A new lichenized fungus *Sarcogyne parviascifera* (Acarosporaceae, Ascomycota)

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**Abstract:** A new lichenized fungus *Sarcogyne parviascifera* is described based on the pheno-genotypic analysis. The diagnosis, description with figures of the new species are given.

**Key words:** *Sarcogyne parviascifera*, diagnosis, description, Acarosporaceae

INTRODUCTION


1 MATERIALS AND METHODS

The collection of *Sarcogyne* examined was collected by Yang Jun (No. AS019) from Ansai county,
Shaanxi, and is preserved in the Herbarium Mycologicum Academiae Sinicae-Lichenes (HMAS-L).

The cultured strain isolated from the collection is conserved in Lichen Biology Laboratory of the State Key Lab of Mycology, Institute of Microbiology, Chinese Academy of Sciences.

The dissecting microscope (Motic SMZ-168) and compound microscope (Olympus BX 50) were available for morphological and anatomical studies.

DNA was extracted from Sarcogyne AS019 by modified CTAB method (Cubero et al. 1999). Primer pair ITS 5 and ITS 4 (White et al. 1990) were used to amplify nrDNA ITS region (Table 1). PCR amplification was performed using a Biometra T-Gradient Thermal Cycler.

All ITS sequences of other species, such as S. privigna (JX036128, JX036126, JX036090), S. arenosa (LN810851), and S. regularis (AY853393) for in-group, and that of Pleopsidium chlorophanum (AY853384) and Timdalia intricata (AY853396) for out-group were downloaded from GenBank. All sequences were aligned by Muscle implemented with software MEGA 5 (Tamura et al. 2011). Phylogenetic tree was constructed by neighbor joining (NJ) method and the reliability of the inferred tree was tested by 1 000 bootstrap replication.

2 RESULTS AND DISCUSSIONS

2.1 Morphological and anatomical analyses of Sarcogyne AS019

The Sarcogyne AS019 is similar in morphology to Sarcogyne regularis Körb. (Fig. 1A), but differs from the latter by smaller asci (Fig. 1B, C), and smaller number of spores per ascus (Fig. 1C, D; Table 1).

![Fig. 1 Sarcogyne AS019. A: Habit of apothecia; B: Ascus within hymenium; C: Ascus after squashing; D: Ascospores; E, F: Sections of apothecia. Scale bars: A=1mm; B, C=10μm; D, E, F=20μm.](image)

| Table 1 A comparison of some characteristics between Sarcogyne AS019 and Sarcogyne regularis |
|---------------------------------|-----------------|-----------------|
| Content                        | Sarcogyne AS019 | Sarcogyne regularis |
| Thallus                        | Endolithic      | Endolithic (Nash III et al. 2007, p. 295) |
| Apothecia                      | Circular, sessile, disc black, pruinose | Circular, sessile, disc black, pruinose (ibid) |
| Size of asci                   | 40–50 (--62.5)×5–10(--15)μm  | 60–85×14–18(--27)μm (ibid) |
| Spore numbers per ascus        | 90–100          | 100–200 (ibid)   |
2.2 Analysis of molecular systematics of *Sarcogyne* AS019

The four species of *Sarcogyne*, *S. privigna*, *S. arenosa*, *S. regularis*, and S. AS019 as in-group are clustered together in a same group of the four different clades. The S. AS019 is fallen in different clade from that of the similar species *S. regularis*.

The analysis of molecular systematics supports the position of new species *Sarcogyne* AS019 (Fig. 2).

The nomenclature, diagnosis, and description for it are given as follows:

*Sarcogyne parviascifera* Jiao-Hong Wang & J.C. Wei, *sp. nov.*  

**FungalName** FN 570265

Diagnosis: The new species *Sarcogyne parviascifera* is similar to *S. regularis* in apothecia, but differs in having smaller asci [40–50(–62.5)×5–10(–15)μm], and containing less ascospores (90–100) per ascus. The analysis of molecular systematics supports also the position of the new species *Sarcogyne parviascifera*.

Etymology: The epithet of this new species “parviascifera” is a Latin compound adjective composed of a Latin adjective “parvus, a, um adj.”, a Latin noun “ascus, i m.” and a Latin suffix “-fer, adj. A “, means bearing small asci.


Description: Thallus endolithic. Apothecia lecideine type, numerous, sessile, circular, 0.25–0.75mm wide, 0.25–0.38mm thick. Disk black, plane or convex, rough, slightly pruinose (Fig. 1). True exciple 62.5μm thick, dark brown (Fig. 1E). Epithecium 12.5–17.5μm thick, dark brown (Fig. 1E, F). Hymenium pale brown, 40–75μm tall (Fig. 1E, F); Paraphyses 1.3–2.5μm wide, simple, apically swollen, conglutinated but loosing in K. Hypothecium pale brown, 10–15μm. Subhypothecium 10–15μm thick, brown. Asci clavate, 40–50(–62.5)×5–10(–15)μm, 90–100-sporous. Ascospores hyaline, usually broadly ellipsoid, sometimes appearing globose, 3–5×2–3μm, I+ blue, IKI+ blue-red.

![Fig. 2 NJ tree based on nrDNA ITS sequences. Sarcogyne privigna, S. arenosa, S. regularis, and S. AS019 as in-group; Pleopsisidium chlorophanum and Timdalia intricata as out-group. Bootstrap=1 000. Genetic distance scale=0.02. Numbers at nodes present the bootstrap support value (numbers<50 not shown).](http://journals-myco.im.ac.cn)
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