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Rosellinia (Xylariaceae, Ascomycota) in the Southern Yungas, novelties for the funga of Argentina

Rosellinia (Xylariaceae, Ascomycota) en las Yungas del Sur, novedades para la funga de Argentina

Sir, Esteban B.[1*]; Ángel R. Maidana[2]; Patricia del V. Medina[3]; Adriana I. Hladki[3]

[1] Instituto de Bioprospección y Fisiología Vegetal-INBIOFIV (CONICET-UNT), San Lorenzo 1469, (4000) San Miguel de Tucumán, Argentina.
[2] Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucumán (UNT), Miguel Lillo 205, (4000) San Miguel de Tucumán, Argentina.
[3] Fundación Miguel Lillo, Instituto Criptogámico-Sección Micología, Miguel Lillo 251, (4000) San Miguel de Tucumán, Argentina.
* Corresponding author: <sirestebanbenjamin@gmail.com>

ABSTRACT

Four species of *Rosellinia* collected in Las Yungas ecoregion are reported for the first time for the Argentine funga: *R. hyalospora*, *R. longispora*, *R. rickii* and *R. stenasca*. These species are described and illustrated by photographs. In addition, a distribution map with the new findings and a dichotomous key to the species recognized in the country are presented.

Keywords — Neotropics; new records; Xylariales.

RESUMEN

Cuatro especies del género *Rosellinia*, coleccionadas en la ecorregión de Las Yungas, son citadas por primera vez para la funga de la Argentina: *Rosellinia hyalospora*, *R. longispora*, *R. rickii* y *R. stenasca*. Las especies son descriptas e ilustradas mediante fotografías. También, se presenta un mapa de distribución de los nuevos registros y una clave dicotómica con las especies registradas para el país.

Palabras clave — Neotrópico; nuevos registros; Xylariales.

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INTRODUCTION

The xylarialean Sordariomycetes have been the most intensely collected fungi of the Ascomycota phylum in the Southern Andean Yungas for the last decades. As a result, more than one hundred species are recognized as part of this ecoregion, which represents a valuable contribution to the funga of South America (Hladki & Romero, 2010; Sir *et al*., 2012a, 2012b, 2013, 2015a, 2015b, 2016a, 2016b; Lambert *et al.*, 2019; Medina *et al.*, 2021; Sir, 2021).

Rosellinia De Not. is one of the seven genus of the family Xylariaceae that inhabits in the Argentinean Yungas (Sir *et al*., 2012a). The genus has a worldwide distribution and its species are reported mostly as saprobes on deciduous woods of angiosperms plants and occasionally also from gymnosperms (Petrini, 2013). It was recently redefined based on a polythetic taxonomy study. Members of *Rosellinia necatrix* and *R. buxi* group *sensu* Petrini —species with dematophora-like conidiogenous state— were segregated from the *Rosellinia* and accommodated in the resurrected genus *Dematophora* R. Hartig. According to this current concept, *Rosellinia* includes only those taxa with carbonaceous uniperithecioid stromata and mononematous conidiogenous state with conidiophores geniculosporium-like rarely nodulisporium-like (Wittstein *et al*., 2020).

The largest diversity of *Rosellinia* in the South Cone of South America is concentrated in the Atlantic rain forest of Southern Brazil. For this region, 13 species were collected and documented by European mycologists such as Rick, Starbäck and Theissen (Petrini & Petrini, 2012). In comparison, eight species are recorded in Argentina, seven of them collected in the Yungas forests (Spegazzini, 1899; Sir *et al.*, 2012c; Catania & Romero, 2014; Sir & Hladki, 2014). In this work, *Rosellinia hyalospora* Theiss, *R. longispora* Rick, *R. rickii* Bres. and *R. stenasca* Rick are identified for the first time for this ecoregion and are described as new records for the Argentina.

MATERIALS AND METODS

The materials studied are part of the several collections carried out in the natural reserves from Las Yungas (Sir, 2021). Fungal structures were measured from fresh material mounted in distilled water, KOH solution (2%, 3% and 5%) and phloxine solution. Melzer's reagent was used to test for the amyloid reaction (Petrini, 2013). In some cases, calcoflour (0.05% p/v in "buffer" Sodium Phosphate pH 8) was used for observations under epifluorescence microscope (EFM) according Romero & Minter (1988). Cultures were obtained from multispore isolates, as is indicated in Sir *et al*. (2015a). Authors for fungal names were taken from Index Fungorum (http://www.indexfungorum.org/) and the reference materials were deposited at LIL (Thiers, 2018).

RESULTS AND DISCUSSION

Rosellinia hyalospora Theiss., Ann. Mycol. 6: 351 (1908).
Figs. 1 and 5

Description.— subiculum evanescent, remains felted, cream-colored, light brown. Stromata 500 – 700 μm high, 520 – 760 μm wide, subglobose to cupulate, black, densely together. Ostioles finely papillate. Ectostroma 20 – 50 thick, black. Entostroma not observed. Perithecia detached from stromata at maturity. Ascus apical plugs, remain, blue in Melzer´s iodine reagent. Ascospores (14.6)16.0 – 19.2(20.6) × (5.1)5.6 – 7.4(7.8) μm (n=40, av. =17.4 × 6.5 μm), asymmetrically ellipsoidal, with a strongly flattened side, rounded ends, light brown, with straight germ slit in flattened side, 10–14 μm. Conidiogenous structures on the young stromata. Conidiophores geniculosporium-like. Conidiogenous cells (23.9)26.5 – 36.0(40.6) × (1.9)2.4 – 2.89(2.9) μm, hyaline to pale yellow, smooth. Conidia (3.4)3.5 – 4.9(5.4) × (2.2)2.5 – 3.3(3.5) μm, obovoid, pale brown, smooth. Not cultured.

