

First checklist of lichens and lichenicolous fungi from Mauritius, with phylogenetic analyses and descriptions of new taxa

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Abstract. A first checklist of the lichens and lichenicolous fungi from the Republic of Mauritius is presented. It is based on older literature reports and on collections made by the authors, mainly in 2016, from the isles of Mauritius and Rodrigues. A total of 216 species are accepted, either as relevant specimens have recently been critically studied or revised by lichen taxonomists, or as we have collected and identified such material ourselves. A further 226 taxa have been reported from Mauritius but are not accepted here, either as no relevant herbarium material has recently been examined, or as previous records are dubious or erroneous; 111 taxa have been newly described from Mauritius in the past, plus 12 of which the Mauritian origin is dubious. Here we report 56 taxa as new for the island of Mauritius, and we describe two new genera (*Baidera*, *Serusiauxia*) and eight new species (*Baidera mauritiana*, *Biatoropsis millanesiana*, *Chapsa alletii*, *Collemopsidium mauritiae*, *Nyungwea pyneei*, *Porina florensii*, *Pyrenula muriciliata*, *Serusiauxia inexpectata*). Two new combinations are proposed: *Loekoesia apostatica* (\equiv *Lecanora apostatica*) and *Sticta flavireagens* (\equiv *Stictina flavireagens*). Phylogenetic analyses are presented for species of *Arthoniales*, *Biatoropsis*, *Porinaceae*, *Pyrenulaceae* and *Teloschistales*.

Key words: *Arthoniales*, *Biatoropsis*, Indian Ocean, *Porinaceae*, *Pyrenulaceae*, Rodrigues, *Teloschistales*

Introduction

The Republic of Mauritius lies in the southwestern Indian Ocean about 900 km east of Madagascar and about 2000 km off the southeast coast of the African continent. It consists of two main volcanic islands belonging to the Mascarene Archipelago: Mauritius, with a land area of 1865 km² (highest point Piton de la Petite Rivière Noire, 828 m); and Rodrigues, which is the smallest (109 km²; highest point Mt Limon, 398 m) and most isolated of the Mascarene Islands, being located about 574 km east of Mauritius. Basaltic lava is the main type of rock on both islands, but Rodrigues also has areas of limestone made of consolidated coral sands. Mauritius and Rodrigues are the two oldest main islands of the Mascarenes, having been available for colonization by diverse biota for 8–15 million years (Thébaud et al. 2009). The coastal areas of both islands have a dry tropical climate contrasting

with the more humid upper elevation, which receives the highest amount of rainfall. Fog is abundant at the upper altitudes and provides the optimum climate for the development of rich macrolichen communities (Figs 1–2).

The Mascarene Islands harbour a very rich and diverse angiosperm flora, with an estimated ~960 native species, about 75% of them considered to be endemic to the archipelago (Thébaud et al. 2009). The level of island endemism is also high, being 39.5% in Mauritius (273 single island endemics of the 691 native species) and 31.1% in Rodrigues (47 single-island endemics of the 150 native species) (Baider et al. 2010). The archipelago is even part of the world's most important biodiversity hotspots (Myers et al. 2000). The pristine fauna and flora of the Mascarenes have been decimated since humans arrived in 1598. The dodo (*Raphus cucullatus*), a flightless bird belonging to the Columbidae and endemic to Mauritius, is the emblematic representative of them (Cheke & Hume 2008). Although native vegetation remains, all the pristine forest covering Rodrigues has been destroyed, while barely 2% of the original forest cover has been left in Mauritius, mainly lowland rainforests and dense cloud forests at the highest elevation. They are concentrated in Black River Gorges National Park in the southwest,

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the Bambou Mountain Range in the southeast, and the Moka–Port Louis Ranges in the northwest, with some isolated mountains such as Corps de Garde, Le Morne Brabant, and several offshore islets. These forest remnants are often invaded by alien animals (e.g., deer, mongooses, monkeys, pigs, rats) and plant species (e.g., *Psidium cattleianum*, *Ardisia crenata*, *Ligustrum robustum*, *Rubus alceifolius*, *Wikstroemia indica*) (Thébaud et al. 2009, Virah-Sawmy et al. 2009), which have a strong negative impact on biodiversity. Considerable efforts are deployed for conservation management work to fight alien species and restore original forests.

The lichen flora of Mauritius and Rodrigues is poorly known and has never been thoroughly revised. This paper aims to provide a first checklist for the lichens and lichenicolous fungi of Mauritius and Rodrigues, along with new records and descriptions of new species resulting from our recent collecting trips.

Material and methods

Preparation of the checklist and morphological examination

The checklist includes both data found in the literature and new results based on our collections. The entire literature for Mauritius has been checked, and all previously published reports of Mauritian lichens have been included in the checklist. Species printed in bold are accepted; these usually represent species either recently studied and published by taxonomists or examined by us. Other species are considered dubious, especially those from the older literature, as no specimens exist or as they have never been critically revised. We have not examined most historical specimens, except for those indicated by an exclamation mark (!). Specimens we collected, mainly in 2016, are retained in MAU (Mauritius Herbarium), while duplicates are kept in BR (Damien Ertz) and in the private herbarium of P. Diederich. A few additional specimens from BM and MAU have been studied.

Hand-made sections of ascomata and thalli were studied in water, 5% KOH (K), Lugol's reagent (1% I₂) without (I) or with KOH pre-treatment (K/I), lactophenol-cotton blue (LCB), Congo Red or phloxine B. Macroscopic photographs were made using a Canon 40D camera with a Canon MP-E 65 mm lens or a Nikon BD Plan 10× microscope objective, StackShot (Cognisys) and Helicon Focus (HeliconSoft) for increasing the depth of field; or with a Keyence VHX-5000 digital microscope and a VH-Z20R/W/T lens (*Baidera*, *Nyungwea*, *Serusiauxia*). Microscopic photographs were prepared using a Leica DMLB microscope with interference contrast, fitted with a Leica EC3 camera; or an Olympus BX51 microscope with interference contrast, connected to an Olympus Color View I digital camera (*Baidera*, *Nyungwea*, *Serusiauxia*). Chemical spot reactions are abbreviated as K (5% KOH), C (commercial bleach), KC (K followed by C) and PD (paraphenylenediamine), while UV refers to fluorescence at 366 nm. Thin-layer chromatography followed Elix (2014). Ascospores measurements of *Baidera mauritiana*,

Porina florensii and *Pyrenula muriciliata* are given as (min.–)average minus standard deviation–average plus standard deviation(–max.).

Molecular techniques

Well-preserved and freshly collected specimens were used for sequencing. A group of 4 to 6 soredia (*Serusiauxia*) or tiny fragments of the hymenium or thallus (*Baidera mauritiana*, *Granulopyrenis* sp., *Loekoesia apostatica*, *Nyungwea pyneei*, *Porina florensii*, *Pyrenula quassicola*, *Squamulea* cf. *squamosa*) were used for direct PCR as described in Ertz et al. (2015). For *Biatoropsis millanesiana*, total DNA was extracted directly from the specimens examined (Table 1) using the Qiagen DNeasy Plant MiniKit according to the manufacturer's instructions, but using 50 µl of water in each of the last two steps of final elution.

A targeted fragment of ~0.8 kb of the mitochondrial ribosomal RNA small subunit (mtSSU) was amplified for *Granulopyrenis*, *Loekoesia*, *Porina*, *Pyrenula* and *Squamulea* using primers mrSSU1 and mrSSU3R (Zoller et al. 1999), and a fragment of ~1 kb of the RPB2 protein-coding gene was amplified for *Baidera* and *Nyungwea* using primers *fRPB2-7cF* and *fRPB2-11aR* (Liu et al. 1999). Amplification reactions were prepared for a 50 µl final volume containing the lichen material as explained in Ertz et al. (2018b). The yield of the PCRs was verified by running the products on a 1% agarose gel using ethidium bromide. Both strands were sequenced by Macrogen® using amplification primers. Sequence fragments were assembled with Sequencher v. 5.3 (Gene Codes Corporation, Ann Arbor, Michigan). For *Biatoropsis millanesiana*, we amplified nuc rDNA internal transcribed spacer 1 (ITS1), 5.8S, internal transcribed spacer 2 (ITS2) and a fragment of ~1000 bp in the rDNA 28S region with primers ITS1F (Gardes & Bruns 1993), BasidLSU3-3 (Millanes et al. 2011), BasidLSU1-3 (Millanes et al. 2011), BasidLSU1-5 (Millanes et al. 2011), BasidLSU13-5 (Millanes et al. 2011) and LR5 (Vilgalys & Hester 1990). PCR amplifications were performed using Illustra™ Hot Start PCR beads according to the manufacturer's instructions, with the primer combinations and settings described in Millanes et al. (2011). Sequencing followed Millanes et al. (2016).

Taxon selection and phylogenetic analyses

Ten new mtSSU sequences were obtained for this study: one for *Granulopyrenis* (MN989203 for Ertz 21425), one for *Loekoesia apostatica* (MN989204 for Diederich 18518), two for *Porina florensii* (MN989205 for Diederich 18348, MN989206 for Diederich 18453), one for *Pyrenula quassicola* (MN989207 for Ertz 21460), four for *Serusiauxia inexpectata* (MN989208 for Diederich 17815, MN989209 for Diederich 18239, MN989210 for Ertz 21490, MN989211 for Ertz 21496) and one for *Squamulea* cf. *squamosa* (MN989212 for Diederich 18394). Three new RPB2 sequences were obtained for the *Arthoniales*: two for *Baidera mauritiana* (MN989868 for Ertz 21443-hymenium, MN989869 for Ertz 21443-thallus) and one for *Nyungwea pyneei* (MN989870 for Ertz 21450).

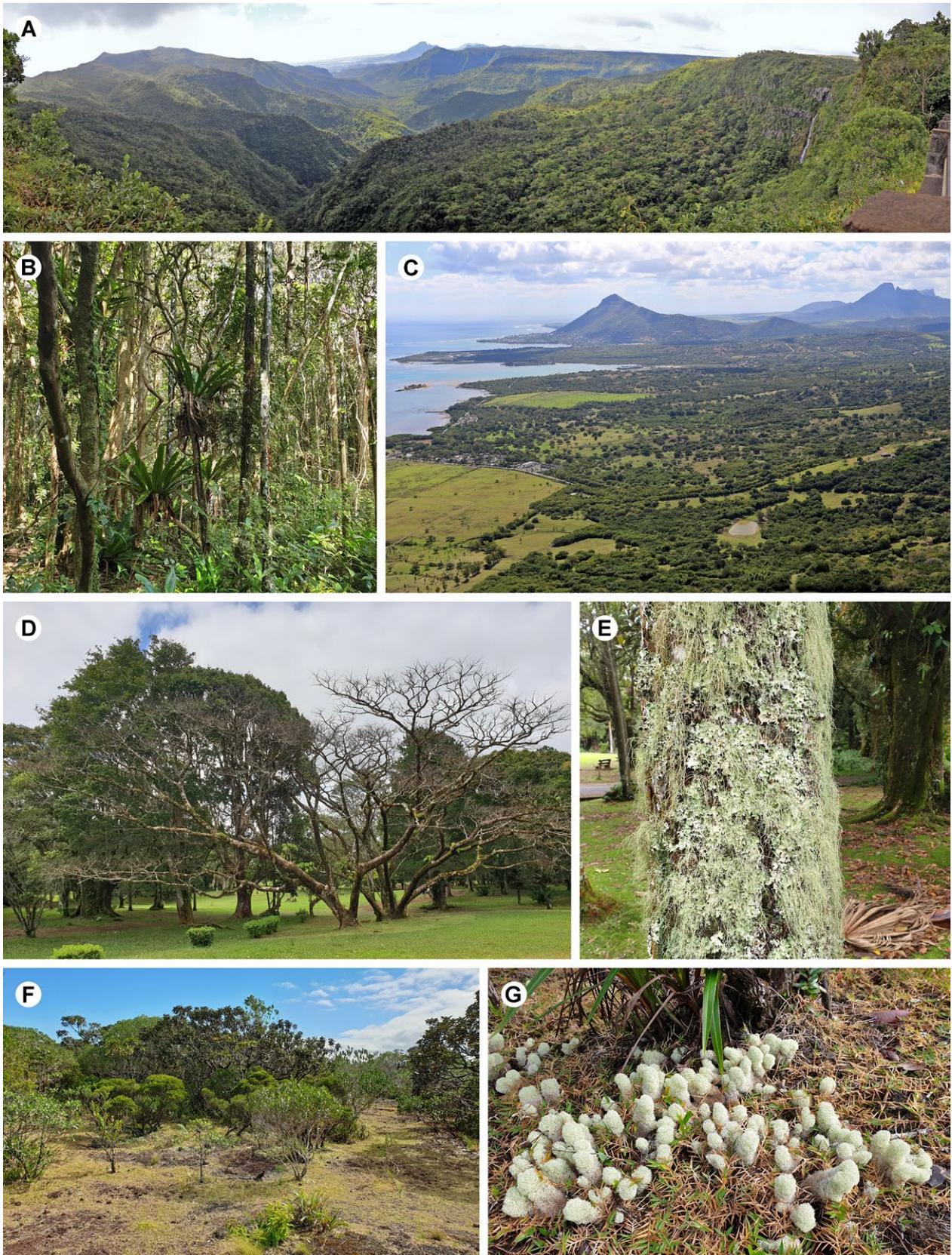


Figure 1. Mauritian landscapes and lichen habitats. A – Black River Gorges Natural Park with natural forest; B – dense natural forest in Brise Fer with the endemic Mauritian ebony tree, *Diospyros tessellaria*; C – typical coastal landscape of Mauritius; D – Curepipe Botanic Gardens, an extraordinary habitat for corticolous lichens; E – palm tree in Curepipe Botanic Gardens, covered by *Usnea* and *Parmotrema* species; F – Pétrin heathland, with a rich terricolous and corticolous lichen flora; G – *Cladonia confusa* in Pétrin heathland. Photos: P. Diederich.



Figure 2. Mauritian landscapes and lichen habitats (continued). A – rocky boulder in Ebony Forest, Chamarel; B – historic cemetery in La Preneuse near Tamarin with a rich flora of *Lichinaceae*, *Collembosidium mauritiae* sp. nov., *Endocarpon* spp., *Squamulea* cf. *squamosa*, etc.; C – typical landscape on the east coast of Rodrigues island, with a rocky outcrop on the top of a hill and sparse lowland vegetation with *Pandanus*, *Acacia* and *Casuarina*; D – Grande Montagne Nature Reserve in Rodrigues; E – *Pandanus* trees in Rodrigues, with a particularly diverse corticolous lichen vegetation. Photos: P. Diederich (A–B, E), D. Ertz (C–D).

Table 1. Voucher information and GenBank accession numbers (NCBI) for ITS and nuLSU sequences of *Tremellales* used in this study. Newly generated sequences are in bold. Type specimens are indicated by (T).

