



中国星裂衣属二新记录种

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中国星裂衣属二新记录种

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摘要: 基于形态学、解剖学和化学特征, 报道了 2 种星裂衣属(*Astrochapsa*)中国新记录种: 假疱星裂衣(*A. pseudophlyctis*)和察氏星裂衣(*A. zahlbruckneri*)。假疱星裂衣的主要识别特征是地衣体壳状, 皮层较为致密, 子囊盘圆形至不规则形, 子囊孢子无色, 砖壁型, 大小为 30~75 $\mu\text{m} \times 10\sim 25 \mu\text{m}$, 未检测到次级代谢产物。察氏星裂衣的主要识别特征是地衣体壳状, 子囊盘圆形至不规则形, 盘缘凸起外翻且其内表面为白色, 子囊孢子无色或浅棕色, 砖壁型, 大小 55~90 $\mu\text{m} \times 22\sim 28 \mu\text{m}$, 含有斑点酸。

关键词: 地衣型真菌; 疣孔衣科; 星裂衣属; 新记录

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Two Newly Recorded Species of *Astrochapsa* from China

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Abstract: Two *Astrochapsa* species, *A. pseudophlyctis* and *A. zahlbruckneri*, are reported from China for the first time based on the morphological, anatomical and chemical characteristics. *Astrochapsa pseudophlyctis* is characterized by the crustose thallus with a compact surface, rounded to angular apothecia in outline, hyaline and muriform ascospores sized 30–75 $\mu\text{m} \times 10\sim 25 \mu\text{m}$, and absence of lichen compounds detected. *Astrochapsa zahlbruckneri* is characterised by the crustose thallus, usually angular-rounded to irregular apothecia in outline with a strongly raised, jagged to typically lobed, upright to recurved margin, hyaline or slightly brownish and densely muriform ascospores (55–90 $\mu\text{m} \times 22\sim 28 \mu\text{m}$), and presence of stictic acid.

Key words: Lichenized fungi; Thelotremataceae; *Astrochapsa*; New record

The genus *Astrochapsa* Parmen, Lücking & Lumbsch was divided from the genus *Chapsa* A. Massal in 2012 following a phylogenetic analysis^[1]. Compared to *Chapsa* s. str., the genus *Astrochapsa* is characterized by the more frequently dense cortex, recurved apothecial margin, and exclusively non-distoseptate and non-amyloid ascospores^[1]. Eighteen species, including *A. pseudophlyctis* and *A. zahlbruckneri* described as *Chapsa* s. lat. species from 1923 to 2012, were introduced into *Astrochapsa*. Subsequently,

eleven new species such as *A. albella* Sipman, *A. elongata* Poengs. & Lumbsch and *A. martinicensis* Ertz & Borgato, were added to this genus^[2–10]. A total of 29 species are currently accepted in the genus worldwide^[8–10].

Some smaller related genera have also been reported from China in recent years, such as *Carbacanthographis* Staiger & Kalb^[11–12], *Chapsa* A. Massal.^[13], *Fissurina* Fée^[14], *Myriotrema* Fée^[15], and *Reimnitzia* Kalb^[16]. Up to now, only one species of *Astrochapsa*,

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A. mirabilis (Zahlbr.) Lücking & S. Joshi (= *Phaeographina mirabilis* Zahlbr.), has been known from Fujian in China^[17]. During our ongoing studies on Thelotremataceae in China, another two species of *Astrochapsa* were found and reported here.

1 Materials and methods

Specimens examined in this study are deposited in the Herbarium of Cryptopams, Kunming Institute of Botany, Academia Sinica-Lichenes (KUN-L) and the Fungarium of the College of Life Sciences, Liaocheng University (LCUF). The morphology and anatomy were observed using a stereomicroscope OLYMPUS SZX16 and light microscopes OLYMPUS BX53. Sections of thalli and ascomata were mounted in water, in which K (a 10% aqueous solution of potassium hydroxide), C (a saturated solution of aqueous sodium hypochlorite) and I (Lugol's iodine) test were taken. The lichen substances were detected using thin-layer chromatography (TLC)^[18–20].

2 Results

Two species of *Astrochapsa* in family Thelotremataceae (lichenized Ascomycota: Ostropales) are described as new to China here. The specimens was taken from southern China.

Astrochapsa Parnmen, Lücking & Lumbsch, PLoS ONE 7(12): e51392, 8 (2012)

Type species: *Astrochapsa astroidea* (Berk. & Broome) Parnmen, Lücking & Lumbsch, PLoS ONE 7(12): e51392, 8 (2012)

Thallus crustose with dense cortex; apothecia erumpent, disc exposed, rounded to irregular in outline with lobulate to usually recurved margin; excipulum usually brown; ascospores septate to muriform, fusiform-ellipsoid to oblong-cylindrical, with slightly thickened septa and subdistoseptate, hyaline to rarely brown, non-amyloid ascospores; the chemistry of *Astrochapsa* is frequently stictic acid group substances or no substances.