Distribution.— *Rosellinia hyalospora* was only known for the Atlantic Rain forest of Brazil by a unique collection (Theissen, 1908). Therefore, this is the second record globally of the species and the first record for the Las Yungas of Argentina.

Comments.— In Argentina, this fungus occurs in mid-autumn and is usually found on heavily decomposed wood. It is quite distinctive having mature stromata packed densely together without subiculum, light brown asymmetrically ellipsoidal ascospores with a short straight germ slit (Petrini, 2013). The collections from Las Yungas have slightly higher stromata than those described by Petrini (500-550 μm) and shorter ascospores (18-25 μm).

The anamorphic structure of this species is depicted here for the first time.

Specimens studied.— ARGENTINA. Prov. Salta, Dpto. Anta, Parque Nacional El Rey, 24°43'36.5"S 64°40'0.2"O, 960 m asl, 12-V×2012, *Sir & Hladki 197* (LIL 158886). Prov. Tucumán, Dpto. Yerba Buena, Parque Sierra de San Javier, Horco Molle, 26°47'16.2"S 65°19'53.7"O, 668 m asl, 21×V×2013, *Sir & Hladki 436* (LIL 158887).

Rosellinia longispora Rick, Brotéria 1: 189 (1932).
Figs. 2 and 5

Description.— Subiculum evanescent, remains felted, sometime surrounding at stromata base, brown. Stromata 600 – 990 μm high, 550 – 890 μm wide, conical to cupulate, black, solitary or in small groups. Ostioles distinctly papillate. Ectostroma 20 × 70 thick, black. Entostroma not observed. Perithecia attached to stromata at maturity. Asci broadly fusiform to obclavate, 8-spored, spore-bearing part 165–196.5 × 26–29 μm, stipes 39–63 μm long. Asci apical plugs 12–15 μm high, upper width 6–8.5 μm, lower width 5–7 μm, cylindrical, dark blue almost black in Melzer´s iodine reagent.

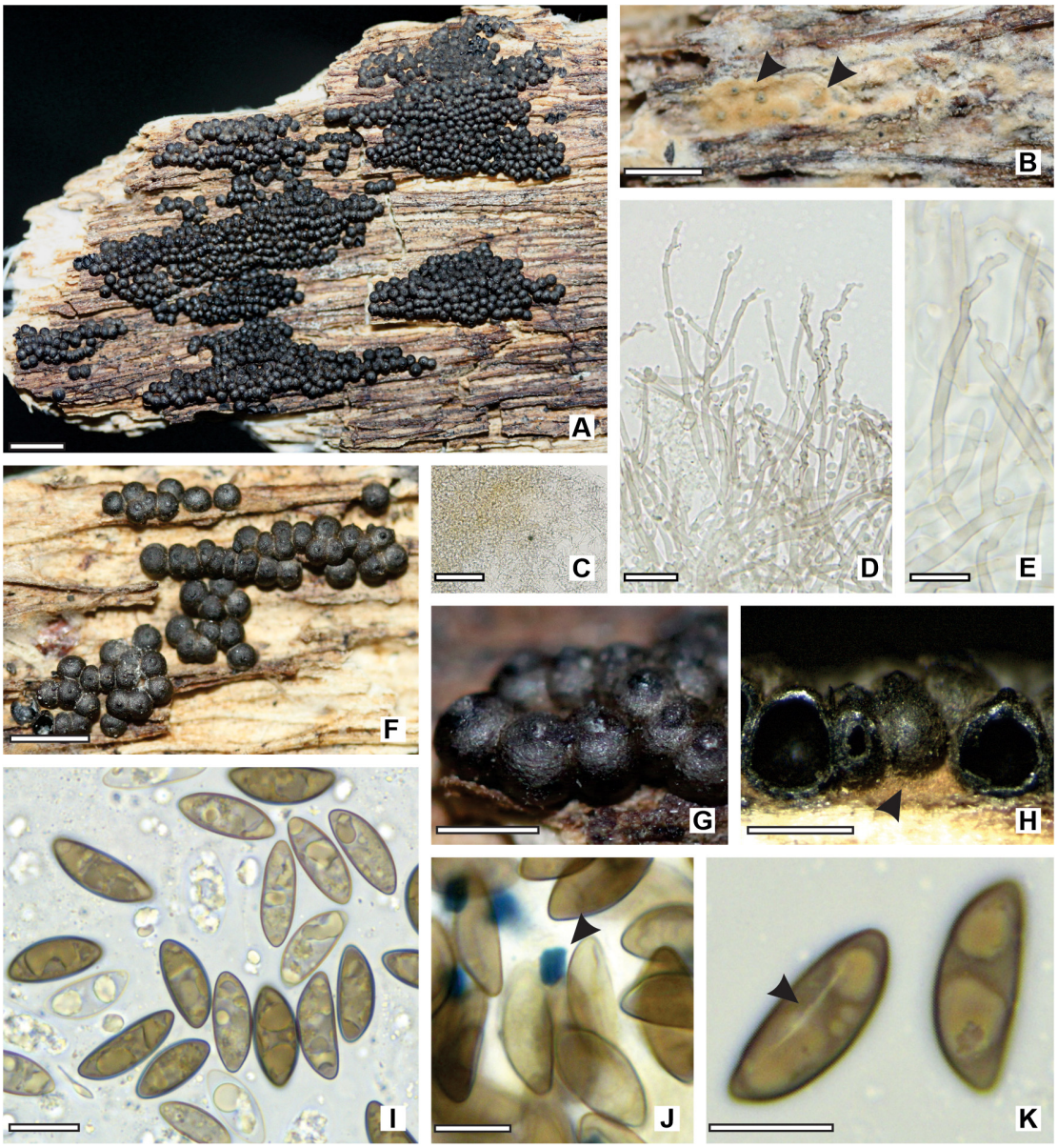

Fig. 1. *Rosellinia hyalospora*. A and F) Stromata. B) Young stromata (arrows) immersed and intermixed with anamorphic structures; C) Subiculum hyphae. D and E) Conidiophores and conidia. G) Stromata in lateral view. H) Stromata cross section and remnants of the subiculum (arrow). I) Ascospores in water. J) Ascus apical plugs (arrow) in Melzer's reagent, J+. K) Ascospores in 3% KOH solution showing germ slit (arrow). *Sir & Hladki,197* (LIL 158886). Scale bars: A= 3 mm; B= 2 mm; C= 50 μm; D= 20 μm; E= 10 μm; F= 2 mm; G, H= 1 mm; I-K= 10 μm.