Taxon name – DNA extraction number	Specimen data	ITS	nuLSU
<i>Biatoropsis hafellneri</i> – AM299	Azores, Diederich 17087b (S F264687)	KJ404880	KJ437226
<i>Biatoropsis hafellneri</i> – AA10 (T)	UK, Wedin 7308 (UPS F766824 – holotype)	JN053489	JN043595
<i>Biatoropsis millanesiana</i> sp. nov. – AM784 (T)	Mauritius, Diederich 18524 (MAU – holotype)	MN973671	MN973663
<i>Biatoropsis millanesiana</i> sp. nov. – AM1171	Mauritius, Diederich 18921 (MAU – topotype)	MN973669	MN973661
<i>Biatoropsis millanesiana</i> sp. nov. – AM1026	Mauritius, Diederich 18291 (MAU)	MN973670	MN973662
<i>Biatoropsis millanesiana</i> sp. nov. – AM1168	Rodrigues, Diederich 18979 (MAU)	MN973666	MN973658
<i>Biatoropsis millanesiana</i> sp. nov. – AM1169	Rodrigues, Diederich 19029 (MAU)	MN973667	MN973659
<i>Biatoropsis millanesiana</i> sp. nov. – AM1170	Rodrigues, Diederich 18997 (MAU)	MN973668	MN973660
<i>Biatoropsis millanesiana</i> sp. nov. – AM567	Seychelles, Diederich 18087 (SEY)	KX687750	MN973656
<i>Biatoropsis minuta</i> – AM172	Canada, Diederich 17269 (S F102406)	KJ404866	KJ437211
<i>Biatoropsis minuta</i> – AM229	India, Divakar s.n. (MAF-Lich)	KJ404868	KJ437213
<i>Biatoropsis minuta</i> – AM137 (T)	Spain, Aragón s.n. (S F102398 – holotype)	KJ404869	KJ437214
<i>Biatoropsis minuta</i> – CO294	Sweden, Wedin 7903 (S F102401)	JN053487	JN043593
<i>Biatoropsis protousneae</i> – AM215	Argentina, Wedin 8601 (S F264822)	KJ404861	KJ437206
<i>Biatoropsis protousneae</i> – AM214	Argentina, Wedin 8615 (S F264823)	KJ404865	KJ437210
<i>Biatoropsis protousneae</i> – AM141	Chile, Pérez-Ortega 216 (MAF-Lich)	KJ404860	KJ406316
<i>Biatoropsis protousneae</i> – AM142 (T)	Chile, Pérez-Ortega 207 (MAF-Lich – isotype)	KJ404864	KJ406321
<i>Biatoropsis usnearum</i> – AM196	Austria, Hafellner 49578 (GZU 02-99)	KJ404878	KJ437224
<i>Biatoropsis usnearum</i> – AM298	Azores, Diederich 17087a (S F264684)	KJ404872	KJ437217
<i>Biatoropsis usnearum</i> – AM202	Sweden, Westberg 09-676 (S F264681)	KJ404876	KJ437221
<i>Biatoropsis usnearum</i> – AM171	UK, Coppins s.n. (S F102407)	KJ404879	KJ437225
<i>Biatoropsis</i> sp. A1 – AM112	Canary Islands, Diederich 16700 (S F102402)	KJ404856	KJ406307
<i>Biatoropsis</i> sp. A1 – AM192	Chile, Etayo 23158 (MAF-Lich 15645)	KJ404851	KJ437196
<i>Biatoropsis</i> sp. A1 – AM296	New Zealand, Wedin 9033 (S F180874)	KJ404854	KJ437199
<i>Biatoropsis</i> sp. A1 – AM143	Spain, Pérez-Ortega s.n. (MAF-Lich)	KJ404857	KJ437202
<i>Biatoropsis</i> sp. E – AM213	Argentina, Wedin 8742 (S F264824)	KJ404882	KJ437227
<i>Biatoropsis</i> sp. F – AM576	France, Diederich 18149 (herb. Diederich)	KX687749	MN973657
<i>Biatoropsis</i> sp. F – AM10	New Zealand, Berger 16609 (S F92784)	KJ404884	KJ437229
<i>Biatoropsis</i> sp. F – AM1040	New Zealand, Berger 31715 (herb. Berger)	MN973672	MN973664
<i>Biatoropsis</i> sp. F – AM295	New Zealand, Wedin 9429 (S F181399)	KJ404883	KJ406305
<i>Biatoropsis</i> sp. F – AM166	USA, Kocourková s.n. (S F264679)	KJ404885	KJ406308
<i>Tremella cetrariicola</i> – AM111	Finland, Suija s.n. (S F102413)	JN053490	JN043596

Five new nuITS or 28S rDNA sequences were obtained for *Biatoropsis millanesiana* (Table 1). Their closest relatives based on ‘megablast’ searches were retrieved from GenBank. The phylogenetic trees of Ertz et al. (2019) and Gueidan et al. (2016) were used for the placement of the newly sequenced taxa of *Porinaceae* and *Pyrenulaceae* respectively. Additional members of the *Arthoniales* were selected for the placement of *Baidera mauritiana* and *Nyungwea pyneei* from Ertz & Tehler (2011), Ertz et al. (2015) and Frisch et al. (2014), and additional species of *Teloschistales* were selected for the placement of *Loekoesia apostatica* and *Squamulea* cf. *squamosa*, mainly from Arup et al. (2013). In addition to 24 *Biatoropsis* specimens representing all known species in the genus and the seven clades studied in Millanes et al. (2014, 2016), seven additional specimens from the Indian Ocean were included in the molecular study (Table 1).

Sequences of *Arthoniales*, *Porinaceae*, *Pyrenulaceae* and *Teloschistales* were aligned using MAFFT v7.402 (Katoh et al. 2002) on the CIPRES Web Portal (Miller et al. 2010) and improved manually using Mesquite 3.04 (Maddison & Maddison 2015). Terminal ends of sequences and ambiguously aligned regions were delimited manually and excluded from the datasets. Sequences

of *Biatoropsis* were aligned using the Q-INS-i algorithm (Katoh & Toh 2008) of the multiple sequence alignment software MAFFT version 7 (Katoh & Toh 2008; Katoh et al. 2017). Two data matrices were produced: one including ITS and one including 28S rDNA. Ambiguous regions were identified and eliminated with Gblocks version 0.91b (Castresana 2000).

Bayesian analyses were carried out on the *Arthoniales*, *Porinaceae*, *Pyrenulaceae* and *Teloschistales* datasets using the Metropolis-coupled Markov chain Monte Carlo (MCMCMC) method in MrBayes v. 3.2.6 (Huelsenbeck & Ronquist 2001; Ronquist & Huelsenbeck 2003) on the CIPRES Web Portal (Miller et al. 2010). Best-fit evolutionary models were estimated using the Akaike information criterion (AIC; Akaike 1973) as implemented in jModelTest2 2.1.6 (Darriba et al. 2012). The GTR+I+G model was selected for the ‘*Porinaceae*’ dataset, the TIM2+I+G model for the ‘*Pyrenulaceae*’ dataset, the HKY+I+G model for the ‘*Teloschistales*’ dataset, the GTR+I+G model for both the *RPB21st* and *RPB22nd* positions for the ‘*Arthoniales*’ dataset, and the TIM2+I+G model for the *RPB23rd* position for the ‘*Arthoniales*’ dataset. For each dataset, two parallel MCMCMC runs were performed, each using four independent chains and

40 million generations, sampling trees every 1000th generation. Tracer v. 1.6 (Rambaut & Drummond 2007) was used to ensure that stationarity was reached by plotting the log-likelihood values of the sample points against generation time, making sure that the ESS values were higher than 200. Convergence between runs was also verified using the PSRF (potential scale reduction factor), where all values were equal or close to 1.000. Posterior probabilities (PP) were determined by calculating a majority-rule consensus tree generated from the 60002 post-burn-in trees of the 80002 trees sampled by the two MCMCMC runs using the sumt option of MrBayes for the four datasets. In addition, a maximum likelihood (ML) analysis was performed on the CIPRES Web Portal (Miller et al. 2010) using RAxML-HPC2 v. 8.2.10 (Stamatakis 2014) with 1000 ML bootstrap iterations (ML-BS) and the GTRGAMMA model. The RAxML trees did not contradict the Bayesian trees topology for the strongly supported branches. Therefore, only the RAxML trees are shown, with the bootstrap support values added above or near the internal branches (Figs 4, 10, 13, 16). ML-BS ≥ 70 and PP ≥ 95 were considered significant. Internal branches considered strongly supported by both the RAxML and Bayesian analyses are represented by thicker lines (Figs 4, 10, 13, 16). Phylogenetic trees were visualized using FigTree v. 1.4.2 (Rambaut 2012).

For the *Biatoropsis* datasets, maximum likelihood analyses were performed in RAxMLGUI 1.5 (Silvestro & Michalak 2012), a graphical front-end for RAxML (Stamatakis 2014), using the GTRGAMMAI model of nucleotide substitution applied to all partitions. We performed a thorough ML search with 10 runs and assessed node support by thorough bootstrapping using 1000 bootstrap pseudoreplicates.

The Lichenological Exploration of Mauritius

In addition to literature references cited below, the historical data are based partly on valuable information obtained from Wikipedia (de.wikipedia.org, en.wikipedia.org and fr.wikipedia.org).

Mauritius

The first person to collect lichens in Mauritius seems to have been Philibert Commerson (1727–73), a French physician, naturalist and explorer. During his circumnavigation with Bougainville in 1767–68, he reached Mauritius on 8 November 1768. While Bougainville left Mauritius one month later, Commerson stayed there and enjoyed excellent working conditions at the botanical garden in Pamplemousses. He also explored Madagascar and Reunion, but returned to Mauritius in February 1771, where he died unexpectedly in 1773. His important collections were later brought back to Paris, but it seems that most have not yet been studied. Bory de Saint-Vincent (1828) published the new *Roccella flaccida* (a synonym of *R. boryi*), based on a Mauritius specimen obtained in 1826 from A. L. de Jussieu and collected by P. Commerson; Tehler & Irestedt (2007) lectotypified *R. flaccida* on specimen Jussieu 2444 (PC).

Louis-Marie Aubert du Petit-Thouars (1758–1831) was a French botanist who visited Mauritius in 1792. He collected many plants and described numerous new orchids from Mauritius, Reunion and Madagascar. In 1801, he guided a botanical excursion with Bory de Saint-Vincent (see below). He returned to France in 1802, bringing with him a herbarium of 2000 plant specimens. Although he did not intentionally collect lichens, the type specimen of the foliicolous lichen *Strigula elegans* (a synonym of *S. smaragdula*) kept in G (G 00292267) was collected by him ‘in insula Francia, supra folia arborum’.

Jean Baptiste Bory de Saint-Vincent (1778–1846) was a French naturalist who joined an expedition to Australia organized by Captain Nicolas Baudin in 1800. However, in March 1801 he left the vessel at Mauritius and spent two years exploring Reunion and other isles in the Indian Ocean. In 1804 he published the results from his expedition in the book ‘Voyage dans les quatre principales isles des mers d’Afrique, fait par ordre du Gouvernement, pendant les années neuf et dix de la République (1801 et 1802), avec l’histoire de la traversée du capitaine Baudin jusqu’au Port-Louis de l’Ile Maurice’. When he arrived in Port-Louis, he met French botanist Louis-Marie Aubert du Petit-Thouars (see above), who accompanied him during an excursion. In May 1801, he explored the Plaines Wilhems and especially the Corps de Garde (729 m high) in the Moka Range (a mountain range forming a semicircle around the capital, Port Louis). There he collected cryptogams, especially a beautiful golden undescribed *Usnea* species that he previously had discovered in Brittany (Bory 1804: 197). Then he visited Le Pouce (812 m), also in the Moka Range, where he found a remarkable vegetation. In June 1801, he visited the ‘jardin d’Etat aux Pamplemousses’, then the forests in the southern part of Mauritius, including the ‘Piton’. On 11 August 1801, he left Mauritius for Reunion. Although Bory reported many lichen species from Reunion (Bory 1804), including a number of new species, it seems that he did not publish any of his lichen specimens from Mauritius. Several specimens he collected in Mauritius have been located, such as the lectotype of *Sticta dichotoma* and the lectotype of *S. mougeotiana* (both kept in PC–Thuret), a specimen later identified by Hue as *Stictina carpoloma* (PC 0072998), or a specimen collected in 1802 (surely a lapsus for 1801, see above) ‘sur les grands arbres’ on Le Pouce (PC 0009140). Other specimens from Bory are annotated ‘Iles de France et Bourbon’, such as the lectotype of *Sticta aurigera* var. *nuda* (PC–Thuret), and some of these might originate from Mauritius as well. In his ‘Histoire des lichens. Genre *Sticta*’, annotated ‘1822’ but published only in 1825, dedicated ‘au Colonel Bory de Saint Vincent’, Delise (1825) studied the rich collections made by Bory in the African isles. In his ‘Essai sur les cryptogames des écorces exotiques officinales’, Fée (1824: CI) cited ‘Delise, Monog. ined., cum icon.’, following which the new *Roccella boryi* ‘Habitat in insula Borboniae, Mauriti, etc., ad rupes’; Tehler & Irestedt (2007) eventually lectotypified that name on a specimen from Ile de Bourbon (Reunion); although no collector

was mentioned, this certainly refers to specimens collected by Bory.

Bohemian botanist Franz Wilhelm Sieber (1789–1844) collected plants in Europe, the Middle East, Southern Africa and Australia. During his 1822–24 circumnavigation, he visited South Africa, Mauritius and Australia. He also sent Bohemian botanist Wenceslas Bojer (1795–1856) to Mauritius in 1821–22 to collect plants for him. After 1820, Sieber's behaviour and publications became progressively more erratic, and he spent the final fourteen years of his life in the Prague insane asylum, where he died at the age of fifty-five. Annotations on his herbarium labels are unreliable, and it seems that at least part of his lichen specimens annotated Mauritius originate from other countries (see below under *Cora gyrolophia* and *Sticta flavireagens*). Laurer's (1827) 'Sieber'sche Lichenen' reports on collections obtained from Sieber after his circumnavigation. About 25 specimens collected by W. Bojer in Mauritius, two of them dated 1836 and 1838, are now kept in MAU.

French botanist Charles-Paulus Bélanger (1805–81) travelled to the 'Indes Orientales' (Southeast Asia) and incompletely published the results in his work 'Voyages aux Indes orientales par le nord de l'Europe, les provinces du Caucase, la Géorgie, l'Arménie et la Perse, suivi de détails topographiques et autres sur le Pégou, les îles de Java, de Maurice et de Bourbon, sur le Cap de Bonne-Espérance et Sainte-Hélène, pendant les années 1825, 1826, 1827, 1828 et 1829'. Most lichen specimens collected in Mauritius and published by Bélanger (1834) are kept in PC in the Montagne herbarium. A duplicate of the type of *Oxystoma friesianum*, collected in Pamplemousses, is also kept in G.

British physician and botanist Philip Burnard Ayres (1813–63) was appointed to Mauritius in 1856, where he assembled extensive plant collections. He did not publish on lichens, but collected at least 25, amongst them the type specimens of *Cladonia intermediella*, *Ocellularia mauritiana*, *Opegrapha angulosa*, *Pannaria macrocarpa*, *Pyrenula truncata* and *Toninia ayresiana*. Most specimens are kept in BM, E, G or K. Many originate from Le Pouce, and some are annotated '1857'.

Mauritian naturalist (Jean Marie Rose) Albert Daruty de Grandpré (1853–1928) collected over 150 lichen specimens in 1873–74, almost all kept in MAU. Daruty (1873) published over 80 species, unfortunately without any indications of locality or ecology, all identified by H. A. Weddell; eight new species, published without descriptions and without type citations, are nomina nuda. Two specimens are also kept in PC (*Stictina argyracea*, PC0072291; *S. rigidula*, PC0072292).

Mauritian physician and naturalist Victor de Robillard (1856–84) collected about 50 lichen specimens in Mauritius, mainly in 1876, including the types of *Pertusaria pertusa* var. *minor*, *P. pertusella*, *P. subtruncata*, *Stictina robillardii*, *Synechoblastus robillardii* and *Usnea straminea*.

In a small report on the flora of Round Island (Johnston 1894), Henry Halcro Johnston (1856–1939) collected lichens that were later identified by C. H. Wright from the

Kew herbarium; he also collected the type of *Endocarpon johnstonii* on Ile aux Fouquets.

The Mauritius Herbarium (MAU) currently houses about 860 Mauritian lichen specimens from many collectors (Baider, pers. comm.), the most important ones, in addition to A. Daruty, being British botanist Reginald Edward Vaughan (1895–1987) (almost 200 specimens collected in 1928–81), American botanist David H. Lorence (131 specimens collected in 1971–76 and 1994) and British botanist Colville Barclay (1913–2010) (69 specimens collected in 1971–78).

Jonathan D. Sauer (1918–2008) collected about 20 lichens in the Macchabee Forest and Pétrin between 1959 and 1961, now kept in MAU, S and WIS.

Lars Arvidsson & Dan Nilsson collected lichens in Mauritius in April 1979 (specimens kept in GB); results, mainly on *Coccocarpia*, have been published by Arvidsson (1982) and Galloway & Jørgensen (1987).

