

Natural Sciences

Original article

New records and a key for species of *Synarthonia* (lichenized Ascomycota: Arthoniaceae) in Colombia

Nuevos registros y una clave para las especies de *Synarthonia* (Ascomycota liquenizada: Arthoniaceae) en Colombia

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Abstract

For the first time in Colombia, *Synarthonia inconspicua* (Stirt.) Van den Broeck & Ertz, *S. muriformis* Van den Broeck, Frisch & Ertz, and *S. xanthosarcographoides* Aptroot are reported and a valid diagnosis is provided for the recently described *S. robertiana* Soto-M & Aptroot, a new species from the dry forest of Valle del Cauca characterized by presenting septate ascospores and UV+ yellow stromata. A key to the species of the genus in Colombia is also presented.

Keywords: Liches; Tropical dry forest; Fungi.

Resumen

Se reportan por primera vez para Colombia *Synarthonia inconspicua* (Stirt.) Van den Broeck & Ertz, *S. muriformis* Van den Broeck, Frisch & Ertz y *S. xanthosarcographoides* Aptroot. Además, se da una diagnosis válida de *S. robertiana* Soto-M & Aptroot, una nueva especie recién descrita proveniente del bosque seco del Valle del Cauca que se caracteriza por presentar ascosporas septadas y estromas UV+ amarillas, y se presenta una clave para las especies del género en Colombia.

Palabras clave: Líquenes; Bosque seco tropical; Fungi.

Introduction

The current catalog of lichenized fungi in Colombia registers 1,732 species (Lücking, *et al.*, 2021), but there are still many species to be discovered or described since almost 2,800 are estimated for the country (Soto, *et al.*, 2021). Arthoniaceae is one of the largest lichen families in the Neotropics with approximately 56 species occurring in Colombia. Currently, several new species of this family are being described but there are still genera with few records. *Synarthonia* is a recently recognized genus with several new records for the Neotropics. It is characterized by mono- to pluri-carpocentral synascomata immersed in a pseudostroma. The ascospores are similar to those of *Arthonia* and range from septate (macrocephalic) to muriform (Joseph & Sinha, 2015). Some species show a UV+ yellow reaction due to the presence of lichexanthone as is the case in *S. xanthosarcographoides* (Aptroot & Spielman, 2020).

In the framework of the INCIVA tropical dry forest project, new Arthoniaceae species have been documented for Colombia (Soto, *et al.*, 2021), among them, *Synarthonia robertiana*. However, since both the diagnosis and the description were given in Spanish, the name was not validly established and is validated here now. The genus *Synarthonia* was not previously known in Colombia (Lücking, *et al.*, 2021) but three other species have already been found besides *S. robertiana*. Here these new *Synarthonia* records for Colombia with a key to all four known species are documented.

Citation: Soto-Medina E. New records and a key for species of *Synarthonia* (lichenized Ascomycota: Arthoniaceae) in Colombia. Rev. Acad. Colomb. Cienc. Ex. Fis. Nat. 46(178):165-168, enero-marzo de 2022. doi: <https://doi.org/10.18257/raccefyn.1558>

Editor: Elizabeth Castañeda

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Received: September 8, 2021

Accepted: February 8, 2022

Published: March 23, 2022



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Materials and methods

The material deposited in the herbaria TULV (INCIVA) and CUVC at *Universidad del Valle*, Colombia, collected in the framework of the project aimed at contributing to the conservation of Valle del Cauca dry tropical forests (*OCAD n° 61 del 7/11/2017 bpin_2016000100013 de 7 de noviembre 2017*), was examined. The samples were examined to determine the characteristics of the thallus and ascomata, as well as their reaction to UV light and the type and size of the ascospores, using a stereoscope (YAXUN YXAK21) and a microscope (CARL ZEISS Jena) while ascospores were measured with a micrometer ruler. All samples were photographed with a VIVITAR 100 mm macro lens adjusted to a CANON T3 digital camera. **Van den Broeck, et al.** (2018) was used to key out the species.

Results and discussion

Synarthonia inconspicua (Stirt.) Van den Broeck & Ertz, *S. muriformis* Van den Broeck, Frisch & Ertz, and *S. xanthosarcographoides* Aptroot are recorded here for the first time in Colombia. *S. inconspicua* has a pantropical distribution but *S. muriformis* has only been reported in Madagascar thus far (**Van den Broeck, et al.**, 2018), which means this the first record for the Neotropics. *S. xanthosarcographoides* was recently described in Brazil (**Aptroot & Spielman**, 2020) so this is the second record for the species in the region. In total, four species of the genus are now known in Colombia including *S. robertiana* Soto-M. & Aptroot (**Soto, et al.**, 2021), which has been recently described in the country, although it requires validation because the original diagnosis and description were both in Spanish and they are required in Latin or English by the Code (**Greuter & Rankin-Rodríguez**, 2018). Here the name is validated as follows:

Synarthonia inconspicua (Stirt.) Van den Broeck & Ertz (Figure 1)

Description. Thallus corticolous, crustose, smooth, inconspicuous to whitish. Ascomata solitary, rounded, disc with white pruina. Ascospores septate, macrocephalic, (15–) 16.5–21.3 (–24.5) × (5.3–) 6.2–7.7 (–8.5) μm, hyaline (**Van den Broeck, et al.**, 2018).

Specimen examined. COLOMBIA: Departamento Valle del Cauca, Municipio de Tuluá, bosque seco tropical, La Valenzuela, 4°01.297'N 76°21.930'W, ca 1159 m. 22-08-2020. Soto sn (TULV).