Fig. 1. *Rosellinia hyalospora*. A y F) Estromas. B) estromas jóvenes inmersos (flechas) y entremezclados con estructuras anamórficas. C) Hifas del subiculo. D y E) Conidióforos y conidios. G) Estomas en vista lateral. H) Estromas en sección vertical y restos de subículo (flecha). I) Ascosporas en agua. J) Aparato apical en reactivo de Melzer, J+(flecha). K) Ascosporas en solución de KOH al 3% mostrando surco germinativo. *Sir & Hladki*, 197 (LIL 158886). Escalas: A= 3 mm; B= 2 mm; C= 50 μm; D= 20 μm; E= 10 μm; F= 2 mm; G, H= 1 mm; I-K= 10 μm.

Ascospores (66.5) 72.7–84.5 (88.8) × (7.9) 10.8–14.6 (15.2) μm (n=40, av.= 78.7 × 12.4 μm) asymmetrically ellipsoidal, with a flat side, broadly rounded or slightly pinched ends, with slimy caps at both ends, light brown to brown, with straight germ slit as long as spore. Conidiogenous structure intermixed with remain of subiculum.

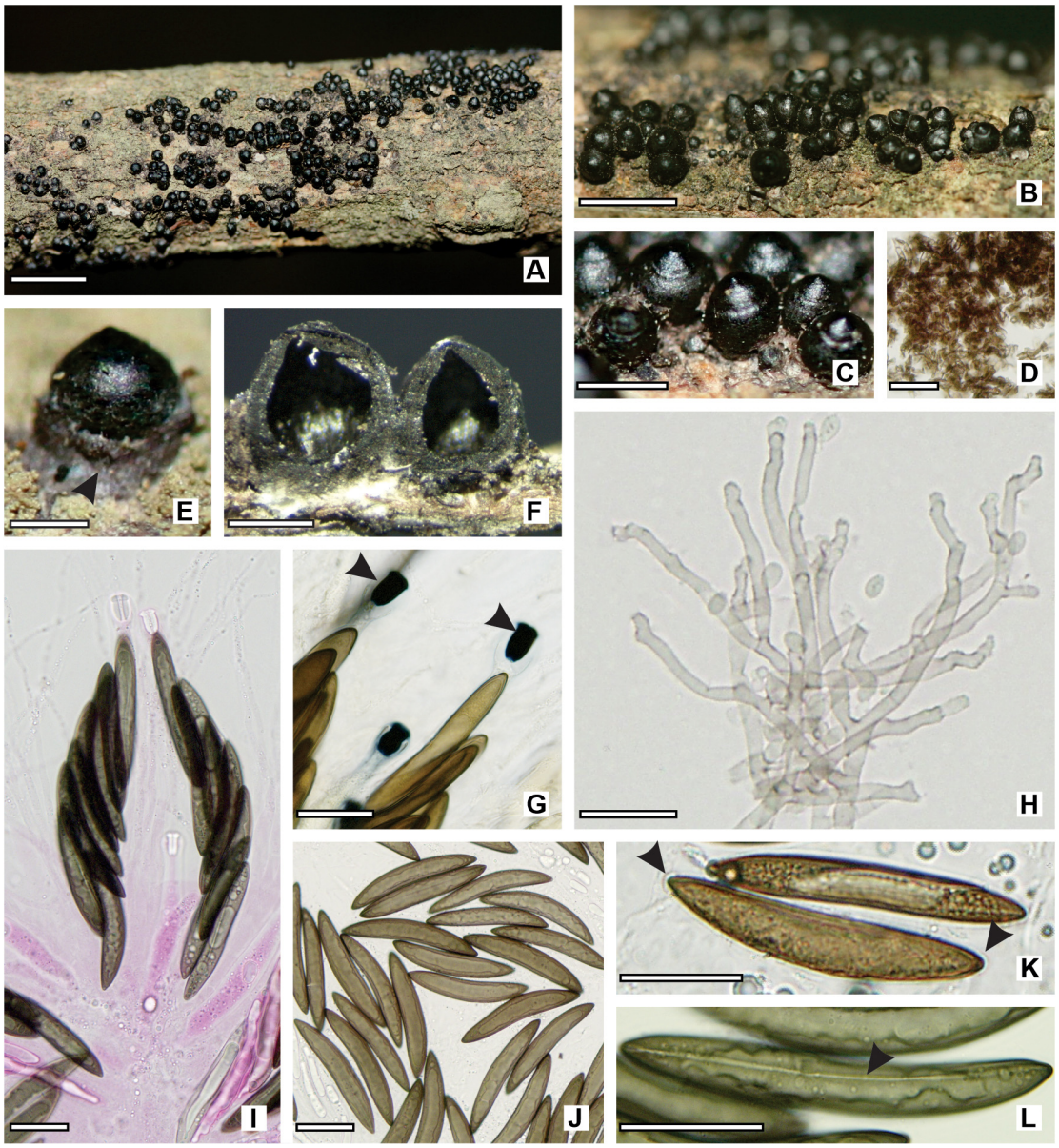

Fig. 2. *Rosellinia longispora*. A-C) Stromata. D) Subiculum hyphae. E) Stroma showing remnants of the subiculum (arrow). F) Stromata in cross section; G) Ascus apical plugs (arrows) in Melzer's reagent, J+. H) Conidiophores and conidia. I) Mature and immature asci in phloxine solution. J) Ascospores. K) Ascospores showing slimy caps (arrows). L) Ascospores showing germ slit (arrow). *Sir & Hladki, 939* (LIL 158888). Scale bars: A= 5 mm; B= 2 mm; C= 1 mm; D, G-L= 25 μm; E, F= 0.5 mm.