Austrian botanists Harald Riedl and Christa Riedl-Dorn visited Mauritius in 1981, with the aim of sampling the entire lichen flora from that country. Their specimens are kept in W, but most seem not to have been identified. Nothing has been published by them, except for a summary of their results (Riedl & Riedl-Dorn 1986), mentioning the genera encountered, not the species. The number of cryptogamic specimens collected is about 500, the majority of them lichens (Riedl & Riedl-Dorn 1986).

British mycologist and lichenologist David Leslie Hawksworth collected 83 lichen specimens in 1990, all kept in K-IMI. In a first paper by David & Hawksworth (1995), the authors published, in addition to new records of a number of species, five species new to science: *Cladonia mauritiana*, *Mycomicrothelia leuckertii*, *Ocellularia petrinensis*, *Pertusaria hymenelioides* and *Pertusaria muricata*. They announced that the second part would deal mainly with crustose species, but that part was never published.

Norwegian lichenologists Hildur Krog (1922–2014) and Einar Timdal visited Mauritius in 1991 and collected about 1150 lichen specimens, all kept in O, with some duplicates in MAU. Some of their results were published by Timdal (2002: new genus and species *Krogia coralloides*) and Timdal & Krog (2001: 11 species of *Phyllopsora* reported from Mauritius, including the new *P. dolichospora* and *P. swinscowii* with type localities in Mauritius).

During a 'Study Tour to the Mascarenes' in 2001, Ulrik Søchting and his students visited Perrier, the Magenta Valley, Le Pétrin, Île aux Aigrettes and Le Pouce in Mauritius. They collected around 100 specimens, kept at C, and some results based on their collections were published in Arup et al. (2013), Johannson et al. (2005), Lücking et al. (2017a), Moncada et al. (2014) and Stenroos et al. (2006). An unpublished report on the *Lobariaceae* was prepared by students Holm & Gregersen (2002), and a poster presented at IMC 7 in Oslo (Holm et al. 2002).

Anders Tehler visited Mauritius in December 2003 with the main aim of collecting *Arthoniales*, now kept in S; results were published in Tehler & Irestedt (2007) and Tehler et al. (2010, 2013).

Emmanuel Sérusiaux briefly visited Mauritius in 2013 and collected in the Botanical Garden of Pamplemousses and in the forests around Pétrin and the Piton de la Petite Rivière Noire, the specimens being kept at LG; his *Sticta* specimens have been studied by Simon (2015) and Simon et al. (2018).

The second author of this paper, Damien Ertz, briefly visited Mauritius in 2014 and 2016 and collected about 80 lichen specimens in the Botanical Garden in Pamplemousses; those specimens are kept in BR, including the type of the new *Glomerulophoron mauritiae*, while duplicates of all specimens have been deposited in MAU. The first author, Paul Diederich, visited Mauritius in 2016 and collected about 375 lichen specimens; they will be kept in MAU, with duplicates in the private collection of the author. Both of us also visited Mauritius in August–September 2019 and collected about 670 (PD) + 875 (DE) specimens, but only a small part of these results are included in the present paper.

Rodrigues

Scottish botanist Isaac Bayley Balfour (1853–1922) participated in the Venus-Transit Expedition to Rodrigues, where he investigated the local flora from September to December 1874. The lichens he collected were studied by James Mascall Morrison Crombie (1830–1906) and William Nylander (1822–99), and published in three papers.

Following an anonymous note at <https://plants.jstor.org/stable/10.5555/al.ap.specimen.h9510166>, the paper in *The Journal of Botany* 14: 262–265, including short diagnoses of new species, was published in September or October 1876 (Crombie 1876a), while the paper in *Journal of the Linnean Society, Botany* 15: 431–445 with longer descriptions and discussions, although ‘Read June 15, 1876’, was published only in December 1876 (Crombie 1876b). Crombie (1876a: 262) wrote that he publishes here short diagnoses ‘previous to a more detailed report’, confirming that the Crombie (1876a) paper was intended to be published first. A third paper, published in *Philosophical transactions of the Royal Society of London* 168: 402–413 (Crombie 1879), represents a copy of Crombie (1876b) and therefore has not been considered in our checklist.

In Crombie (1876a), short diagnoses of 26 new species and one new variety were given. Crombie (1876b) gave detailed descriptions of these 27 taxa and also reported many other taxa collected in Rodrigues. This paper additionally described new infra-specific taxa not included in Crombie (1876a), such as *Ramalina gracilentia* f. *nodulosa*.

Crombie (1876a) described some new species himself, such as ‘*Cladonia balfourii* Cromb.’, but attributed others to Nylander, such as ‘*Usnea dasyvogoides* Nyl.’. Although Crombie (1876b: 432) acknowledged Nylander ‘who has also kindly sent me his MS. diagnoses of the species determined by him’, he failed to do so in his first paper (Crombie 1876a). Therefore the author citation for such species should be ‘Nyl. ex Cromb.’ or simply ‘Cromb.’, and not ‘Nyl.’ (ICN, Art. 46.5, 46.8).

Both of us visited Rodrigues in September 2019 and collected about 200 (PD) + 250 (DE) specimens, but only a few of these specimens are included here.

Other Isles

In addition to the isles of Mauritius and Rodrigues, the Republic of Mauritius also comprises the outer islands of Agaléga and St. Brandon; no lichens have yet been reported from these isles, although two *Ramalina* specimens from Agaléga are kept in MAU. Mauritius further claims sovereignty over the uninhabited isle of Tromelin, from where no lichens have ever been reported, and the Chagos Archipelago, including Diego Garcia. The lichens from the latter archipelago were sampled by Mark Seaward during the 1996 Chagos Expedition and published in Seaward & Aptroot (2000). These records have not been included in our checklist below.

The Checklist

The checklist is presented in alphabetical order; accepted taxa are in boldface, while dubious taxa and synonyms are not bolded and are in smaller characters; genera are ‘accepted’ when they include at least one accepted species; species are ‘accepted’ when representative specimens have been examined either by us or recently by lichen taxonomists; all other reported species for which a re-examination of relevant material is needed are considered ‘dubious’. Names of taxa newly described from Mauritius (except those described in this paper) are preceded by an asterisk; when the Mauritian origin of a type is dubious, the asterisk is parenthesised (*). Names of lichenicolous species (except the one newly described) are preceded by a plus sign. For taxa described from Mauritius, information on types is given, as far as possible, often using online databases, such as JSTOR (<https://plants.jstor.org>); for species known from Mauritius, the frequency and distribution data are often completed using unpublished information from online databases of herbaria, such as the Oslo herbarium (O) (https://www.gbif.org/occurrence/search?country=MU&dataset_key=7948250c-6958-4a29-a670-ed1015b26252); however, with a few exceptions, no attempts have been made to re-examine such types or other historical specimens reported from the country. As a rule, specimens collected by the first author are kept in MAU, with duplicates in herb. Diederich; those collected by the second author are kept in MAU, with duplicates in BR; when a single herbarium is indicated, such as ‘(MAU)’, then there are no further duplicates; ‘Diederich 18284 (dupl. LG)’ means that a duplicate is kept in LG, in addition to duplicates in MAU and herb. Diederich. Taxonomic (heterotypic) synonyms are indicated by ‘=’, nomenclatural (homotypic) synonyms by ‘≡’.

ACROCORDIA A. Massal.

gemmata (Ach.) A. Massal. [≡ *Verrucaria gemmata* (Ach.) Ach.]. The report by Daruty (1873) from Mauritius is very doubtful, as this is a temperate species unlikely to occur in the tropics.

AGONIMIA Zahlbr.**opuntiella** (Buschardt & Poelt) Vězda

Pamplemousses: 1 km NNW of Botanical Garden, S of Museum 'Aventure du sucre', on bark, 2016, Diederich 18623 (MAU). **Rivière Noire:** Ebony Forest, viewpoint, on exposed rocks, 2019, Diederich 19392.

New for Mauritius.

pacifica (H. Harada) Diederich

Plaines Wilhems: Curepipe, Trou aux Cerfs, along road surrounding the crater, on bark, 2016, Diederich 18277 (MAU, sub *Thecaria quassiiicola*). **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18617 (MAU); Ebony Forest, around viewpoint, on bark, 2019, Diederich 18920. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 18849 & Ertz 23507.

New for Mauritius.

ALLOGRAPHA Chevall.

angustata (Eschw.) Lücking & Kalb [= *Graphis angustata* Eschw.]. Reported from Mauritius by Daruty (1873).

calcea (Fée) Lücking & Kalb

Plaines Wilhems: Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18352.

A pantropical species, new for Africa.

comma (Ach.) Lücking & Kalb [= *Graphis comma* (Ach.) Spreng.]. Reported from Mauritius by Daruty (1873).

laubertiana (Fée) Lücking & Kalb [= *Opegrapha laubertiana* (Fée)Bél.]. 'Sur l'écorce des arbres, à l'île Maurice' (Bélangier 1834).

rimulosa (Mont.) Lücking & Kalb

Pamplemousses: Jardin Botanique, on bark of *Agathis robusta*, 2016, Ertz 21483. **Savanne:** Road from Le Pétrin to Chamouny, beginning of trail to Montagne Cocotte, on branches, 2016, Diederich 18374.

A pantropical species, new for Africa.

rustica (Kremp.) Lücking & Kalb

*= *Graphis turgidula* Müll. Arg., J. Linn. Soc., Bot. 30: 457 (1895). Type: Mauritius, summit of Mt Pouce, corticolous, Ayres (BM, lectotype; G-00047548, G-00047547, isolectotypes) (Archer 2006: 83, Archer 2009: 141, Wirth & Hale 1978: 24).

Port Louis and Moka: Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24118 (TLC: stictic, hypostictic, unknown terpenoid, solvent A).

striatula (Ach.) Lücking & Kalb

Pamplemousses: Jardin Botanique, on bark, 2016, Diederich 18258 (TLC: no substance detected, solvent A).
New for Mauritius.

AMANDINEA M. Choisy ex Scheid.

& M. Mayrhofer

efflorescens (Müll. Arg.) Marbach

Moka: Réduit, close to Mauritius Herbarium building, on bark of *Mangifera*, 2019, Diederich 18691 & Ertz 23247.

Rivière Noire: E of Flic-en-Flac, Casela Nature Park, on bark, 2016, Diederich 18315; La Preneuse (between Tamarin and Grande Rivière Noire), cemetery, on bark at the base of a tree, 2016, Diederich 18387; Le Morne Peninsula, S coast, on bark of *Casuarina*, 2019, Diederich 19446.

New for Mauritius.

ANAPTYCHIA Körb.

cinerascens (Nyl.) Dodge var. **pulvinigera** (Müll. Arg.) Dodge. Reported from Rodrigues, 1874, Balfour, by Dodge (1971: 212).

comosa (Eschw.) A. Massal. ≡ *Heterodermia comosa*

leucomelaena (L.) A. Massal. ≡ *Leucodermia leucomelos*

speciosa (Wulfen) A. Massal. ≡ *Heterodermia speciosa*

ANISOMERIDIUM (Müll. Arg.) Choisy**anisolobum** (Nyl.) Aptroot

Rivière Noire: Chamarel, Ebony Forest, close to park buildings, on bark, 2016, Diederich 18536; east of Black River, from Visitor's Centre to Pilgrims Trail, on bark, 2016, Diederich 18486.

New for Mauritius.

ANTHRACOTHECIUM Hampe ex A. Massal.

borbonicum (Nyl.) Müll. Arg. = *Anthracotheceium prasinum*

denudatum (Nyl.) Müll. Arg. [= *Verrucaria denudata* Nyl.]. Reported from Mauritius by Daruty (1873), and from Rodrigues, on bark of trees, 1874, Balfour 2244, by Crombie (1876b).

prasinum (Eschw.) R. C. Harris [= *A. borbonicum* (Nyl.) Müll. Arg.]. Reported from Mauritius by Dodge (1964: 17).

ARTHONIA Ach.

atra (Pers.) A. Schneid. [= *Opegrapha atra* Pers.]. 'Sur les bois morts, dans les forêts de l'île-de-France' (Bélangier 1834, as *O. atra* var. *abbreviata* Flörke).

***dendritella** Nyl. ex Cromb., J. Bot. 14: 264 (1876). Type: Rodrigues, on thin bark of trees, 1874, Balfour, 2300 (BM, H) (Crombie 1876a, b).

obscura Ach. 'Sur l'écorce des arbres, aux îles Maurice et de Bourbon, et dans la péninsule indienne' (Bélangier 1834).

***phylloica** Nyl. ex Cromb., J. Bot. 14: 264 (1876). Type: Rodrigues, 'foliicole' (Crombie 1876a) or 'on thin stems' (Crombie 1876b), 1874, Balfour 2226 (BM, H) (Crombie 1876a, b).

spectabilis Flot. ≡ *Arthothelium spectabile*

***ulcerosula** Wedd. ex Nyl., Bull. Soc. linn. Normandie, sér. 2, 7: 174 (1874 ['1873']); ≡ *Arthonia ulcerosula* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n.s. 7: 163 (1873), nom. nud. Type: 'Corticola in insula Mauriti'.

ARTHOPYRENIA A. Massal.

***quinqueseptatula** (Nyl. ex Cromb.) Zahlbr., Cat. Lich. Univ. 1: 335 (1922); ≡ *Verrucaria quinqueseptatula* Nyl. ex Cromb. [as *Verrucaria 5-septatula*], J. Bot. 14: 265 (1876). Type: Rodrigues, on the thin epidermis of bark of trees, 1874, Balfour 2352 (BM, H) (Crombie 1876a, b).

ARTHOTHELIUM (Vain.) Zahlbr.

spectabile A. Massal. [= *Arthonia spectabilis* (A. Massal.) Anzi].

The report from Mauritius by Daruty (1873) is very doubtful, as this is a temperate species.

ASTROTHERLIUM Eschw.

phlyctaenum (Fée) Aptroot & Lücking [= *Verrucaria macrozoma* Fée]. ‘Sur l’écorce des arbres, dans les forêts du Carnatic et de l’île Maurice’ (Bélanger 1834). *Verrucaria macrozoma* is a synonym of *Trypethelium catervarium* (Fée) Tuck. (fide Awasthi 1965), of which the current name is *Astrothelium phlyctaenum* (fide Aptroot et al. 2016: 997).

BACIDINA Vězda

medialis (Nyl.) Kistenich, Timdal, Bendiksby & S. Ekman

Pamplemousses: Jardin Botanique, on bark, 2016, Diederich 18256, 18582. **Rivière Noire:** East of Black River, from Visitor’s Centre to Pilgrims Trail, on bark, 2016, Diederich 18503.

New for Mauritius.

BACTROSPORA A. Massal.

cf. *myriadea* (Fée) Egea & Torrente. Reported from Mauritius by Crittenden et al. (1995).

BAIDERA Ertz & Diederich, gen. nov.

Mycobank MB 834917

Diagnosis: A genus of *Roccellaceae* characterized by a thick, crustose, ecorticate, compact thallus, lirelliform ascomata with a carbonized lecideine excipulum, a carbonized hypothecium extending down to the substrate, a pruinose and not tomentose hymenial disc, ascospores without a distinct gelatinous sheath and the psoromic acid chemosyndrome.

Generic type: *Baidera mauritiana* Ertz & Diederich.

Description. Thallus crustose, thick, compact, ecorticate. Photobiont trentepohlioid. Ascomata lirelliform; ascomatal margin lecideine; hymenial disc pruinose, not tomentose; excipulum dark brown to carbonized; hypothecium dark brown to carbonized, extending down to the substrate; hymenium K/I+ pale blue; paraphysoids mostly simple, sometimes branched (mainly in epihymenium), with a slightly enlarged apical cell; asci narrowly clavate, with a K/I+ blue internal wall (in particular when young), and a K/I+ blue ring around a tiny ocular chamber (*Abietina*-type according to Egea & Torrente 1994). Ascospores hyaline, fusiform, straight, without a distinct gelatinous sheath. Conidiomata pycnidial; conidiogenous cells simple, straight; conidia hyaline, simple. Chemistry: psoromic acid chemosyndrome.