Astrochapsa pseudophlyctis (Nyl.) Parnmen,

Lücking & Lumbsch, PLoS ONE 7 (12): e51392, 9 (2012). (Fig. 1: A–D)

≡ *Graphis pseudophlyctis* Nyl., in Hue, Nouv. Arch. Mus. Hist. Nat., Paris, 3 sér. 3: 163 (1891).

≡ *Graphina pseudophlyctis* (Nyl.) Zahlbr., Denkschr. Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 83: 110 (1909)

≡ *Chapsa pseudophlyctis* (Nyl.) Frisch, Bibliotheca Lichenol. 92: 120 (2006).

Thallus crustose, yellow or brown, continuous, slight uneven, slightly glossy; upper surface compact or slightly mealy. Apothecia erumpent or immersed, angular rounded to irregular in outline, 0.25–0.35 mm in diam, margin raised but often eroded, jagged to usually lobed; disc brownish, exposed, usually pruinose; proper margin dark brown, fissured and recurved, striated. Excipulum absent, not carbonized, 7–10 μm thick; epithecium dark brown, 12–20 μm thick; hymenium clear, limpid, 100–125 μm high; asci clavate to fusiform, 65–110 μm × 18–30 μm; ascospores 2–6/ascus, fusiform, hyaline, muriform, 10–14 × 4–6 loculate, thick-walled, halonate, 30–75 μm × 10–25 μm, I-; paraphyses simple, straight, unbranched, about 30 μm in length, tips expanded and adspersed with brownish granules.

Chemistry: K-, C- and P-; no lichen compounds detected by TLC.

Substrate: On rock.

Distribution: Africa (Sierra Leone, Mozambique); America (French Guiana, Brazil); Asia (Malaysia, Thailand, India)^[21–22]. New to China.

Specimens examined: CHINA. Yunnan, Xiping County, Mt. Mopanshan, alt. 2 420 m, 20 Dec. 2008, L.S. Wang 08-29821 (KUN-L).

Remarks: The species is characterized by its pale-olive thallus lacking secondary compounds, pale brown apothecial disc, distinctly white pruinose, round to angular apothecia with fissured and recurved margins, and hyaline muriform ascospores. It is similar to *Chapsa indica* A. Massal. and *C. leprocarpa* (Nyl.) A. Frisch in having ecorticate brownish to olive-grey thallus, rounded to angular apothecia and pruinose disc, but *C. indica* can be distinguished by