Fig. 2. *Rosellinia longispora*. A-C) Estromas D) **Hifas del subiculo. E) Estroma mostrando remanentes** del subículo (flecha). F) Estroma en sección vertical. G) Aparato apical en reactivo de Melzer, J+ (flecha). H) Conidióforos y conidios I) Ascos maduros e inmaduros en solución de floxina. J) Ascosporas. K) Ascosporas mostrando capuchones viscosos (flechas). L) Ascosporas mostrando surco germinativo (flecha). *Sir & Hladki*, 939 (LIL 158888). Escalas: A= 5 mm; B= 2 mm; C= 1 mm; D, G-L= 25 μm; E, F= 0.5 mm.

Conidiophores geniculosporium-like. Conidiogenous cells (16.3)20.2–27.5(29.0) × (2.3)2.4–3.3(3.5) μm, hyaline, smooth. Conidia (3.8)4.0–4.8(5.1) × (2.2)2.3–2.9(3.4) μm, obovoid, hyaline, smooth. Not cultured.

Distribution.— *Rosellinia longispora* was previously recorded in Ecuador, French West Indies, New Zealand, and the South of Brazil (Rick, 1932; Fournier *et al*., 2017). This is the first record for Argentina.

Comments.— Our material of *R. longispora* was found growing on small corticated fallen twigs (1-1.5 cm diam.) of unidentified dicotyledonous plant. Few differences were observed compared to the description done by Petrini (2013). This author mentioned shorter stromata (625-850 μm), longer apical plug (9-19) and ascospores with a wider size range (59-100 x 8-18 μm).

Rosellinia formosana Y. M. Ju & J. D. Rogers is a similar species to the *R. longispora*. Nevertheless, it is restricted to Asia (Taiwan) and it has remarkably wider stromata (725-1100 μm) (Ju & Rogers, 1999).

The conidiophores structure of *R. longispora* is described for the first time herein.

Material examined.— ARGENTINA. Prov. Salta, Dpto. Orán, road to Islas de Cañas, 23°05'53.0"S 64°32'14.8"O, 526 m asl, 14-V-2015, *Sir & Hladki 939* (LIL 158888).

Rosellinia rickii Bres., in Rick, Annls mycol. 4(4): 310 (1906).
Figs. 3 and 5

Description.— Subiculum felted, appressed, white to cream-colored, evanescent. Stromata 619–1062 μm high, 850–1270 μm wide, semiglobose to conical, light brown turning brown to dark brown at maturity, solitary or 2–6 confluent, in small groups. Ostioles conical papillate. Ectostroma 50–90 μm thick, black. Entostroma not observed. Perithecia collapsed and detached from stromata at maturity. Asci cylindrical, spore-bearing part 82–92 × 8–10 μm, 8-spored, stipes 31–85.5 μm long. Asci apical plugs 1.8–2.8 μm high, upper width 2.9-3.6 μm, lower width 1.7–3 μm, blue in Melzer's iodine reagent. Ascospores (12.0)12.5-16.1(16.5) × (6.0)6.5-8.2(9.1) μm (n= 50, av. = 14.1 × 7.3 μm) asymmetrically ellipsoidal with broadly rounded ends, dark brown, with straight germ slit almost as long as spore. Conidiogenous structure intermixed with remain of subiculum and observed in culture. Conidiophores geniculosporium-like. Conidiogenous cells 24-60 × 1.8-2.7 μm hyaline, to pale yellow, smooth. Conidia 2.9–3.5 × 2.3–3.4 μm, spherical to obovoid, hyaline to pale brown, smooth.

Culture-Colonies on OA covering Petri dishes in 3 weeks, at first whitish then becoming cream-colored, velvety to felty, non-zonate, with entire margin, reverse cream-colored. Conidiogenous structures were observed on entire surface.

Distribution.— *Rosellinia rickii* was only known from a few specimens collected in Rio Grande do Sul (Brazil) by Rick at the beginning of the 20th century (Petrini, 2013). With this new record, their geographical distribution is expanded to the Argentine Yungas.