Notes. The new genus forms a distinct lineage in the family *Roccellaceae*, being somewhat related to the genera *Gyrophysa* and *Sigridea*, but relationships between these genera are not supported (Fig. 4). It differs from all genera of *Roccellaceae* by the combination of a thick crustose, not byssoid thallus, lirelliform ascomata with a carbonized excipulum not covered by a thalline layer, a carbonized hypothecium extending down to the substrate, a pruinose and not tomentose hymenial disc, ascospores without a distinct gelatinous sheath, and a chemistry with psoromic acid as major substance. The genus is reminiscent of *Lecanographa*, but species of the latter have ascospores with a distinct gelatinous sheath, an ascus of the

Grumulosa-type, and they belong to a distinct lineage in the family *Lecanographaceae*.

Etymology. The new genus is dedicated to Cláudia Baider, curator of the Mauritius Herbarium (MAU), as an acknowledgement of her valuable help to us in exploring the lichens of Mauritius. Cláudia is very interested in the conservation of biodiversity in tropical terrestrial systems, in the impact of alien species in tropical forests, and in the restoration ecology and taxonomy of Mascarene flowering plants.

Baidera mauritiana Ertz & Diederich, sp. nov.

(Figs 3–4)

Mycobank MB 834918

Diagnosis: The only species of *Baidera* is characterized by a pale greyish, almost white thallus, ascomata of 0.25–2.7 × 0.19–0.29 mm, a K+ olivaceous green excipulum and 3(–4)-septate ascospores of 25–35 × 4.5–6.0 µm.

Type: Mauritius, Pamplemousses district, Pamplemousses, Sir Seewoosagur Ramgoolam Botanical Garden, 20°06'21"S, 57°34'49"E, alt. 80 m, on bark of *Mangifera*, 29 Dec. 2016, Ertz 21443 (MAU – holotype, BR, herb. Diederich – isotypes).

Description. Thallus 50–280 µm thick, continuous, pale greyish, almost white, ±smooth to rough, sometimes with areas appearing bullate, rimose to areolate, esorediate or rarely with whitish soredia, non-isidiate; medulla containing crystals (1–8 µm diam.) of calcium oxalate (tested with 25% H₂SO₄), I+ red; hyphae hyaline, 1.5–2 µm diam., I+ orange; prothallus dark brown, 0.1–0.5 mm wide. Photobiont cells elongated, ~6–14 × 5–10 µm. Ascomata lirelliform, simple, rarely with one ramification, semi-sessile, without constricted base, straight to strongly flexuose 0.25–2.0(–2.7) × 0.19–0.29 mm, scattered or densely distributed; ascomatal margin prominent, slightly raised above the level of the hymenial disc, black, ±smooth, ±glossy; hymenial disc black, ±smooth, plane, covered by a thin layer of white pruina; excipulum 42–50 µm thick laterally, K+ olivaceous green; hypothecium 85–175 µm thick, K+ olivaceous green; hymenium not interspersed, pale yellowish to almost hyaline, 75–85 µm tall, I+ dark red; subhymenium ~10–15 µm thick, I+ pale blue in parts; epihymenium pale orange-brown, I+ pale orange to pale blue, K– (becoming almost hyaline); paraphysoids mostly simple, sometimes branched (mainly in epihymenium), 1.5–2 µm, with a slightly enlarged and pale orange-brown apical cell of 2–3 µm in diameter; asci 8-spored, 65–70 × 13–15 µm. Ascospores 3(–4)-septate, (25–)25.4–30.7(–35) × (4.5–)4.8–5.7(–6) µm, ratio L/B (4.6–)4.9–5.9(–6.4) (n = 26). Conidiomata either prominent, 0.3–1 mm diam, with a thick thallus border and pore-like to short slit-like, slightly exposed, pale to dark brown opening, or immersed; wall rather inconspicuous, ~10 µm thick, pale yellowish; conidiogenous cells ~5–8 × 1.5–2 µm; conidia straight, rarely slightly curved, 4–6 × 1.5(–2) µm. Chemistry: thallus K–, C–, KC–, PD+ distinctly yellow, UV–; psoromic (major) and three ±fatty acids of Rf 7, 10 and 17 detected by TLC (solvent B’).

Ecology and distribution. The species is known from two localities in Mauritius, where it grows on the bark of big trees in parkland conditions.

Notes. The new species is unique in having a thick pale greyish thallus containing psoromic acid, the lirelliform ascomata with a carbonized K+ olivaceous green excipulum, an exposed whitish pruinose hymenial disc, and 3-septate

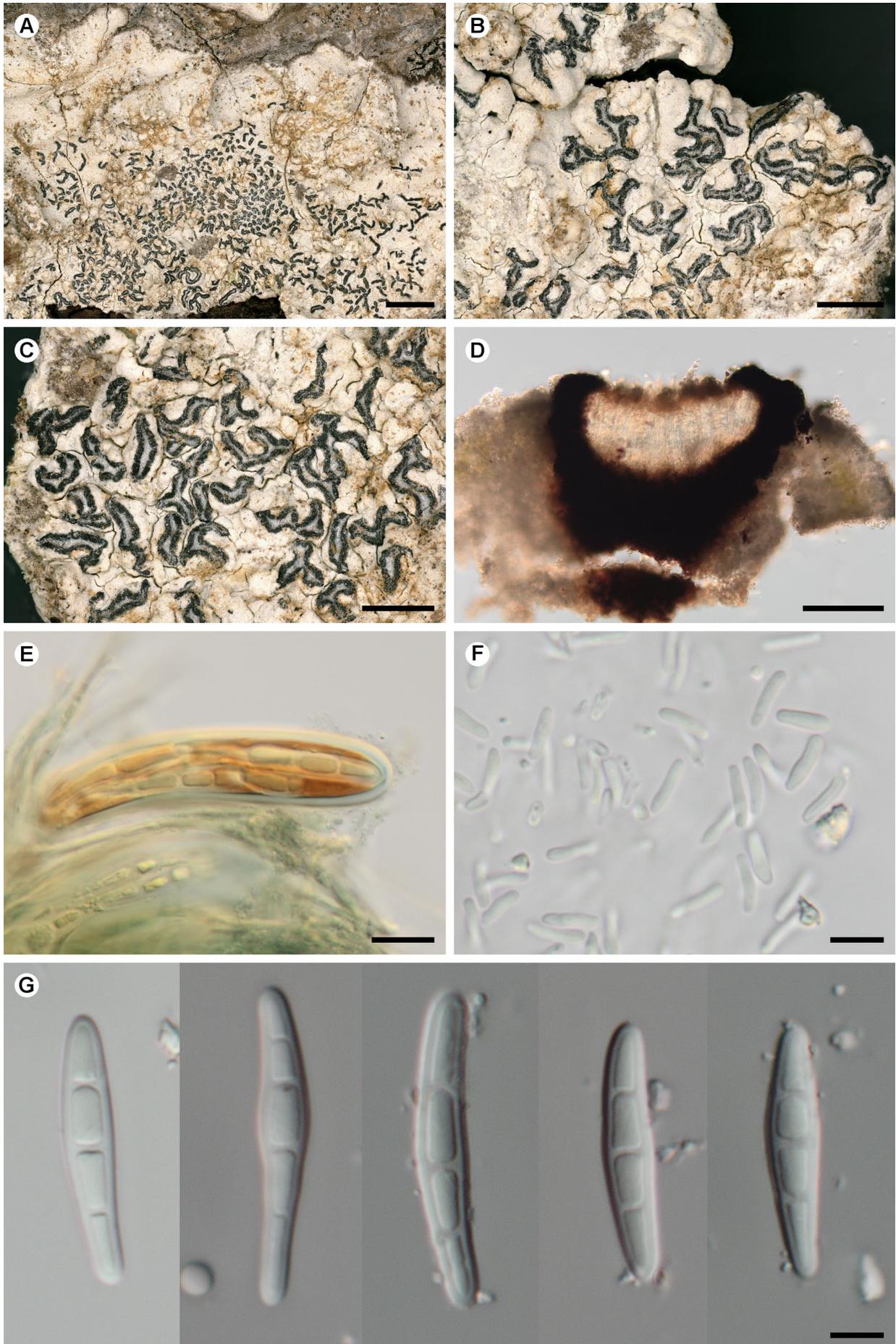


Figure 3. *Baidera mauritiana* [holotype]. A–C – thallus and ascomata; D – section of ascoma, in water; E – asci, in KI; F – conidia, in water; G – ascospores, in water. Scale bars: A = 2.5 mm; B–C = 1 mm; D = 100 μ m; E = 10 μ m; F–G = 5 μ m. Photos: D. Ertz.

large ascospores lacking a gelatinous sheath. *Lecanactis californica* is similar to our new species by the presence of psoromic acid and 3-septate ascospores, but differs by more roundish, unbranched, wider ascomata that are constricted at the base, slightly shorter ascospores (20–28 µm), and filiform conidia 5–6 × 1 µm (Egea & Torrente 1994). The new species is reminiscent of *Lecanographa*, a genus in which *L. follmanii* appears to be the most similar to our new species, but it differs by much narrower ascospores (3–3.5 µm wide) with a distinct gelatinous sheath. Specimens Diederich

18734, 18741 and Ertz 21486 have only pycnidia, while specimen Diederich 18246 is sorediate.

Etymology. The specific epithet refers to the occurrence in Mauritius.

Additional specimens examined. MAURITIUS. **Pamplemousses:** Pamplemousses, Sir Seewoosagur Ramgoolam Botanical Garden, 80 m, 20°06'21"S, 57°34'49"E, on bark of a big tree, 2016, Ertz 21486 (pycnidia only); *ibid.*, 20.10631°S,

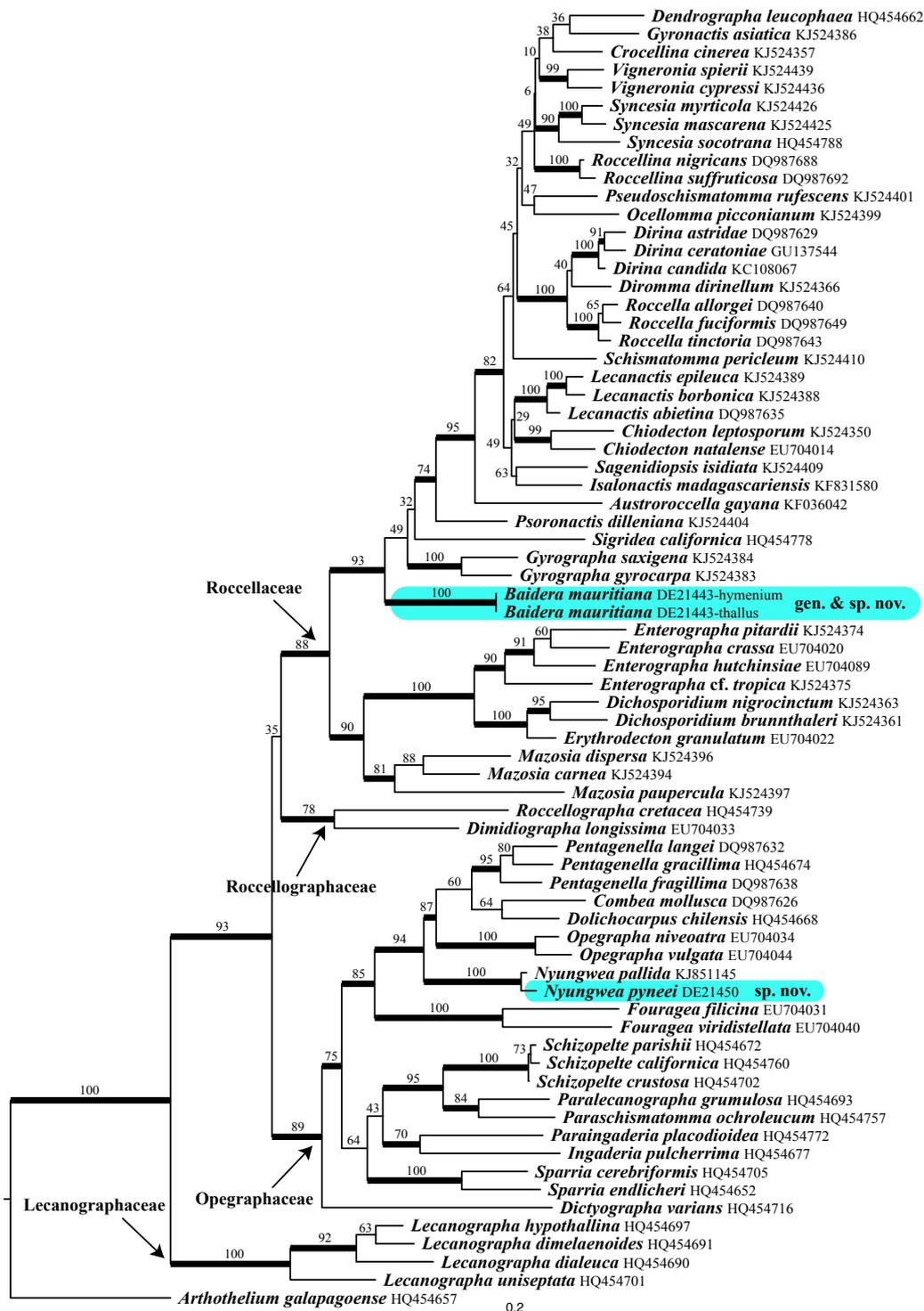


Figure 4. Phylogeny of Arthoniales based on a data set of RPB2 sequences that resulted from a RAxML analysis. Maximum likelihood bootstrap values are shown above or near internal branches. Internal branches, considered strongly supported by both the RAxML and Bayesian analyses, are represented by thicker lines. The newly sequenced samples from Mauritius are highlighted and their names followed by collecting numbers of authors, which act as specimen and sequence identifiers.

57.58133°E, on bark of trees, 2016, Diederich 18246 (fertile and sorediate). **Moka:** Réduit, State House Park, on bark, 2019, Diederich 18734, 18741, 18742 & Ertz 23312.

BIATORA Ach.

leucoxantha (Spreng.) Bél. ≡ *Brigantiaea leucoxantha*

BIATOROPSIS Räsänen

Biatoropsis millanesiana Diederich & Wedin, sp. nov. (Figs 5–6)

MycoBank MB 834919

Diagnosis: Characterized by large, brown, relatively dark basidiomata, and 3-septate basidia with the three lower cells laterally often elongating at maturity.

Type: Mauritius, Rivière Noire, Chamarel, Ebony Forest, around viewpoint, 20°25'49"S, 57°22'27"E, alt. 350 m, on branches of trees, on *Usnea exasperata* s. l., 8 Aug. 2016, Diederich 18524 (MAU – holotype, BR, MAF, S, herb. Diederich – isotypes).

Description. Basidiomata inducing the formation of convex, basally constricted galls, sometimes slightly tuberculate when mature, waxy gelatinous when wet, pale brown to more frequently dark brown or blackish, (0.3–)0.6–1.5(–2.5) mm diam. Context hyphae thin-walled, 2–3 µm diam., clamp connections not observed. Haustorial branches frequent, mother cell spherical to subspherical, 4–6 × 3–4 µm, haustorial filament 1–1.5 µm diam. Hymenium hyaline, containing numerous probasidia; probasidial initials clavate to subcylindrical; basal clamp not observed. Basidia, when mature, 4-celled, with three transverse septa, not or slightly constricted at the septa, the lower cell with an attenuated stalk-like base, often longer than the upper cells, 21–72 × 4–10 µm (incl. stalk-like base, excl. epibasidia), lower part of the stalk-like base 2–4 µm diam.; the three lower cells laterally much elongate at maturity, sometimes giving the appearance of immature independent basidia, 4–6 µm thick. Epibasidia up to 50 µm long. Basidiospores globose to ellipsoid, (4–)5–8 × (5.5–)6–9(–11) µm, ratio L/B 0.6–1, with a distinct apiculus, ~1 µm diam. Asexual morph not observed.

Hosts and distribution. Lichenicolous on the thallus of *U. exasperata* s. l., on which it is very abundant in Mauritius, Rodrigues and the Seychelles (Praslin) in the Indian Ocean. *Usnea exasperata* currently seems to represent a heterogeneous assemblage of several species, but no taxonomic and phylogenetic revision is available yet to identify them.