Synarthonia muriformis Van den Broeck, Frisch & Ertz (Figure 1)

Description. Thallus corticolous, crustose, smooth, whitish to greyish green. Ascomata solitary, rounded, with a thick white pruine. Ascospores muriform, (22.0–36.5 × 10.0–14.5 μm, hyaline (**Van den Broeck, et al.**, 2018).

Specimen examined. COLOMBIA: Departamento Valle del Cauca, Municipio de Roldanillo, bosque seco tropical, Higueroncito, 4°29'52.2"N 76°06'39.1"W, ca 998 m. 16/11/2020. Soto 117H (TULV).

Synarthonia robertiana Soto-M & Aptroot, sp. nov. MB 842197

Synarthonia robertiana Soto-M. & Aptroot in Soto-Medina, et al., Rev. Acad. Colomb. Cienc. Ex. Fis. Nat. 45(175): 418 (2021); nom. inval. (ICN Art. 39.2).

Diagnosis: A new species presenting ascomata with lichexanthone (UV+ yellow) as in *S. xanthosarcographoides* but with hyaline spores, 3–4 septate, and 28–32 × 9–14 μm in size. For a full description, see **Soto, et al.** (2021: 418).

TYPE: COLOMBIA. VALLE DEL CAUCA: Municipio de Riofrío, Hacienda la Gitana, ca 1150 m, 4,1666 N, 76,336W, sobre corteza en bosque de transición, 27 agosto 2020, E. Soto 158G (holotipo: TULV 19108; isotipo: CUVC).

Synarthonia xanthosarcographoides Aptroot (Figure 2)

Description. Thallus corticolous, crustose, smooth, inconspicuous to whitish. Ascomata solitary, rounded, in branched white stromata. Ascospores 7 × 0–2-septate, 20–22 × 8–9 μm, brown grayish (**Aptroot & Spielman**, 2020). UV+ yellow stromata.

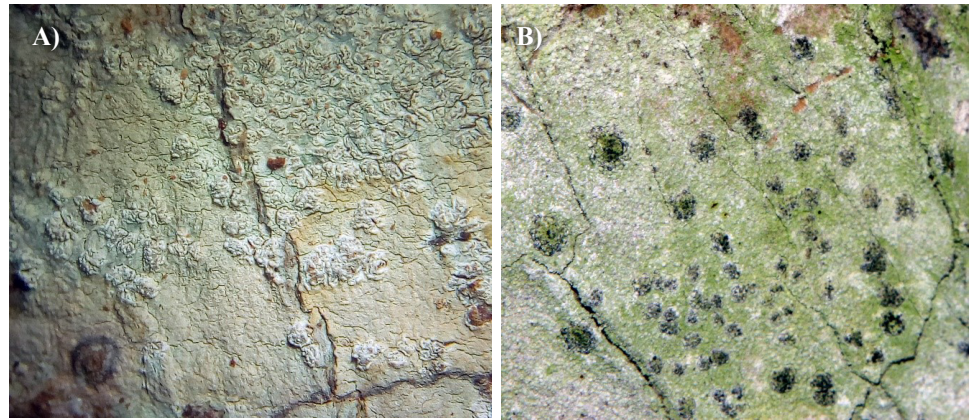


Figure 1. *Synarthonia inconspicua* (A) y *Synarthonia muriformis* (B).

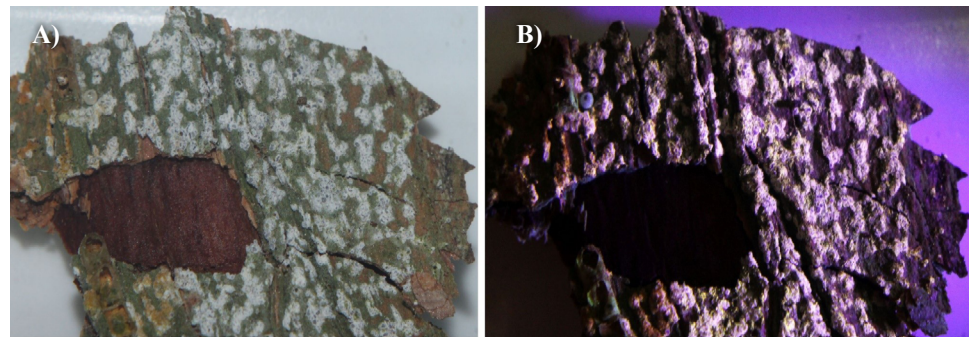


Figure 2. *Synarthonia xanthosarcographoides*, habit (A) and pseudoestroma with UV (B)

Specimen examined. COLOMBIA: Departamento Valle del Cauca, Municipio de Roldanillo, bosque seco tropical, Higueroncito, 4°29'52.2"N 76°06'39.1"W, ca 998 m. 16/11/2020. Soto 104H (TULV).

Key to *Synarthonia* species in Colombia

- 1. *Ascospores muriform* 2
- 1'. *Ascospores septate* 3
- 2. *Pseudostromata UV+ yellow* *Synarthonia xanthosarcographoides*
- 2'. *Pseudostromata UV-* *Synarthonia muriformis*
- 3. *Pseudostromata UV+ yellow* *Synarthonia robertiana*
- 3'. *Pseudostromata UV-* *Synarthonia inconspicua*

Acknowledgments

Thanks go to INCIVA for the support in the realization of the dry forest project.

Conflicts of interest

The author declares no conflicts of interest.

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