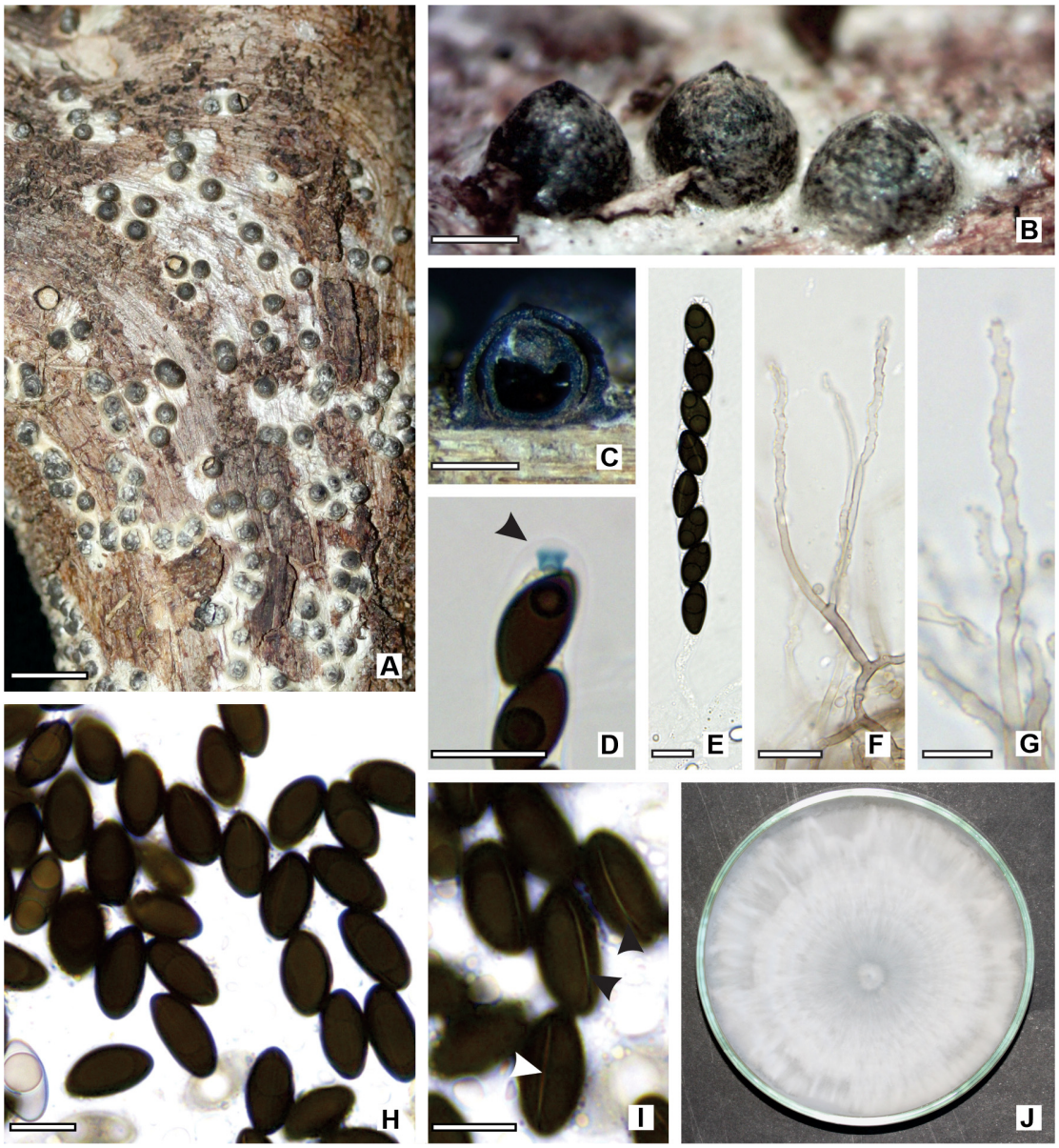

Fig. 3. *Rosellinia rickii.* A) Stromata showing remnants of the subiculum. B) Stromata in lateral view. C) Stroma in cross section. D) Ascus apical plug (arrow) in Melzer´s reagent, J+. E) Ascus in 3% KOH solution. F-G) Conidiophores. H) Ascospores. I) Ascospores showing germ slit (arrow). J) Culture on oatmeal agar after 3 weeks. *Sir & Hladki, 975* (LIL 158889). Scale bars: A= 5 mm; B-C= 1 mm; D-J= 10 μm; G= 5 μm.

Fig. 3. *Rosellinia rickii*. A) Estromas mostrando restos de subículo. B) Estromas en vista lateral. C) Estroma en sección vertical. D) Aparato apical en reactivo de Melzer, IK+ (flecha). E) Asco en solución de KOH al 3%. F-G) Conidióforos. H) Ascosporas. I) Ascosporas mostrando surco germinativo (flecha). J) Cultivo en agar avena con 3 semanas de crecimiento. *Sir & Hladki*, 975 (LIL 158889). Escalas: A= 5 mm; B-C= 1 mm; D-J= 10 μm; G= 5 μm.

Observations.— Catania & Romero (2014) reported *R. starbaeckii* L.E. Petrini on *Podorcarpus parlatorei* Pilg. in the Northwest of Argentina, whose stromata resembles those from *R. rickii*. However, *R. starbaeckii* may be distinguished by the color of its

subiculum (white yellowish), stromata shape (cupulate to mammiform) and smaller ascospores (12-14 × 6.5-8 μm).

The anamorph is described for the first time for this species.

Specimens examined.— ARGENTINA. Prov. Jujuy, Dpto. Ledesma, Parque Nacional Calilegua, 23°43'49.9"S 64°52'20.4"O, 806 m asl, 12-XII-2015, *Sir & Hladki 975, 976* (LIL 158889, LIL 158890).

Rosellinia stenasca Rick, Brotéria 1: 190 (1932).
Figs. 4 and 5

Description.— Subiculum evanescent. Stromata 540–670 μm high, 540–700 μm wide, conical to occasionally slightly columnar, with bluntly rounded top, black, solitary to crowded. Ostioles finely conical papillate. Ectostroma 50–55 μm thick, black. Entostroma not observed. Perithecia attached to the stromatal wall. Asci cylindrical, spore-bearing part 70–91 × 4–6 μm, 8-spored, stipes 45–100 μm long. Asci apical plugs 1.7–2.2 μm high, 1.5–2.5 μm wide, more or less cylindrical, light blue in Melzer's iodine reagent. Ascospores (8.3)8.6–9.7(10.5) x (3.2)3.7– 4.4(4.9) μm (n= 60, av.= 9.1 x 4.1 μm) ellipsoidal with broadly rounded ends, light brown, with one appendage on immature spore, semiglobose 1–1.6 μm, straight germ slit over the whole spore length. Conidiophores not observed.

Culture-Colonies on OA covering Petri dishes in 3 weeks, at first whitish then becoming cream-colored, velvety to felty, non-zonate, with entire margin, reverse cream-colored.

Distribution.— *Rosellinia stenasca* was originally described by Rick (1932) based in materials from southern Brazil and It was found for the second time in New Zealand (Petrini, 2013). Hence, this is the first report of the *R. stenasca* for the Yungas ecoregion.