Notes. Millanes et al. (2014; 2016) recognized an independent evolving lineage provisionally named *Biatoropsis* sp. F. Specimens from this clade were reported from *Usnea ceratina*, *U. exasperata*, *U. hirta* and *U. rubicunda*. Millanes et al. (2016) ‘have not been able to identify any morphological or ecological characters that could distinguish specimens in this clade from *Biatoropsis usnearum* s.str.’ and preferred to wait for a formal description until more material is available. Our rich material from several localities in Mauritius, incl. Rodrigues, allowed us to better understand the phylogenetic relationships between the specimens included in *B. sp. F* (Fig. 6). Our results show that the clade formerly recognized as *Biatoropsis* sp. F represents in reality at least two distinct species, one confined to *Usnea exasperata* s.lat. in the Indian Ocean, and another one on *U. rubicunda* (with a further specimen known from *U. ceratina* [host identified

by C. Truong; TLC: diffractaic]). Populations on *U. hirta* reported from Arizona by Millanes et al. (2016) are not considered here, owing to the deviating morphology of basidiomatal galls (broad, almost disk-like, concolorous to the host thallus), and will be treated elsewhere.

The available nice and richly fertile material from Mauritius and Rodrigues permits us to describe the species formally here. The main characterizing feature may be the 3-septate basidia, in which the three lower cells elongate laterally at maturity, giving the appearance of several individual aseptate basidia (Fig. 5I). Such basidia had not been observed in the Seychelles specimen by Millanes et al. (2016), and rich fertile material seems to be needed to observe them. Similar basidia are also known from *Biatoropsis hafellneri*, a species confined to the *Usnea fragilesceus* aggregate, but in that species they are always 1-septate, and basidiomata are pale orange or brown. Basidiomata of *Biatoropsis minuta* are always smaller, 0.1–0.8 mm diam., and this species is known only from the two related *Usnea barbata* and *U. lapponica*. *Biatoropsis protousneae* has large, often flattened basidiomata and is confined to *Protousnea dusenii*. *Biatoropsis usnearum* s.str. has large basidiomata ranging from pale brown to blackish, but typically pinkish to orange-brown; European specimens appear to grow exclusively on the *Usnea florida/subfloridana* complex, while populations from other continents are more diverse regarding host selection (Millanes et al. 2016).

Crombie (1876b) described the new *Usnea dasypogoides* from Rodrigues and mentioned that ‘scattered «cephalodia» not unfrequently occur’, suggesting basidiomata of the new *Biatoropsis*. However, no such basidiomata are seen in online photographs of syntypes of *U. dasypogoides* in E, G and H.

Etymology. The new species is dedicated to our friend Ana Millanes, mycologist at King Juan Carlos University, Madrid, to honour her huge contribution to the study and knowledge of heterobasidiomycetes in general and especially of lichenicolous *Tremellales*.

Additional specimens examined. MAURITIUS (all on *Usnea exasperata* s. l.). **Plaines Wilhems:** Curepipe, Curepipe Botanic Gardens, 2016, Diederich 18291 (specimen kept under *U. exasperata* s. l.). **Rivière Noire:** Same locality as type, 2019, Diederich 18921 & Ertz 23556A. **Rodrigues:** N of Grande Montagne, near road bifurcation W of Brûlé, 2019, Diederich 18979 & Ertz 23805 (sub *Usnea*); Grande Montagne Nature Reserve, 2019, Diederich 18997 & Ertz 23722, 23723; SE of Mont Lubin, Mont Limon, near the top, 2019, Diederich 19029. SEYCHELLES. **Praslin:** Praslin National Park, SE of Vallée de Mai, along trail to Glacis Noir and fire tower, 4°20.23'S, 55°44.58'E, 2015, Diederich 18087B (SEY, herb. Diederich).

BILIMBIA De Not.

lobulata (Sommerf.) Hafellner & Coppins [= *Lecanora murorum* var. *lobulata* (Sommerf.) Schaer.]. Reported from Rodrigues, on rocks, 1874, Balfour 2350, by Crombie (1876b).

BOGORIELLA Zahlbr.

**leuckertii* (D. Hawksw. & J. C. David) Aptroot & Lücking Lichenologist 48: 911 (2016); ≡ *Mycomicrothelia leuckertii* D. Hawksw. & J. C. David, in David & Hawksworth, Biblioth. Lichenol. 57: 98 (1995). Type: Plaines Wilhems, Vacoas, ingressus sylvae Macchabeae, on bark of *Syzygia jambosa*, 11 June 1990, Hawksworth (K-IMI 400619,

holotype) (David & Hawksworth 1995; Crittenden et al. 1995; Aptroot & Lücking 2016: 911)

thelena (Ach.) Aptroot & Lücking [= *Verrucaria thelena* Ach.].
'Sur l'écorce des Rubiacées et particulièrement sur celle des
Ixora, sur celle des *Strychnos* et de plusieurs Térébinthacées'
(Bélanger 1834).

BRIGANTIAEA Trevis., nom. rej.

leucoxantha (Spreng.) R. Sant. & Hafellner

≡ *Biatora leucoxantha* (Spreng.) Bél.; ≡ *Lopadium leucoxanthum* (Spreng.) Zahlbr.

Rivière Noire: Trail from Plaine Champagne towards Piton

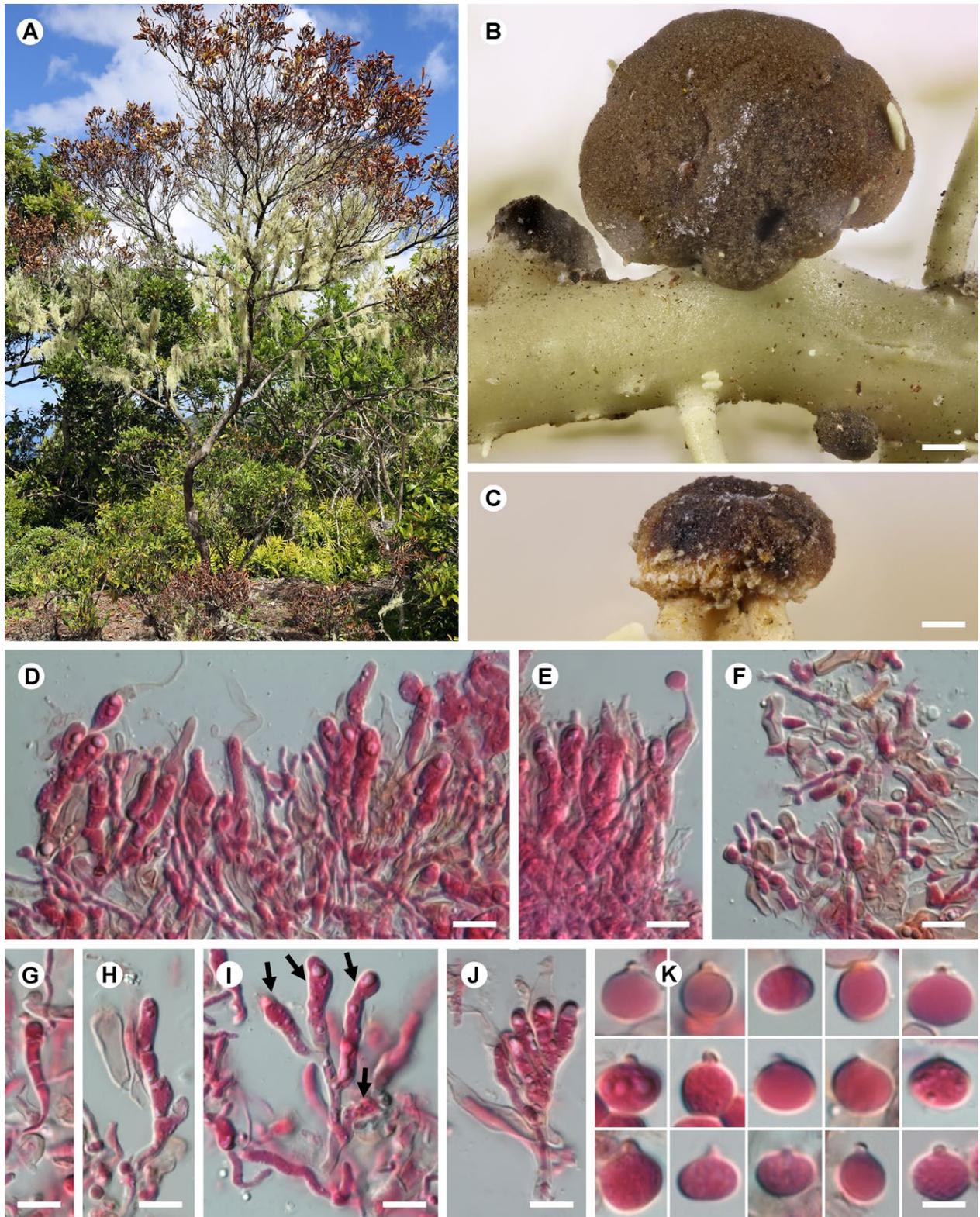


Figure 5. *Biatoropsis millanesiana* [holotype]. A – type locality in Mauritius; B–C – basidiomata; D–E – hymenium, showing basidia, epibasidia and one basidiospore attached to an epibasidium; F – haustorial branches; G – young, 3-septate basidium; H – basidium with laterally slightly elongate cells; I–J – mature basidia with four laterally elongate and diverging cells (in I shown by arrows); K – basidiospores. D–K in a mixture of 5% KOH, phloxine B and Congo Red. Scales: B–C = 200 μ m; D–J = 10 μ m; K = 5 μ m. Photos: P. Diederich.

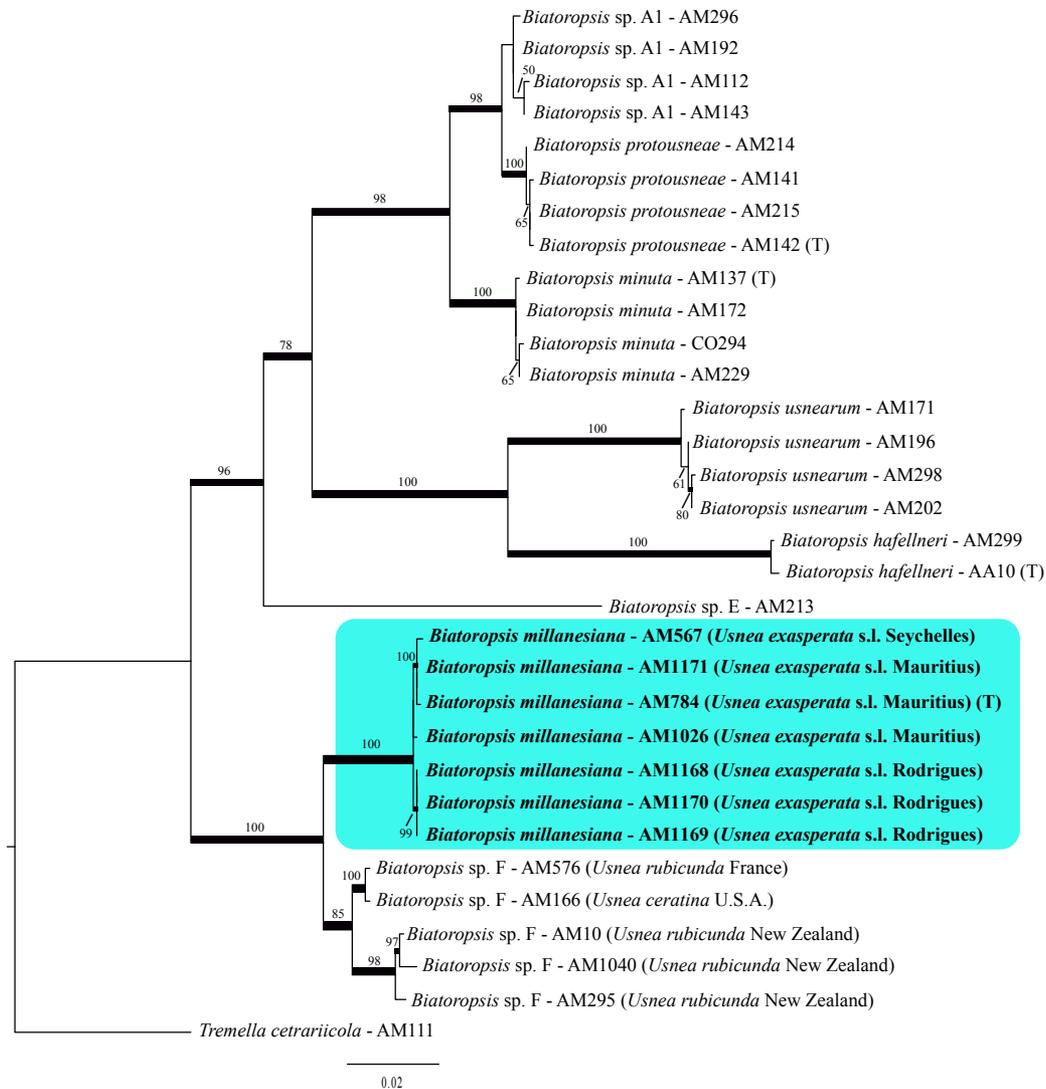


Figure 6. Phylogram showing the position of the new species *Biatoropsis millanesiana* (blue box), based on ITS and nuLSU sequences, corresponding to the best tree recovered in the maximum likelihood analysis, with information on ML bootstrap values added. Thick branches indicate nodes with ML bootstrap values over 75%. Type specimens are indicated by (T).

de la Petite Rivière Noire, on bark, 2016, Diederich 18421, 18422; Chamarel, Ebony Forest, along trail W of viewpoint, on bark, 2019, Ertz 23586. **Port Louis and Moka:** Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24048.

Previously reported from Mauritius ‘Sur les bois morts’ by Bélanger (1834), by Lindau (1908), from BM, G and H by Hafellner (1997: 55), and from Rodrigues (BM) by Hafellner (1997: 55).

tricolor (Mont.) Trevis. Hafellner (1997: 71) wrote under *Lecidea leucoxantha* var. *ochrocarpa* that ‘Until now only *B. tricolor* has been found in Mauritius’. This is certainly a lapsus, as this author reported having studied several specimens of *B. leucoxantha* from Mauritius and Rodrigues, while *B. tricolor* is known from Madagascar and Reunion but not from Mauritius.

BROWNLIELLA S. Y. Kondr., Kärnefelt, Elix, A. Thell & Hur

cinnabarina (Ach.) S. Y. Kondr., Kärnefelt, A. Thell, Elix, J. Kim, A. S. Kondr. & Hur [= *Caloplaca cinnabarina* (Ach.) Zahlbr., = *Lecanora cinnabarina* Ach.]. Reported from Rodrigues, on rocks, 1874, Balfour 2301, by Crombie (1876b).

BUELLIA De Not.

**continens* (Nyl. ex Cromb.) Zahlbr., Cat. Lich. Univ. 7: 346 (1931); = *Lecidea continens* Nyl. ex Cromb., J. Bot. 14: 264 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2343 (BM, H) (Crombie 1876a, b).

geophila (Flörke ex Sommerf.) Lyngbe [= *Lecidea triphragmia* Nyl.]. Reported from Rodrigues, on bark of trees, 1874, Balfour 2368, by Crombie (1876b).

**immutans* (Nyl. ex Cromb.) Zahlbr., Cat. Lich. Univ. 7: 368 (1931); = *Lecidea immutans* Nyl. ex Cromb., J. Bot. 14: 264 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2221 (BM, H) (Crombie 1876a, b).

spuria (Schaer.) Anzi [= *Lecidea spuria* Schaer.]. Reported from Rodrigues, on rocks, 1874, Balfour 2351, by Crombie (1876b).

BULBOTHRIX Hale

aff. *johannis* D. M. Masson, Benatti & Sérus.

Plaines Wilhems: Le Pétrin, along trail W of Pétrin Information Centre, up to 600 m W of first viewpoint, on bark,

2019, Diederich 18768. **Savanne**: Along trail to Mt Cocotte, on bark, 2019, Diederich 18886.