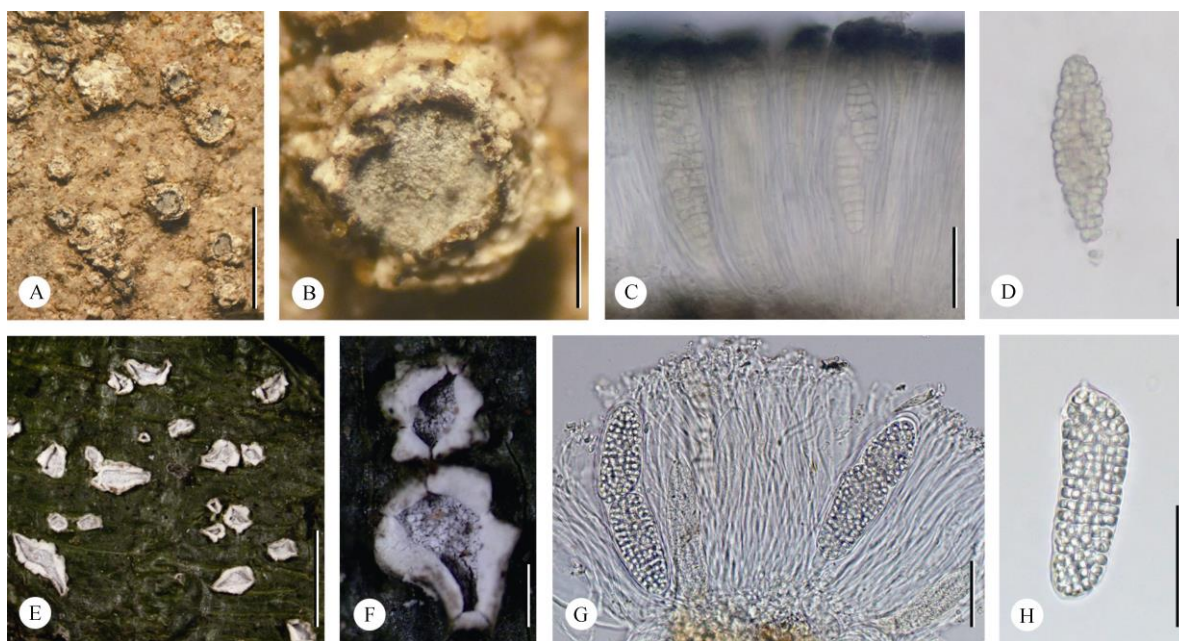


Fig. 1 *Astrochapsa pseudophlyctis* (08-29821, KUN-L) (A–D) and *A. zahlbruckneri* (HN19100, LCUF) (E–H). A, E: Thallus (Bar=1 mm); B, F: Ascumata (Bar=100 μm); C: Hymenium with asci (Bar=50 μm); D, H: Ascospore (Bars: D=20 μm , H=50 μm); G: Hymenium with 2-spored asci (Bar=50 μm).

the transversely septate ascospores, and *C. leprocarpa* consistently bearing a single larger ascospore in the asci^[13,22]. The substrate of *A. pseudophlyctis* was bark as previously reported^[21–22], but the specimen examined in this study was collected on the rock. The species is actually more like *Pseudochapsa* in disc and ascospores, and it has ever been listed as *P. pseudophlyctis* by Paping et al. in the FIELD GUIDES (<https://fieldguides.fieldmuseum.org/guides/guide/545>, 2013), we also suggest that this species should be introduced into the genus *Pseudochapsa* and as synonym as *P. pseudophlyctis* in the future based on the weakly recurved margin of apothecia and fusiform ascospores with thickened septa and rounded lumina. Because of the lack of its molecular data, let's do this name under genus *Chapsa* for the moment.

Astrochapsa zahlbruckneri (Redinger) Parmen, Lücking & Lumbsch, PLoS ONE 7(12): e51392, 9 (2012). (Fig. 1: E–H)

≡ *Phaeographina zahlbruckneri* Redinger, Ark. Bot. 26A (1): 93 (1934).

≡ *Chapsa zahlbruckneri* (Redinger) Frisch, Biblioth. Lichenol. 92: 123 (2006).

Thallus corticolous, crustose, usually grey-olive

to brownish-olive, continuous; upper surface compact and slightly uneven to verrucose, weakly splitting, a thin white medullary layer usually present. Apothecia dispersed, angular-rounded to elongate, sometimes irregular in outline, simple or sometimes branched, 0.8–2.1 mm×0.45–0.65 mm; margin thick, strongly raised, jagged to typically lobed, upright to recurved, with a compact, white inner surface. Disc partly exposed with slightly lobulate margin, white pruinose. Epithecium dark brown, 35–50 μm thick, carbonized at both ends and bottom; hymenium 130–160 μm high, limpid, non-amyloid; asci clavate, colorless, 120–150 μm ×25–35 μm ; ascospores 1–2/ascus, hyaline or slightly brownish, densely muriform, 55–90 μm ×22–28 μm , with rounded ends and a narrow halo, I-; para- physes parallel, straight, simple to sparingly branched in the upper half, tops slightly thickened.

Chemistry: K⁺ yellow, C⁻, P⁺ orange; containing stictic acid by TLC.

Substrate: On bark.

Distribution: Africa (Cameroon); Southern America (Brazil); Asia (Thailand)^[21]. New to China.

Specimens examined: CHINA. Hainan, Changjiang County, Bawangling National Reserve, alt. 490 m, 8 Dec. 2019, Y. H. Ju HN19100 (LCUF).

Remarks: The species is characterized by its grey-olive to brownish-olive thallus, clear hymenium, usually white pruinose apothecial disc, 1–2(–4)-spored asci, hyaline ascospores in various size (usually $62\text{--}95\ \mu\text{m}\times 25\text{--}27\ \mu\text{m}$), and presence of stictic acid. It is similar to *A. mastersonii* in thallus, hymenium and ascomata, but the latter species has longer and much narrower ascospores ($90\text{--}130\ \mu\text{m}\times 17\text{--}25\ \mu\text{m}$)^[8].