Observation.— Just two species with ascospores smaller than 11 μm long are known for Argentina, *Rosellinia stenasca* and *R. breensis* Starbäck. The stroma shape and size ascospores are the combination of features for distinguished these taxa.

Specimens examined.— ARGENTINA. Prov. Jujuy, Dpto. Ledesma, Parque Nacional Calilegua, 23°43'49.9"S 64°52'20.4"O, 806 m asl, 11-V-2012, *Sir & Hladki 068* (LIL 158891); *ibid*, 12-XII-2015, *Sir & Hladki 1008* (LIL 158892). Prov. Salta, Dpto. Gral. José de San Martín, road to Reserva de Flora y Fauna Acambuco, 22°20'44.4"S 63°49'04.3"O, 838 m asl, 27-XI-2012, *Sir & Hladki 320* (LIL 158893).

Key to *Rosellinia* species known for Argentina

1 Conidiophores synnematous ..... genus *Dematophora*
1' Conidiophores mononematous ..... genus *Rosellinia* 2

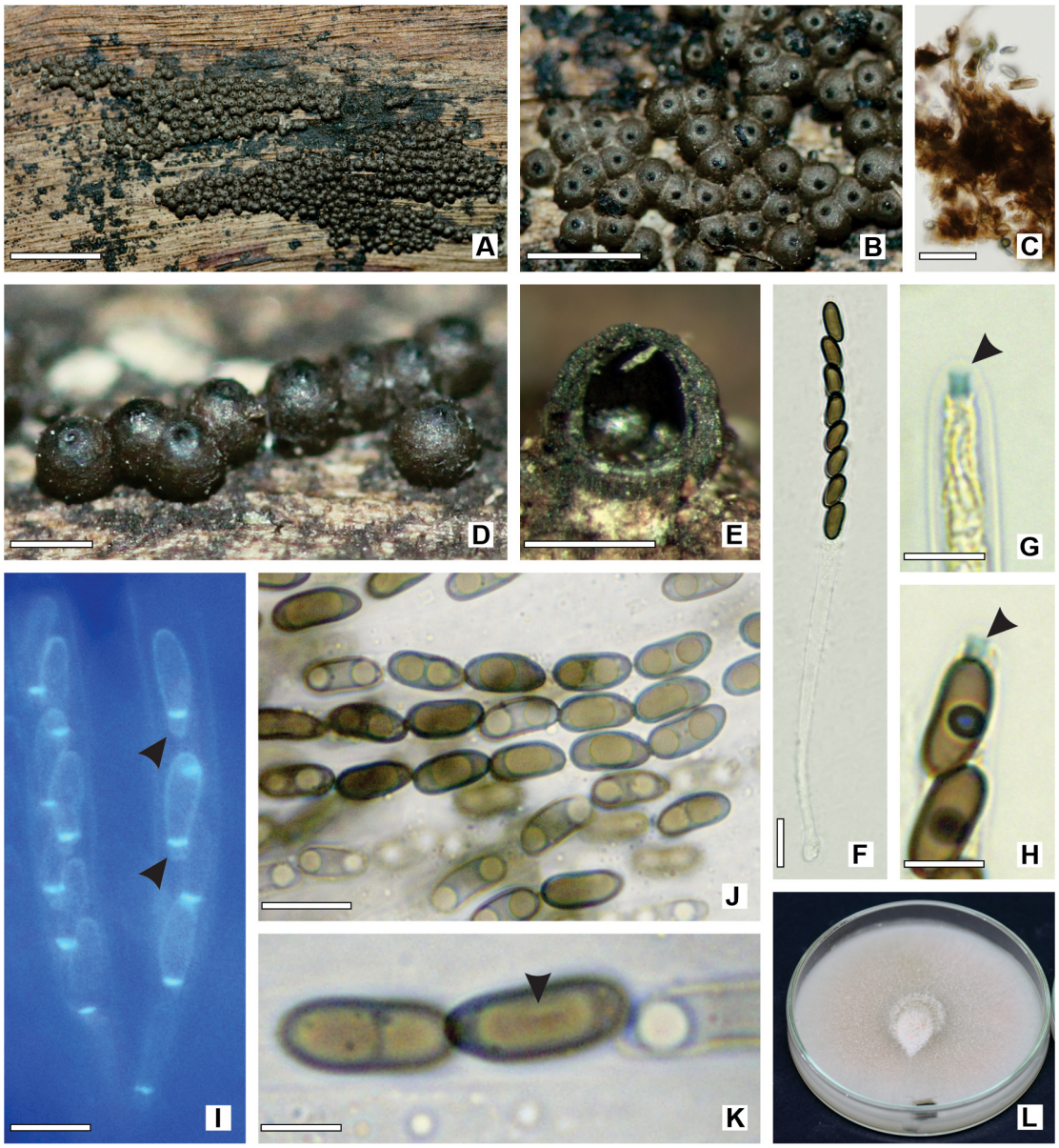

Fig. 4. *Rosellinia stenasca*. A, B, D) Stromata. C) Subiculum hyphae; E) Stroma in cross section. F) Ascus in 3% KOH solution; G, H) Ascus apical plug in Melzer´s reagent, J+ (arrows). I) Ascospores in 0,05% calcofluor under EFM showing hyaline cell (arrows). J) Ascospores. K) Ascospores showing germ slit (arrow). L) Culture on oatmeal agar after 3 weeks. *Sir & Hladki 068* (LIL 158891). Scale bars: A= 5 mm; B=2 mm; C, F, I, J= 10 μm; D, E= 0.5 mm; G, K= 5 μm.