Reported by Masson et al. (2015) from Plaines Wilhems, near Midlands, Vaughan L/6 (BM) (Hale 1976: 24, as *B. suffixa*), along the path from Plaine Champagne towards Piton de la Petite Rivière Noire, 1991, Krog & Tindal (O), Le Pouce, 1991, Krog & Tindal (O), Pétrin heath, 1991, Krog & Tindal (O), and Mt Cocotte, 1991, Krog & Tindal (O). Following Masson et al. (2015), the material from Mauritius probably is a taxon different from *B. johannis* but phylogenetically closely related to it.

suffixa (Stirt.) Hale. The Mauritius specimen previously published under this name by Hale (1976) was referred to *Bulbothrix* aff. *johannis* by Masson et al. (2015). The report from Mt Cocotte, 1991, Krog & Tindal (O) (Lücking & Tindal 2016: 194) almost surely also refers to *B. aff. johannis*.

BUNODOPHORON A. Massal.

australe (Laurer) A. Massal. [= *Sphaerophorus australis* Laurer]. Reported from Mauritius ‘auf Erde’ by Lindau (1908).

melanocarpum (Sw.) Wedin [= *Sphaerophorus compressus* Ach.]. Reported from Mauritius by Daruty (1873, sub ‘*Sphaerophoron compressum*’).

BYSSOCAULON Mont.

molliusculum Nyl. ≡ *Crocynia molliuscula*

CALOPLACA Th. Fr.

**aurantiella* (Nyl. ex Cromb.) C. Moreau & M. Moreau, Rev. Bryol. Lichén. 20: 193 (1951); ≡ *Lecanora aurantiella* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2317 (BM, H) (Crombie 1876a, b).

bassiae (Ach.) Zahlbr. ≡ *Gyalolechia bassiae*

cinnabarina (Ach.) Zahlbr. ≡ *Brownliella cinnabarina*

**diplocia* var. *carneofusca* (Nyl. ex Cromb.) Zahlbr., Cat. Lich. Univ. 7: 114; ≡ *Lecanora carneofusca* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2293 (BM, H, M, UPS-L049836) (Crombie 1876a, b).

**glaucofuscula* (Nyl. ex Cromb.) Zahlbr., Cat. Lich. Univ. 7: 141 (1930); ≡ *Lecanora glaucofuscula* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2216 (BM, H) (Crombie 1876a, b).

**Lecanora glaucofuscula* f. *biatoroidea* Cromb., Journ. Linn. Soc., Bot. 15: 437 (1876). Type: Rodrigues, on rocks, 1874, Balfour (BM). Probably belongs to *Caloplaca* s.lat. but has never been combined there.

saxicola (Hoffm.) Nordin [= *Placodium murorum* DC.]. Reported from Mauritius (herb. Fée) by Nylander (1859: 257).

CELOTHELIUM A. Massal.

**Tomasellia zollingeri* Müll. Arg.

Hedwigia 31: 287 (1892). Type: Summit of Pouce (BM; G 00294851, syntypus).

Müller (1892) suggested that this species belongs to *Celothelium*, a view shared by Aguirre-Hudson (1991). David & Hawksworth (1995: 105) examined the BM specimen ‘found to belong to *Celothelium*, however the nature of its relationship with *C. aciculifera* (Nyl.) Vain. has to be clarified and will be included in a further paper’.

CETRARIA Ach.

aculeata (Schreb.) Fr. The report from Mauritius by Daruty (1873) almost surely refers to specimen Bojer (MAU L1885!, sub *C. aculeata*), which belongs to *Cladia gorgonea*.

CETRELIA W. L. Culb. & C. F. Culb.

olivetorum (Nyl.) W. L. Culb. & C. F. Culb. [= *Parmelia olivetorum* Nyl.]. Reported from Mauritius by Daruty (1873).

CHAPSA A. Massal.

alborosella (Nyl.) A. Frisch

Plaines Wilhems: Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on a branch, 2016, Diederich 18354.

A pantropical species, new for Mauritius.

Chapsa alletii Diederich & Ertz, sp. nov. (Fig. 7)

Mycobank MB 834920

Diagnosis: Characterized by apothecia 0.8–2 mm diam., a white pruinose disc, a margin with a bright red, K+ green inner surface, and hyaline, 4–7-septate ascospores, 13.5–19 × 4.5–5 µm.

Type: Mauritius, Plaines Wilhems, Black River Gorges National Park, Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, 20.4019°S (±1000 m), 57.4588°E (±300 m), alt. 610–680 m, on a branch of a tree, 1 Aug. 2016, Diederich 18602 (MAU – holotype).

Description. Thallus light brown, smooth to uneven; cortex 10–20 µm thick, dense, formed of periclinal hyphae; photobiont layer and medulla with irregularly dispersed clusters of calcium oxalate crystals. Apothecia immersed, angular-rounded, 0.8–2 mm diam.; disc exposed, flesh-coloured, covered by a white to pink pruina especially dense in the centre and thus appearing as whitish, occasionally reddish in the centre; margin fused with the exciple, lobulate, lobes recurved, with a bright red inner surface, red pigment K+ green. Columella absent. Excipulum prosoplectenchymatic, reddish brown, K+ green; periphysoids present, distinct, 10–25 µm long. Hymenium 50–80 µm high, clear; epihymenium hyaline or brownish, granulose; paraphyses unbranched, 1.5–2.5 µm thick, apically not or slightly swollen, not spinulose, surrounded by minuscule granules. Asci 8-spored, 45–60 × 9.5–15 µm. Ascospores when young thin-walled, when mature fusiform to narrowly ellipsoid, colourless, 4–7-septate, with relatively thick septa and ellipsoidal lumina, 13.5–19 × 4.5–5 µm, I–, often surrounded by a relatively thin halo. Pycnidia not observed. Chemistry: because of the rather small size of the single specimen, no TLC has been done; however, the red, K+ green pigment of the apothecial margin most probably represents isohypocrelline, known from similarly coloured *Cruentotrema* species (Rivas Plata et al. 2012).

Ecology and distribution. The only known specimen grows on the bark of a 7 mm thick branch of a tree in an disturbed and open forest. It was collected along a trail on the west of Le Pétrin and should be searched for in similar habitats in Mauritius.

Notes. The new species is remarkable and distinct from all known *Chapsa* species by its bright red, K+ green apothecial

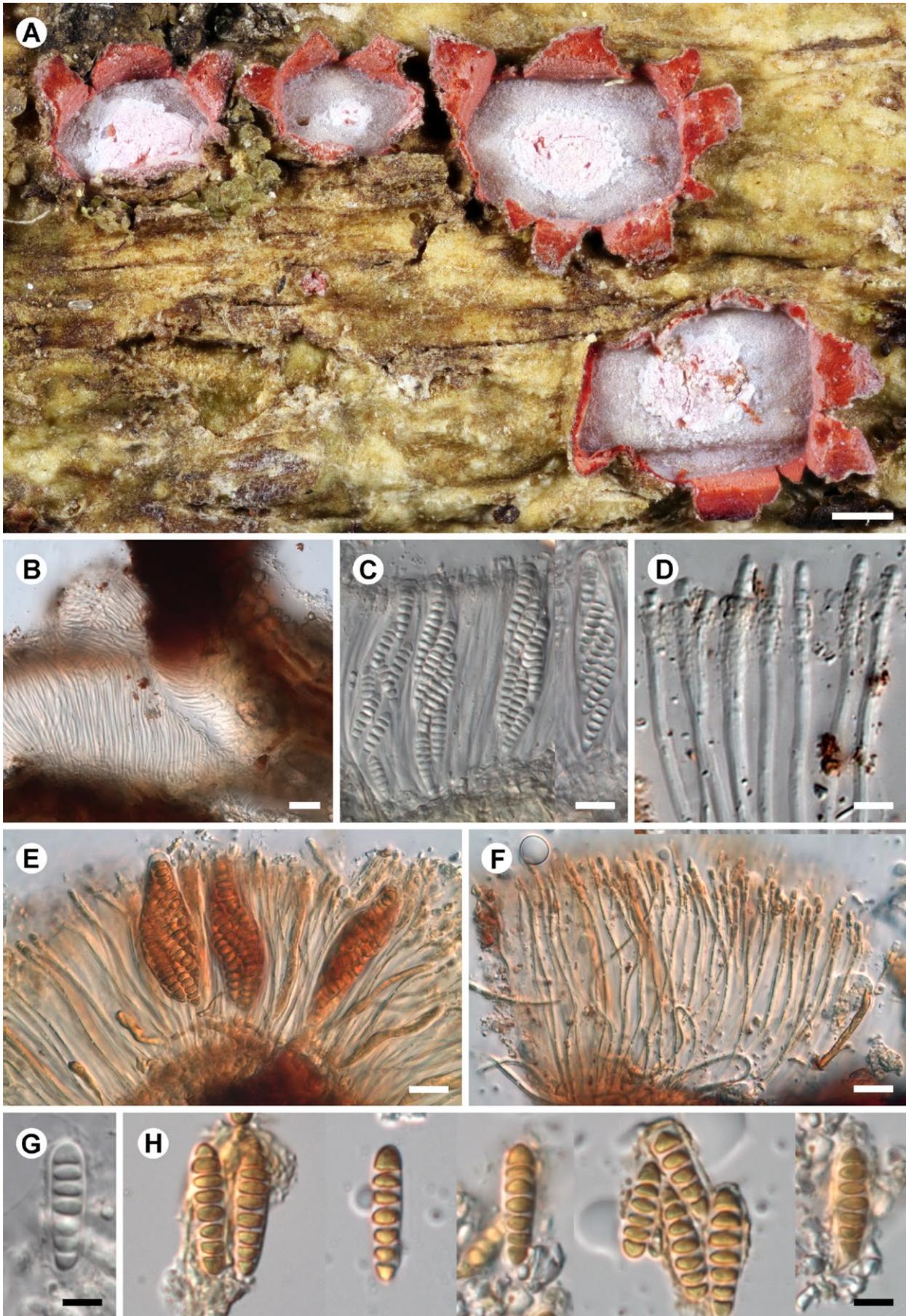


Figure 7. *Chapsa alletii* [holotype]. A – brownish thallus and red apothecia; B – section through apothecial margin, showing hymenium, reddish brown raised apothecial margin, and layer of periphysoids, in water; C – hymenium with mature 8-spored asci, in water; D – paraphyses apically surrounded by granules, in water; E–F – hymenium, in Lugol; G – ascospore, showing halo, in water; H – ascospores, in Lugol. Scales: A = 500 μ m; B = 20 μ m; C, E–F = 10 μ m; D, G–H = 5 μ m. Photos: P. Diederich.

margin. Apart from this character, it fits the genus rather well (Frisch 2006).

It needs to be compared with genera that resemble or have recently been segregated from *Chapsa*. *Acanthotrema* A. Frisch differs by apically spinulose paraphyses and periphyses, and thin-walled ascospores (Sipman et al. 2012). *Chroodiscus* (Müll. Arg.) Müll. Arg. differs by thin-walled ascospores, missing periphyses, and a foliicolous habitat (Frisch 2006). The monotypic *Reimnitzia* Kalb differs, among others, by the brown, muriform ascospores and the thick-walled young ascospores (Frisch 2006). *Gintarasia* Kraichak, Lücking & Lumbsch includes species with large apothecia up to 4 mm diam.; it differs from *Chapsa* by a more complex chemistry, and from our new species by the muriform ascospores; phylogenetically it is not related to *Chapsa* (Kraichak et al. 2013). *Pseudochapsa* Parmen, Lücking & Lumbsch differs by amyloid ascospores and a rarely recurved apothecial margin (Parmen et al. 2012). *Nitidochapsa* Parmen, Lücking & Lumbsch differs by dark brown, amyloid ascospores (Parmen et al. 2013).

In addition to *Chroodiscus* (see above), a few thelotrematoid genera have species with a coloured apothecial margin. *Cruentotrema* Rivas Plata, Papong, Lumbsch & Lücking is distinguished by a half-carbonized upper exciple, the missing periphysoids, and apothecia with a disc hidden by a partially splitting thallus layer, which exposes a white or dark red medulla (simulating a red apothecial disc); the red pigment reacting K⁺ green, almost surely identical to the pigment in our new species, has been identified by Rivas Plata et al. (2012) as isohypocrelline. *Gyrotrema* Frisch differs by gyrotremoid apothecia, regenerating with new hymenia and excipula formed centrifugally in concentric circles; the bright orange to cinnabar-red or pink disc reacts K⁺ purple and therefore does not represent isohypocrelline (Frisch & Kalb 2006).

A few known species with chroodiscoid apothecia have a coloured disc, such as *Astrochapsa magnifica* (Berk. & Broome) Parmen, Lücking & Lumbsch (disc orange), *A. waasii* (Hale) Parmen, Lücking & Lumbsch (disc pink-purple, K⁺ dark purple) or *Chapsa rubropruinosa* Messuti & Codesal (disc red-brown, K⁺ bluish), but none of them has a brightly coloured apothecial margin (Rivas Plata et al. 2010). The genus *Astrochapsa* Parmen, Lücking & Lumbsch is phylogenetically distinct, ‘differing from *Chapsa* s.str. in the more frequently densely corticate thallus, the mostly recurved apothecial margin, and the almost exclusively subdistoseptate, non-amyloid ascospores’ (Parmen et al. 2012). All these characters are shared by our new species but also by some species now included in *Chapsa*. Without molecular data, we are thus unable to decide if the new species is related to *Chapsa* s.str. or to *Astrochapsa*, or if it pertains to another genus owing to the distinct red pigmentation.

Etymology. The new species is dedicated to Mr Mario Allet, officer of the National Parks and Conservation Services in Mauritius and an excellent botanist, to thank him for his kindness during our 2016 and 2019 collecting trips, and for having guided us to some interesting sites, including the type locality of the new species.

CHIODECTON Ach.

**confusum* Wedd. ex Nyl., Bull. Soc. Linn. Normandie, sér. 2, 7: 173 (1874 [‘1873’]); ≡ *C. confusum* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n.s. 7: 163 (1873), nom. nud. Original material: ‘Corticola in insula Mauriti’.

CHRYSOTHRIX Mont.

candelaris (L.) J. R. Laundon [= *Lepraria flava* (Willd.) Ach.]. The specimens reported from Mauritius under these names (Crittenden et al. 1995; Daruty 1873; Laundon 1981) probably belong to the tropical *Chrysothrix xanthina*.

xanthina (Vain.) Kalb

*= *Crocynia mauritiana* Hue, Bull. Soc. Bot. France 71: 337 (1924). Type: ‘sur un Manguier, au quartier des Pamplemousses, chez Mr Bouton’, Daruty 25 (PC, holotype) (Hue 1924, Laundon 1981: 110, 2008: 412, as *Chrysothrix candelaris*).

Moka: Réduit, State House Park, on bark of *Pinus*, 2019, Diederich 18716; Réduit, close to Mauritius Herbarium, on bark of *Pinus*, 2019, Diederich 18698 & Ertz 23240A; *ibid.*, on bark, Ertz 23250. **Pamplemousses:** Jardin Botanique, on bark, 2016, Diederich 18254, 18594 (MAU). **Rivière Noire:** Chamarel, Ebony Forest, close to park buildings, on bark, 2016, Diederich 18549 (fertile).

The specimens reported from Souillac, on trunk of *Casuarina equisetifolia*, 14 m, 1890, Johnston 2 (BM) by Laundon (1981: 110, as *C. candelaris*), and from Pamplemousses Botanical Garden, on bark of *Arecaceae*, 1990, Hawksworth (K-IMI) by Crittenden et al. (1995, as *C. candelaris*), are provisionally included here in *C. xanthina*.

CLADIA Nyl.

gorgonea (Eschw.) Parmen & Lumbsch

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, terricolous, 2016, Diederich 18630. **Without locality:** Bojer (MAU L1885!, sub *Cetraria aculeata*).

Our recent specimen is extremely reduced but typical for this species. New for Mauritius.

CLADONIA P. Browne

balfourii Cromb. = *Cladonia macilentata*

borbonica Nyl.

≡ *Cladonia fimbriata* var. *borbonica* (Nyl.) Vain.

Reported from Mauritius, Robillard: ‘in herb. Meo’ by Vainio (1894: 344). Ahti (pers. comm.) saw a correctly identified specimen: Ile de France, ‘Sur les vieux bois pourris, abattus dans les forêts de Pouce’, c. 1840, Lepervanche-Mézières 65 (PC-Thuret).

cartilaginea Müll. Arg.

