汉果产业健康稳定、高速发展具有重要意义;将使整个罗汉果产业迈向新的里程碑。

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中国陕西秦岭大孢蜈蚣衣属地衣的研究

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摘 要: 对采自陕西秦岭地区的大孢蜈蚣衣属地衣从形态学、解剖学、化学方面进行了研究,共鉴定出本属地衣 8 种,其中 *P. lobulifera*, *P. elegantula* 为陕西新记录种, *P. venusta* 又被列入中国名录。本文给出了分种检索表及种的简要讨论,并附有作者鉴定的标本。

关键词: 大孢蜈蚣衣属; 秦岭; 陕西; 中国