Fig. 4. *Rosellinia stenasca*. A, B, C) Estromas. C) Hifas del subículo. E) Estroma en sección vertical. F) Asco en solución de KOH al 3%. G, H) Aparato apical en reactivo de Melzer, J+ (flechas). I) Ascosporas inmaduras en calcofluor al 0.05 % bajo microscopia de fluorescencia, mostrando células hialinas (flechas).J) Ascosaporas. K) Ascosporas mostrando surco germinativo (flecha). L) Cultivo en agar avena con 3 semanas de crecimiento. *Sir & Hladki 068* (LIL 158891). Escalas: A= 5 mm; B=2 mm; C, F, I, J= 10 μm; D, E= 0.5 mm; G, K= 5 μm.

2 Ascospores with sigmoid germ slit 3
2' Ascospores with straight germ slit or lacking germ slit 4

3 Ascospores 25-35 × 6.5-8 μm ..... *R. franciscae*
3' Ascospores 40-54 × 7.5-10 μm ..... *R. canzacotoana*

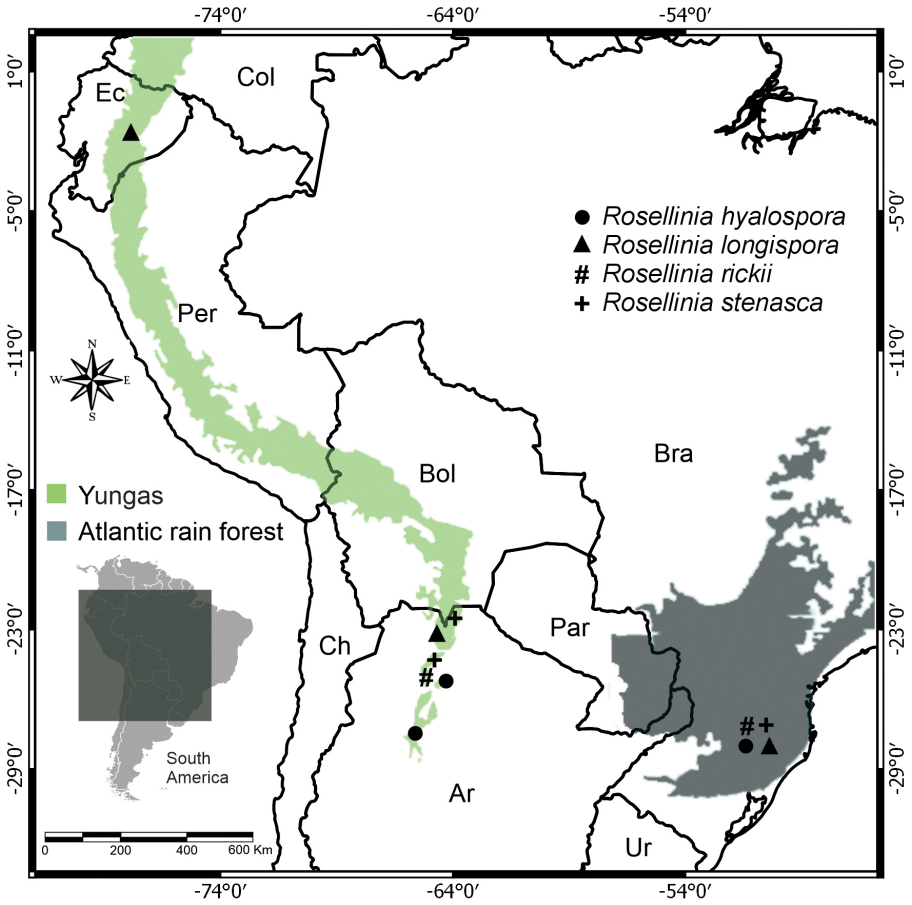

Fig. 5. Distribution of *Rosellinia hyalospora*, *R. longispora*, *R. rickii* and *R. stenasca* in South America.
Fig. 5. Distribución de *Rosellinia hyalospora*, *R. longispora*, *R. rickii* y *R. stenasca* en América del Sur.

4 Ascospores longer than 40 μm long 5
4' Ascospores shorter than 30 μm long 6

5 Ascospores without germ slit ..... *R. macrosperma*
5' Ascospores with germ slit ..... *R. longispora*

6 Ascospores $\leq$ 11 μm long 7
6' Ascospores $\geq$ 12 μm long 8

7 Stromata conical to columnar, ascospores 8.3-10.5 $\times$ 3.2-4.9 μm, with hyaline appendage at one end in immature spores ..... *R. stenasca*
7' Stromata semiglobose to cupulate, ascospores 8.5-11 $\times$ 5-6 μm, without appendages ..... *R. breensis*

8 Subiculum persistent, reddish brown, dark brown or purple; ascospores with hyaline appendages 9
8' Subiculum usually evanescent, white, yellowish, sulphur yellow, cream-colored to light brown; ascospores without appendages 10

9 Ascospores 19-23.5(27) $\times$ 6.5-8 μm ..... *R. aquila*
9' Ascospores 17.6-22.5 $\times$ 7.2-9 μm ..... *R. bonaërensis*

10 Ascospores average length less than 13 μm 11
10' Ascospores average length more than 13 μm 12

11 Stromata semiglobose to conical, ascospores with germ slit less than spore-length ..... *R. subiculata*
11' Stromata cupulate to mammiform, ascospores with germ slit spore-length .... *R. starbaeckii*
12 Ascospores light brown 14-20 × 5.1–7.8 μm long, germ slit short 10–14 μm long ..... *R. hyalospora*
12' Ascospores brown 12-16.5 × 6-9.1 μm, germ slit spore-length ..... *R. rickii*

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BIBLIOGRAPHY

Catania, M. & Romero, A. I. (2014). Micromicetes asociados a la corteza y madera de *Podocarpus parlatorei* (Podocarpaceae) en la Argentina. VIII. *Rosellinia* (Xylariaceae, Ascomycota). *Darwiniana*, *nueva serie 2* (1): 57-67. https//doi.org/10.14522/darwiniana.2014.21.560

Fournier, J., Lechat, C., Courtecuisse, R. & Moreau, P.-A. (2017). The genus *Rosellinia* (Xylariaceae) in Guadeloupe and Martinique (French West Indies). *Ascomycete. org 9* (6): 171-208.