Ahti (pers. comm.) saw a specimen from Pétrin heath, 600 m, ‘unter Gebüsch am Erdboden auf Holz’, 1980, Schultze-Motel (B 60 0163883).

New for Mauritius.

ceratophyllina (Nyl.) Vain. [= *Cladonia degenerans* var. *ceratophyllina* Nyl.]. Reported from Mauritius by Daruty (1873).

confusa R. Sant.

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, terricolous, 2016, Diederich 18367.

Previously reported from Mauritius by Ahti & Aptroot (1992), from Pétrin, 1967, Henderson (H) by Ruoss & Ahti (1989), and from Pétrin, 1990, Hawksworth (K-IMI, det. Ahti) by David & Hawksworth (1995) and Crittenden et al. (1995). Ahti (pers. comm.) saw additional specimens, both

representing morph *leptoclada*: ‘Native Plants Protected Forest’, 1961, Fukushima (H, TNS); Pétrin, 1967, Henderson (E, H, HMAS). Further unpublished specimens from Pétrin or without accurate locality, some identified as *C. alpestroides* Abbayes or *C. leptoclada* Abbayes, are kept in CANB, O, S, UPS and WIS.

degenerans var. *ceratophyllina* Nyl. ≡ *Cladonia ceratophyllina*

***didyma* (Fée) Vain.**

Ahti (pers. comm.) saw a specimen from Pétrin heath, 1961, Sauer 19 (S L32152).

New for Mauritius.

fimbriata (L.) Fr. Reported from Mauritius, Robillard, and from Rodrigues, 1874, Balfour (BM) by Vainio (1894: 253).

fimbriata var. *borbonica* (Delise) Vain. ≡ *Cladonia borbonica*

fimbriata var. *radiata* (Schreb.) Cromb. Reported from Mauritius by Daruty (1873).

floerkeana (Fr.) Flörke. Reported from Mauritius by Lindau (1908).

***gigantea* (Bory) H. Olivier**

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, terricolous, 2016, Diederich 18607 & Ertz 23329 (TLC of 23329: thamnolic, solvents A, B’).

Previously reported from Mauritius (Les Mares and Pétrin) by Ahti (1977), and from Pétrin, 1990, Hawksworth (K-IMI, det. Ahti) by David & Hawksworth (1995) and Crittenden et al. (1995). Further unpublished specimens from Pétrin or without locality are kept in CANB, MAU, O, PTBG and WIS.

****intermediella* Vain.**

Acta Soc. Fauna Fl. Fenn. 10: 12 (1894). Type: ‘Ad terram in summo monte Pouce in Mauritio’, Ayres (BM – holotype, fide Ahti, pers. comm.).

The species is known also from Reunion and continental Africa (Swinscow & Krog 1988).

***macilenta* Hoffm.**

*= *Cladonia balfourii* Cromb., J. Bot. 14: 262 (1876). Type: Rodrigues, on dead (rotten) stumps of trees, 1874, Balfour 2204 (BM, lectotype, designated by Ahti 2000; E, FH-Dodge, H-NYL 39124, UPS, isolectotypes).

Previously reported from Mauritius by Daruty (1873) and Lindau (1908). Further unpublished specimens from Curepipe Botanical Garden, Mt Cocotte and Pétrin, collected by Krog & Tindal in 1991, are kept in O.

macilenta var. *polydactyla* (Flörke) ≡ *Cladonia polydactyla*

****mauritiana* Ahti & J. C. David**

in David & Hawksworth, Biblioth. Lichenol. 57: 94 (1995). Type: Mauritius, Black River, east of Chamarel, alt. 300 m, on soil by road, 16 June 1990, Hawksworth (K-IMI 400678 – holotype, H – isotype).

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, terricolous, 2016, Diederich 18371; *ibid.*, 2019, Ertz 23330, 23337, 23348 (TLC: fumarprotocetraric, solvents A, B’); Curepipe, Curepipe Botanic Gardens, over mosses, at the base of a tree, 2016, Diederich 18314.

A further unpublished specimen from Pétrin, Schultze-Motel (B) was studied by Ahti (pers. comm.). The species has also

been reported from Reunion, Comoro Is., Seychelles, India, Malaysia and Thailand (Ahti et al. 2002).

***medusina* (Bory) Nyl.**

= *Cladonia medusina* var. *dealbata* Vain.; = *Cladonia medusina* var. *luteola* (Bory) Vain.

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, terricolous, 2016, Diederich 18366. **Savanne:** Road from Le Pétrin to Chamouny, beginning of trail to Montagne Cocotte, on dead wood, 2016, Diederich 18379.

Previously reported from Mauritius by Hue (1898) and Vainio (1887: 242–243, as var. *dealbata* and var. *luteola*), and from Pétrin, 1990, Hawksworth (K-IMI, det. Ahti) by David & Hawksworth (1995) and Crittenden et al. (1995). Further unpublished specimens from Pétrin are kept in MAU, O, PTBG, US and WIS.

pityrea var. *subareolata* Vain. Reported from Mauritius by Vainio (1894).

polydactyla (Flörke) Spreng. Reported from Mauritius by Daruty (1873, as ‘*C. macilenta* var. *polydactyla* Flk.’).

pycnoclada (Pers.) Nyl. The report from Mauritius, Bojer, by Vainio (1887: 38) obviously refers to *C. confusa*.

rangiferina (L.) Weber ex F. H. Wigg. The report from Mauritius, 1825, Despreaux (PC) by Vainio (1887: 13) obviously refers to *C. gigantea*.

squamosa (Scop.) Hoffm. Reported from Mauritius, Gardner? by Vainio (1887: 417)

uncialis (L.) Weber ex F. H. Wigg. The report from Mauritius by Daruty (1873) may refer to specimen Bojer 14 (MAU L189!, sub *Cladonia uncialis*), which is an unidentified *Cladia*.

***varians* Vain. ex Ahti**

(*)= *Cladonia varians* var. *glaucoflava* Vain., in Hue, Lichenes extra-europaei: 267 (1898), nom. inval. Original material: three specimens were mentioned in the original publication from Reunion, Mauritius (1890) and Madagascar, all leg. fr. Rodriguez.

(*)= *Cladonia varians* var. *erythrospemoides* Vain., in Hue, Lichenes extra-europaei: 267 (1898), nom. inval. Original material: two specimens were mentioned in the original publication from Reunion and Mauritius (1890 and 1891), both leg. fr. Rodriguez.

Following Ahti et al. (1987: 94), ‘Vainio (in Hue 1898) reported *C. varians* from Reunion, Mauritius and Madagascar, and the author Ahti has confirmed his identifications (in PC and TUR-V)’. The PC online database, consulted on 17 Febr. 2019, contains a specimen from Reunion and one from Madagascar, but no specimen from Mauritius. The report by Swinscow & Krog (1988) from Rodrigues appears to be based on confusion with the name of the collector of the type material, fr. Rodriguez (Ahti & Aptroot 1992).

***COCCOCARPIA* Pers.**

****adnata* L. Arvidss.**

Opera Bot. 67: 42 (1982). Type: Plaine Champagne, 20 km S of Rose Hill, 700 m, on trunks of a small tree in submontane scrub, 14 April 1979, Arvidsson & Nilsson 2660 (GB 0128129 – holotype).

A species widely distributed in the Paleotropics (Arvidsson 1982).

erythroxyli (Sprengel) Swinscow & Krog

*= *Peltidea floerkeana* Laurer, *Linnaea* 2: 43 (1827). Type: ‘In insula St. Mauritii’ (type of *Peltidea floerkeana* not traced, probably destroyed; Laurer 1827, tab. I, fig. 3, lectotype, designated by Arvidsson 1982: 57).

= *Coccocarpia molybdaea* Pers.

Reported from Mauritius by Daruty (1873), from 4 specimens (GB, PC) by Arvidsson (1982: 62), from Ile aux Aigrettes (BM, det. James) by Parnell et al. (1989), and from Rodrigues, on branches of trees, 1874, Balfour 2243 by Crombie (1876b). Further unpublished specimens from Morne du Grand Port and Ile aux Aigrettes are kept in MAU and O.

molybdaea Pers. = *Coccocarpia erythroxyli*

palmicola (Sprengel) Arv. & D. J. Galloway

Plaines Wilhems: Curepipe Botanic Gardens, on bark, 2019, Diederich 19111, 19189 & Ertz 24132. **Rivière Noire:** Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18528, 18529; *ibid.*, on termite nest, 2019, Ertz 23563; *ibid.*, along trail W of viewpoint, on bark, 2019, Diederich 19405.

Previously reported from Mauritius (GB, 12 specimens) by Arvidsson (1982: 76), from Ile aux Aigrettes (BM, det. James) by Parnell et al. (1989), from Savanne, Plaines Champagne, at viewpoint of Black River Gorge, 1990, Hawksworth (K-IMI) by Crittenden et al. (1995), and from Grand Port, Bambou Mountains, 1991, Krog & Timdal (O) by Lücking & Timdal (2016). Further unpublished specimens from Curepipe (Trou aux Cerfs, Botanical Garden), Black River (La Mivoie), Grand Port (Ile aux Aigrettes), Pétrin, Macchabee Kiosk and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

pellita (Ach.) Müll. Arg.

Plaines Wilhems: Curepipe, Trou aux Cerfs, along road surrounding the crater, on bark, 2016, Diederich 18282; Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18318, 18335. **Rivière Noire:** E of Black River, from Visitor’s Centre to Pilgrims Trail, on bark, 2016, Diederich 18483, 18484; Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18614, 18615; Brise Fer Forest, on bark, 2019, Diederich 19218.

Previously reported from Mauritius by Lindau (1908) and from one specimen in GB by Arvidsson (1982: 79). Further unpublished specimens from Pétrin, Macchabee Forest, Trou aux Cerfs and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

pruinosa Arv.

Reported from Grand Port, Mt des Créoles, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 198). Further unpublished specimens from Mt Cocotte, Piton de la Petite Rivière Noire and Macchabee Forest, collected by Krog & Timdal in 1991, are kept in O.

smaragdina Pers.

Plaines Wilhems: Curepipe Botanic Gardens, on bark, 2019, Diederich 19109 & Ertz 24250. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18612, 18613. **Port Louis and Moka:** Along trail from Moka to Le Pouce, on rock, 2019, Ertz 24082. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 18858, 18867 & Ertz 23515.

Previously reported from Mauritius, 1876, Robillard (G) by Arvidsson (1982: 86), by Crittenden et al. (1995), and from Grand Port, Mt des Créoles, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 198). Further unpublished specimens from Mt Cocotte, Piton de la Petite Rivière Noire and Curepipe Botanical Garden, collected by Krog & Timdal in 1991, are kept in O.

stellata Tuck.

Reported from Plaine Champagne, 20 km S of Rose Hill, 1979, Arvidsson & Nilsson 2659 (GB) by Arvidsson (1982: 89).

COENOGONIUM Ehrenb.

leprieurii (Mont.) Nyl. Reported from Mauritius by Hue (1892: 181).

COLLEMA Weber ex F. H. Wigg.

azureum (Sw.) Ach. = *Leptogium azureum* (Sw.) Mont.

burgessii (L.) Ach. = *Leptogium burgessii*

byrsinum Ach. = *Physma byrsinum*

****coilocarpum*** (Müll. Arg.) Zahlbr.

Cat. Lich. Univ. 3: 34 (1924 [‘1925’]); = *Synechoblastus coilocarpus* Müll. Arg., *Lichenol. Beitr.* 34, *Flora* 74 (1891): 107. Type: ‘Corticola in insula Mauritii, Dr Cupes, L[ouis] B[outon] n. 1580’ (G 00066537, lectotype; K, isolectotype) (Degelius 1974: 145).

leptaleum var. *biliosum* (Mont.) Degel. Reported from Mauritius by Crittenden et al. (1995).

leptaleum Tuck. var. ***leptaleum***

*=? *Synechoblastus robillardii* Müll. Arg., *Lichenol. Beitr.* 6, *Flora* 60: 471 (1877); = *Collema robillardii* (Müll. Arg.) Stizenb., *Lichenaea afric.* 1, Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1888-89: 119 (1890), nom. conf. Type: Mauritius, ‘corticola’, 1876, Robillard (G 00066251, lectotype; G 00066252, TUR-Vainio 11453, US, isolectotypes; FH 00302074 [not examined by Degelius, but probably part of the type specimen], isolectotype?).

Following Degelius (1974), the lectotype (G) and the isolectotype (US) of *S. robillardii* are a mixture of *Collema leptaleum* var. *leptaleum* and *C. cf. pulcellum* var. *subnigrescens*. A specimen in TUR evidently belongs to the type collection and represents *C. leptaleum* var. *leptaleum*. Also reported from Pouce, Bojer (K), and Pouce, 1860, Cupes (K) (Degelius 1974: 108).

nigrescens (Huds.) DC. Reported from Mauritius by Daruty (1873).

robillardii (Müll. Arg.) Stizenb. =? *Collema leptaleum* var. *leptaleum*

rugosum Kremp.

Moka: Réduit, State House Park, on bark of *Cinnamomum*, 2019, Diederich 19312. **Pamplemousses:** 1 km NNW of Botanical Garden, S of Museum ‘Aventure du sucre’, on bark, 2016, Diederich 18624; Jardin Botanique, on bark, 2016, Diederich 18232 & Ertz 21501. **Plaines Wilhems:** Curepipe Botanic Gardens, on bark, 2019, Diederich 19201 & Ertz 24225. **Rivière Noire:** East of Black River, from Visitor’s Centre to Pilgrims Trail, on bark, 2016, Diederich 18477, 18480; Chamarel, Ebony Forest, around viewpoint, on bark,

2016, Diederich 18556; Le Morne Peninsula, S coast, on bark, 2019, Diederich 19443.

Previously reported from Pamplemousses Botanical Garden, on a tree, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995), and from Moka, below Mt Ory, on a tree, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995).

subflaccidum Degel.

Reported from Moka, below Mt Ory, on shaded volcanic rocks, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995). A further unpublished specimen, collected in Pamplemousses Botanical Garden in 1997 by Jørgensen, is kept in BG.

COLLEMOPSIDIUM Nyl.

Collemopsidium mauritiae Diederich & Ertz, sp. nov. (Fig. 8)

MycoBank MB 834922

Diagnosis: Distinguished by a thallus initially formed by goniocysts, eventually developing into flat areoles, a bluish green cyanobacterial photobiont, black perithecia, 100–180 µm diam., without involucrellum, anastomosed paraphysoids, 8-spored asci, 52–55 × 13–17 µm, and 1-septate, hyaline ascospores, 13–15 × 5.5–6.5 µm.

Type: Mauritius, Rivière Noire, La Preneuse (between Tamarin and Grande Rivière Noire), cemetery (SE part with old graves), 20.3589°S, 57.3671°E, alt. 10 m, on old tombstones from c. 1850, 4 Aug. 2016, Diederich 18672 (MAU – holotype, herb. Diederich – isotype).

Description. Thallus epilithic, calcicolous, crustose, greenish black to black, forming colonies up to ~5 cm diam.; when young, composed of isolate goniocysts 25–50 µm diam. that become larger with age, then develop into flat, angular areoles, 200–400 µm diam., 20–70 µm thick (when dry), bearing marginal goniocysts as vegetative diaspores; surface of mature colonies appearing as rimose to areolate (cracks closing when thallus is wetted), matte, ±smooth to minutely uneven. Hyphal layer around goniocysts brownish when exposed, 3.5–7 µm thick. Photobiont cyanobacterial, bluish-green, ellipsoid, 2–4-celled, 8–14 × 6.5–11 µm, wall 1–2 µm thick; groups of cyanobacteria surrounded by a gelatinous sheath. Prothallus and basal layer not apparent. Ascomata perithecioid, solitary, subspherical, semi-immersed to almost superficial, slightly rough and matte, black, 100–180 µm diam. Ostiole sometimes depressed, 20–60 µm wide when dry. Involucrellum absent. Excipulum entirely dark brown to black, 25–35 µm thick; cells rather indistinct, ~6–11 µm diam. Hymenial gel I–. Paraphysoids anastomosing, 1–2 µm thick. Periphysoids not observed. Asci fissitunicate, broadly ellipsoid, 8-spored, 52–55 × 13–17 µm, at first with a broad and elongate, beak-like ocular chamber that becomes shorter and comparatively broad at maturity; ascoplasma I+ orange-red; wall I–, laterally 2–3 µm, apically 2.5–6 µm thick. Ascospores hyaline, 1-septate, slightly constricted at the septum, the upper cell slightly broader and distinctly shorter than the lower cell, 13–15 × 5.5–6.5 µm, with a distinct hyaline perispore, 1–1.5(–2) µm thick in water. Pycnidia not observed.