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References

- [1] PARNMEN S, LÜCKING R, LUMBSCH H T. Phylogenetic classification at generic level in the absence of distinct phylogenetic patterns of phenotypical variation: A case study in Graphidaceae (Ascomycota) [J]. PLoS ONE, 2012, 7(12): 1–13. doi: 10.1371/journal.pone.0051392.
- [2] SIPMAN H J M. New species of Graphidaceae from the Neotropics and Southeast Asia [J]. Phytotaxa, 2014, 189(1): 289–311. doi: 10.11646/phytotaxa.189.1.21.
- [3] LÜCKING R. Three new species of thelotremoid Graphidaceae from tropical Africa [J]. Phytotaxa, 2014, 189(1): 176–179. doi: 10.11646/phytotaxa.189.1.12.
- [4] FERRARO L I, LÜCKING R, APTROOT A, et al. New Graphidaceae from northern Argentina [J]. Phytotaxa, 2014, 189(1): 137–146. doi: 10.11646/phytotaxa.189.1.9.
- [5] LÜCKING R. Thelotremoid Graphidaceae from the NYBG herbarium: New species, range extensions, and a forgotten lichen [J]. Opuscula Philolichenum, 2015, 14: 1–57.
- [6] WEERAKOON G, NGO K M, LUM S, et al. On time or fashionably late for lichen discoveries in Singapore? Seven new species and nineteen new records of Graphidaceae from the Bukit Timah Nature Reserve, a highly urbanized tropical environment in South-East Asia [J]. Lichenologist, 2015, 47(3): 157–166. doi: 10.1017/S0024282915000043.
- [7] LIMA E L, LÜCKING R, CÁCERES M E S. Three new species of Graphidaceae (Ostropales, Ascomycota) from atlantic forest in north-east Brazil [J]. Phytotaxa, 2016, 278(2): 163–170. doi: 10.11646/phytotaxa.278.2.6.
- [8] BORGATO L, ERTZ D. A new species of *Astrochapsa* (Graphidaceae) from Martinique, with a world-wide key to the species [J]. Phytotaxa, 2018, 371(2): 102–110. doi: 10.11646/phytotaxa.371.2.4.
- [9] JOSHI S, UPRETI D K, DIVAKAR P K, et al. A re-evaluation of thelotremoid Graphidaceae (lichenized Ascomycota: Ostropales) in India [J]. Lichenologist, 2018, 50(6): 627–678. doi: 10.1017/S0024282918000439.
- [10] POENGSUNGNOEN V, BUARUANG K, VONGSHEWARAT K, et al. Three new crustose lichens from Thailand [J]. Bryologist, 2019, 122(3): 451–456. doi: 10.1639/0007-2745-122.3.451.
- [11] JIA Z F, LI J, YANG M Z. *Carbacanthographis* (Graphidaceae), a lichen genus new to Guangxi [J]. Guihaia, 2017, 37(2): 231–233. doi: 10.11931/guihaia.gxzw201504003.
- [12] LIU F Y, DOU M Z, ZHENG X J, et al. A new record species of lichen genus *Carbacanthographis* to China [J]. J Liaocheng Univ (Nat Sci), 2018, 31(1): 80–82. doi: 10.19728/j.issn1672-6634.2018.01.012.
- [13] XU L L, WU Q H, WANG Q D, et al. *Chapsa* (Graphidaceae, Ostropales), a lichen genus new to China [J]. J Trop Subtrop Bot, 2016, 24(5): 495–498. doi: 10.11926/j.issn.1005-3395.2016.05.003.
- [14] JIA Z F, LÜCKING R, LI J, et al. A preliminary study of the lichen genus *Fissurina* (Graphidaceae) in China [J]. Mycosystema, 2018, 37(7): 881–895. doi: 10.13346/j.mycosystema.180062.
- [15] XU L L, JIA Z F. Lichen genus *Myriotrema* and species *M. viridialbum* new to China [J]. J Fungal Res, 2015, 13(3): 132–135. doi: 10.13341/j.jfr.2014.1066.
- [16] DOU M Z, YAO Z T, JIA Z F. *Reimnitzia*, a newly record lichen genus to china [J]. J Trop Subtrop Bot, 2019, 27(6): 726–730. (in Chinese) doi: 10.11926/jtsb.4035.
- [17] JIA Z F, LÜCKING R. Resolving the genus *Phaeographina* Müll. Arg. in China [J]. MycoKeys, 2017, 21: 13–32. doi: 10.3897/mycokeys.21.11986.
- [18] CULBERSON C F, KRISTENSSON H. A standardized method for the identification of lichen products [J]. J Chrom A, 1970, 46: 85–93.
- [19] CULBERSON C F. Improved conditions and new data for identification of lichen products by standardized thin-layer chromatographic method [J]. J Chrom A, 1972, 72(1): 113–125.
- [20] WHITE F J, JAMES P W. A new guide to microchemical techniques for the identification of lichen substances [J]. Brit Lich Soc Bull, 1985, 57(Suppl.1): 1–41.
- [21] BUARUANG K, BOONPRAGOB K, MONGKOLSUK P, et al. A new checklist of lichenized fungi occurring in Thailand [J]. MycoKeys, 2017, 23: 1–91. doi: 10.3897/mycokeys.23.12666.
- [22] JOSHI S, UPRETI D K, NAYAKA S. The lichen genus *Chapsa* (Graphidaceae) in India [J]. Mycotaxon, 2012, 120(1): 23–33. doi: 10.5248/120.23.