Hladki, A. I. & Romero, A. I. (2010). A preliminary account of *Xylaria* in the Tucumán province, Argentina, with a key to species from the Northern Provinces. *Fungal Diversity 42*: 79-96. https://doi.org/10.1007/s13225-009-0008-6

Index Fungorum-Authors of Fungal Names (2022). Authors of Fungal Names. http://www.indexfungorum.org/names/names.asp. Accessed on: 2022-15-8.

Ju, Y. M. & Rogers, J. D. (1999). The Xyalariaceae of Taiwan (Excluding *Anthostomella*). *Mycotaxon 73*: 343-440.

Lambert, C. Wendt, L., Hladki, A. I., Stadler, M. & Sir, E. B. (2019). *Hypomontagnella*, (Hypoxylaceae): a new genus segregated from *Hypoxylon* by a polyphasic taxonomic approach. *Mycological Progress 18*: 187-201. https://doi.org/10.1007/s11557-018-1452-z

Medina, P. del V., Kuhnert, E., Hladki, A. I. & Sir, E. B. (2021). *Hypoxylon ochraceotuberosum* and *Hypoxylon rickii* (Ascomycota, Hyposylaceae) in Las Yungas of Salta province, Northwest of Argentina. *Rodriguésia 72*: e02572019. http://doi.org/10.1590/2175-7860202172030

Petrini, L. E. (2013). *Rosellinia*-a world monograph. Bibliotheca Mycologica, Band 205. Stuttgart: J. Cramer in der Gebrüder Borntraeger Verlagsbuchhandlung, 410 pp.

Petrini, L. L. & Petrini, O. (2012). *Rosellinia* species (Xylariaceae) from South and Central America – An annotated list. *Kurtziana 37* (1): 127-139.

Rick, S. J. (1932). Monografia das Roselinias riograndenses. *Brotéria 1*: 183-192.

Romero, A. I. & Minter, D. W. (1988). Fluorescence microscopy: an aid to the elucidation of ascomycete structures. *Transactions of the British Mycological Society 90* (3): 457-470.

Sir, E. B. (2021). La familia Hypoxylaceae (Xylariales, Ascomycota) en Las Yungas del Noroeste argentino. (1ª Ed.). Fundación Hongos de Argentina para la Sustentabilidad.

Sir, E. B. & Hladki, A. I. (2014). Nuevos reportes del género *Rosellinia* (Xylariaceae, Ascomycota) en los sectores norte y centro de Las Yungas de la Argentina. *Lilloa 51*: 97-107.

Sir, E. B., Hladki, A. I., Parrado, M. F. & Romero, A. I. (2012a). Biodiversity of Xylariaceae (Ascomycota) and their hosts in protected areas from Tucumán (Argentina). *Kurtziana 37*: 35-48.

Sir, E. B., Perera, T. C., Romero, A. I. & Hladki, A. I. (2012b). Provisional dichotomic keys for the genera and species of Xylariaceae (Ascomycota) from Tucumán, Argentina. *Lilloa 49*: 126-134.

Sir, E. B.; Perera, T. C., Romero, A. I. &, Hladki, A. I. (2012c). Novedades para el género *Rosellinia* (Ascomycota-Xylariaceae) en el noroeste de la República Argentina. Boletín de la Sociedad Argentina de Botánica 47(3-4): 311-321.

Sir, E. B., Perera T. C., Romero, A. I. & Hladki, A. I. (2013). *Stilbohypoxylon quisquiliarum* (Ascomycota, Xylariaceae), nueva cita para la Argentina. *Darwiniana, nueva serie 1*: 289-294.

Sir, E. B., Kuhnert, E., Surup, F., Hyde, K. D. & Stadler, M. (2015a). Discovery of new mitorubrin derivatives from *Hypoxylon fulvo-sulphureum* sp. nov. (Ascomycota, Xylariales). *Mycol Progress 14* (28): 1-12. https://doi.org/10.1007/s11557-015-1043-1

Sir, E. B., Romero, A. I. & Hladki, A. I. (2015b). A new species and a new record of *Anthostomella* (Xylariaceae-Ascomycota) on leaf-litter of *Alnus acuminata* (Betulaceae) from Argentina. *Mycotaxon 130*: 721-729. http://dx.doi.org/10.5248/130.721

Sir, E. B., Kuhnert, E., Lambert, C., Hladki, A. I., Romero, A. I. & Stadler, M. (2016a). New species and reports of *Hypoxylon* from Argentina recognized by a polyphasic approach. *Mycological Progress 15*: 1-42. https://doi.org/10.1007/s11557-016-1182-z

Sir, E. B., Lambert, C., Wendt, L., Hladki, A. I., Romero, A. I. & Stadler, M. (2016b). A new species of *Daldinia* (Xylariaceae) from the Argentine subtropical montane forest. *Mycosphere 7*: 1378-1388. http://dx.doi.org/10.5943/mycosphere/7/9/11

Spegazzini, C. L. (1899). Fungi Argentini novi vel critici. *Annales del Museo Nacional de Buenos Aires 6*: 258-265.

Theissen, F. (1908). Novitates riograndenses. *Annales Mycologici 6*: 341-352.

Thiers, B. (2018). Index Herbariorum: a global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium, http://sweetgum.nybg.org/ih. Accessed on: 2022-7-1.

Wittstein, K., Cordsmeier, A., Lambert, C., Wendt, L.; Sir, E. B., Weber, J., Wurzler, N., Petrini, L. E. & Stadler, M. (2020). Identification of *Rosellinia* species as producers of cyclodepsipeptide PF1022 A and resurrection of the genus *Dematophora* as inferred from polythetic taxonomy. *Studies in Mycology 96*: 1-16. http://doi:10.1016/j.simyco.2020.01.001