Ecology and distribution. On calcareous rock (mortar) in a historic cemetery, known only from the type locality in Mauritius.

Notes. The genus *Collemopsidium* includes more than ten species worldwide (some of which formerly treated within *Pyrenocollema*) (Grube & Ryan 2002). Several of these are confined to marine habitats (Mohr et al. 2004), others to rocks submerged in freshwater, and a few on sand or rocks in humid conditions. Many of these are described and keyed out by Coppins & Orange (2009). Amongst the saxicolous, non-marine British species treated by those authors, *C. angermannicum* is distinguished by the ecology (siliceous rocks beside rivers and lakes) and the larger ascospores, 17–26 × 6–12 µm. Both *C. caesium* and *C. monense* are as well distinguished by larger ascospores, 20–30(–33) × (7.5–)8.5–12 µm, resp. 17–30(35) × 6–8 µm. The four non-marine, mainly American species of *Pyrenocollema* keyed out by Harris (1995) most differ by having larger ascospores; *P. atlanticum* has only slightly larger ascospores but clearly differs by a yellow-brown to brown photobiont. *C. montanum* differs by much larger ascospores, 28–58 × 11–21 µm, and larger ascomata, 220–500 µm diam., with a distinct involucrellum (McCarthy & Kantvilas 1999). *C. heardense* (Øvstedal & Gremmen 2010) is distinguished by much larger ascospores, 23–25 × 11–13 µm. *C. chlorococcum* is the only known species from the genus with green algae and further differs by not being saxicolous (Aptroot & van den Boom 1998). *C. japonicum* differs by a purplish brown, continuous thallus and larger ascospores, 15–21 × 6–8 µm (Harada 1999).

Etymology. The epithet denotes the country Mauritius (Latin: *Mauritia*), where the new species was discovered.

Additional specimen examined. MAURITIUS. Same locality as type, 2019, Ertz 23238; Flic-en-Flac, cemetery, on historic tombs, 2019, Diederich 19084 (MAU).

CONSTRUCTOLUMINA Lücking, M. P. Nelsen & Aptroot *planorbis* (Ach.) Lücking, M. P. Nelsen & Aptroot [= *Verrucaria planorbis* Ach.]. ‘Sur l’écorce des Rubiacées arborescentes, à l’île Maurice’ (Bélanger 1834).

CORA Fr.

(*)*gyrolophia* Fr., Epicr. Syst. Mycol. (Upsaliae): 556 (1838). Type: Mauritius, Sieber 65 (S L2148, lectotype, selected by Lücking et al. 2015a; HAL 3024F, isolectotype); Sieber 59 (S L39459, paratype).

(*)= *Gyrolophia elegans* Kunze, in Von Krombholz, Naturgetr. Abbild. Beschr. Schwämme (Prague) 1: 76, tab. 5, fig. 16 (1831), nom. inval.

(*)= *Gyrolophia mauritianum* Kunze, in Index Fungorum, nom. inval.

Sieber visited Mauritius during a circumnavigation from 1822 to 1824, where he collected numerous plant specimens (https://de.wikipedia.org/wiki/Franz_Wilhelm_Sieber). Nevertheless, it might be that these *Cora* specimens were not collected by him. He received many lichen specimens from the Antilles (leg. Kohaut) and from Mauritius (leg. Bojer). Possibly he obtained the *Cora* specimens from the Antilles but mislabelled them as ‘Mauritius’. This suggestion is supported by the statement on Wikipedia (https://en.wikipedia.org/wiki/Franz_Sieber), following which Sieber’s ‘behaviour and publications became progressively more erratic. He ... became more and more deranged’. As the genus *Cora* is more or less confined to the Neotropics, with the exception of two species known from the South Atlantic islands Trindade and Saint Helena (Lücking et al. 2015a) and one described from Sri Lanka (Lücking et al. 2017b),

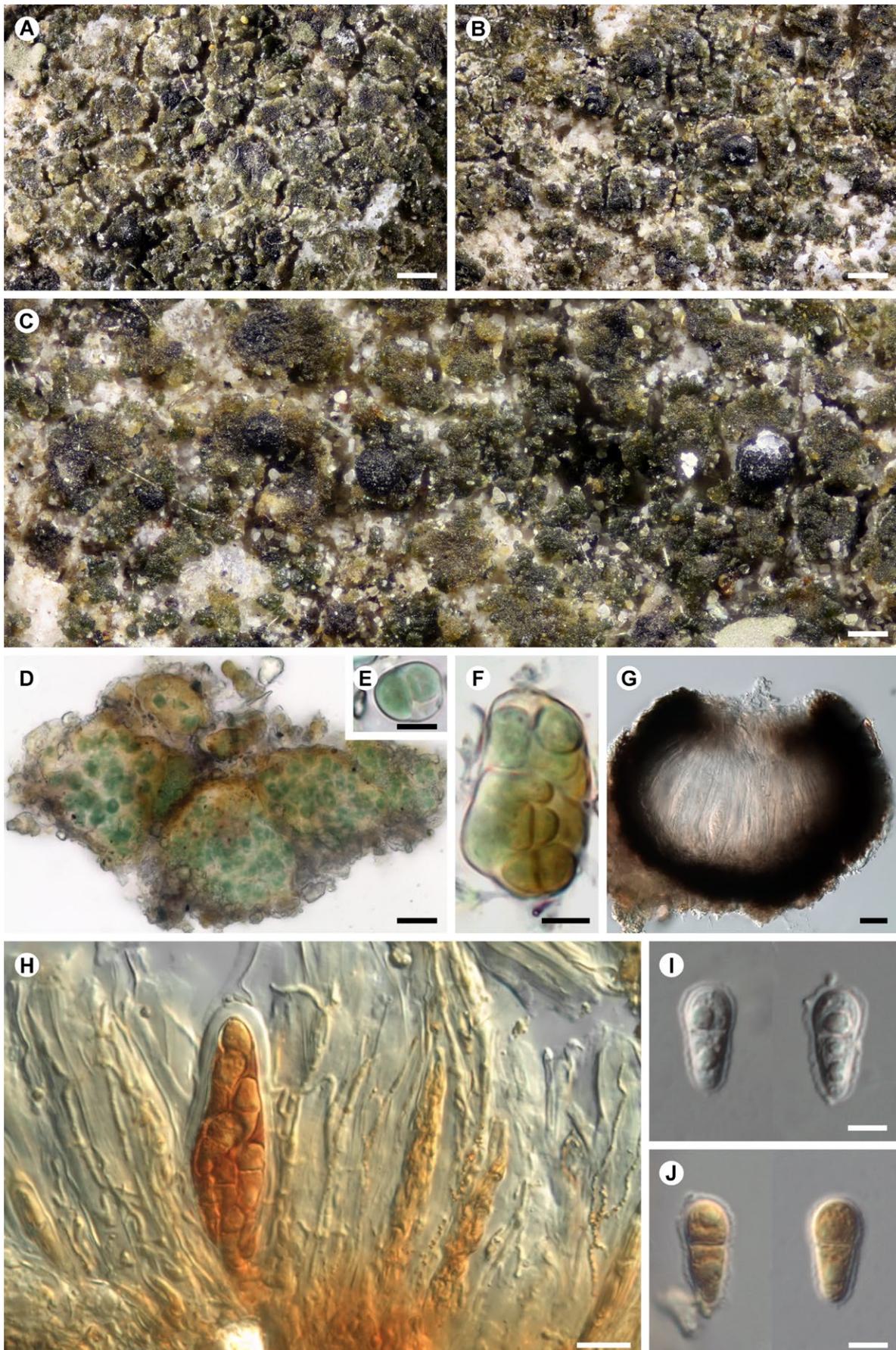


Figure 8. *Collemopsidium mauritiae* [holotype]. A – areolate thallus; B – thallus with two perithecia; C – thallus with areoles (above), abundant goniocysts (below) and perithecia; D – thallus developing goniocysts, in water; E – cyanobacterium, in water; F – group of cyanobacteria surrounded by a gelatinous sheath, in water; G – section through perithecium, in water; H – hymenium, showing ascus with ascospores, and paraphysoids, in Lugol; I – ascospores, showing perispore, in water; J – ascospores, in Lugol. Scales: A–B = 200 μ m; C = 100 μ m; D, G = 20 μ m; H = 10 μ m; E–F, I–J = 5 μ m. Photos: P. Diederich.

we prefer therefore to provisionally consider the presence of *Cora gyrolophia* in Mauritius as dubious, awaiting the discovery of further populations of this species either in the Antilles or in Mauritius.

CORNUTISPORA Piroz.

lichenicola D. Hawksw. & B. Sutton ≡ *Spirographa lichenicola*

CROCEDIA Link

aurata (Ach.) Link

≡ *Pseudocyphellaria aurata* (Ach.) Vain.; ≡ *Sticta aurata* Ach.

Plaines Wilhems: Curepipe, Trou aux Cerfs, along road surrounding the crater, on bark, 2016, Diederich 18284 (dupl. LG); *ibid.*, 2019, Diederich 19203; Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18317 (MAU). **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18465 (MAU); Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18527. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 19547 (MAU).

Previously reported from Mauritius by Laurer (1827), Søchting 30A12 (C) by Moncada et al. (2014: 122), from Pétrin heath, Pétrin Rainforest and Le Pouce, 600 m, 2001, by Holm & Gregersen (2002), from Macchabee Forest, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995), and from Rodrigues, on trunks of trees, 1874, Balfour 2273 (BM) by Crombie (1876b) and Galloway (1994: 119). Further unpublished specimens, collected in Mt Corps de Garde and Mt Cocotte by Krog & Timdal in 1991, are kept in O.

CROCYNIA (Ach.) A. Massal.

gossypina (Sw.) A. Massal. ≡ *Phyllopsora gossypina* (Sw.) Kistenich, Timdal, Bendiksby & S. Ekman

mauritiana Hue = *Chrysothrix xanthina*

molliuscula (Nyl.) Nyl., see under *Phyllopsora*

CYANISTICTA Gyeln.

argyrea (Delise) Gyeln. ≡ *Pseudocyphellaria argyrea*

aurigera (Bory) Dodge = *Pseudocyphellaria crocata*

mougeotiana (Delise) Dodge = *Pseudocyphellaria crocata*

CYPHELLOSTEREUM D. A. Reid

**bicolor* Lücking & Timdal

Willdenowia 46: 192 (2016). Type: Grand Port, Bambou Mountains, 0.5–1 km NNE of Piton Rouge, on tree bark, 12 Nov. 1991, Krog & Timdal MAU36/02 (O L-21699 – holotype, F – isotype) (Lücking & Timdal 2016).

DENDRISCOSTICTA B. Moncada & Lücking

platyphylla (Trevis.) B. Moncada & Lücking [≡ *Lobaria platyphylla* Trevis.; ≡ *Sticta damicornis* var. *platyphylla*; = *Sticta nylanderiana* Zahlbr.; ≡ *Stictina nylanderiana* (Zahlbr.) Dodge]. This species was reported from Mauritius by Dodge (1964: 185). Specimens from Mauritius kept in S (Sieber, S F159142; 'n. 38 Sieber II cypt. exot. Herb. Erik P. Vrang', S F158916; 'Pl. crypt. exot. 38, herb. Erik P. Vrang', S F159140, S F159141) and UPS ('ad cortice arborum, Hilsenberg, Trevisan, Lichenoth. Ven. Nr. 77, Crypt. exot. exs. n. 38', UPS L696223) need to be revised.

DIBAEIS Clem.

holstii (Müll. Arg.) Kalb & Gierl

Reported from S of Curepipe, Trou Raoul Crater, on soil, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995).

DICTYONEMA C. Agardh ex Kunth

**album* Lücking & Timdal

Willdenowia 46: 192 (2016). Type: Savanne, Plaine Champagne, near viewpoint WNW of Mt Cocotte, 18 Nov. 1991, Krog & Timdal MAU57/04 (O L-21992 – holotype, F, MAU 21886, isotypes) (Lücking & Timdal 2016).

Also reported from the road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O) (Lücking & Timdal 2016).

coppinsii Lücking, Barrie & Genney

Reported from Grand Port, Mt des Créoles, 1991, Krog & Timdal (F, O) by Lücking & Timdal (2016: 198).

DIORYGMA Eschw.

hieroglyphicum (Pers.) Staiger & Kalb

Pamplemousses: Jardin Botanique, on bark of *Brownea grandiflora*, 2016, Ertz 21445. **Port Louis and Moka:** Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24052 (TLC: stictic, solvents A, B'), 24084 (TLC: stictic, unknown brownish of Rf ±20, trace of norstictic, solvents A, B').

New for Mauritius.

poitaei (Fée) Kalb, Staiger & Elix [≡ *Opegrapha poitaei* (Fée) Bél.]. 'Sur l'écorce des arbres, à l'île Maurice' (Bélangier 1834).

DIPLOSCHISTES Norman

scruposus (Schreb.) Norman

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, on lava rocks, 2016, Diederich 18363; *ibid.*, 2019, Diederich 19346. **Savanne:** Road from Le Pétrin to Chamouny, beginning of trail to Montagne Cocotte, on rocks along a stream, 2016, Diederich 18380.

New for Mauritius.

DIRINA Fr.

**astridae* Tehler

in Tehler et al., Lichenologist 45: 444 (2013). Type: Port Louis Distr., Port Louis, Mt Signal, on the peak ~200 m E of the tele station, 2003, Tehler 8502 (S L55012, holotype; BR 5030024434876, isotype); *ibid.*, Tehler 8503 (S L55013).

Further reported from the western part of Mauritius (Tehler & Irestedt 2007, as *Dirina paradoxa* subsp. *africana*), from Black River, Mt St. Pierre, the eastern peak near Bambous, ~7 km E Quatre Bornes, 2003, Tehler (S) (Tehler et al. 2010, 2013; Frisch et al. 2014), and from Savanne, Maconde on south coast, ~500 m W of Baie du Cap, 2003, Tehler (S) (Tehler et al. 2013).

monothalamia Tehler & Ertz. The Mauritius material published under this name by Frisch et al. (2014) belongs to *Dirina astridae* Tehler (Tehler et al. 2013).

paradoxa subsp. *africana* (Fée) Tehler. The Mauritius material published under this name by Tehler & Irestedt (2007) belongs to *Dirina astridae* Tehler (Tehler et al. 2013).

DIRINARIA (Tuck.) Clem.**aegialita** (Afzel. ex Ach.) B. J. Moore

≡ *Physcia aegialita* (Afzel. ex Ach.) Nyl.

Moka: Réduit, State House Park, on bark of *Pinus*, 2019, Diederich 19318; Réduit, close to Mauritius Herbarium building, on bark of *Mangifera*, 2019, Diederich 18690; *ibid.*, on bark of *Pinus*, Diederich 18693. **Plaines Wilhems:** Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18304; *ibid.*, on bark of palm trees, 2019, Diederich 19095 & Ertz 24206 (TLC of 24206: atranorin, divaricatic, unknown terpenes, solvents A, B'). **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2019, Ertz 24009 (TLC: atranorin, divaricatic, unknown terpenes, solvents A, B').

Previously reported from Nicolière Mountains, Nouvelle Découverte, on volcanic rocks, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995), and from Rodrigues, on rocks, 1874, Balfour 2225 by Crombie (1876b). A further unpublished specimen, collected in Réduit near the Mauritius Herbarium by Krog & Timdal in 1991, is kept in O.

applanata (Fee) D. D. Awasthi

Moka: Réduit, State House Park, on bark of *Cinnamomum*, 2019, Diederich 19313; *ibid.*, on bark of *Pinus*, 2019, Diederich 19319. **Pamplemousses:** 1 km NNW of Botanical Garden, S of Museum 'Aventure du sucre', on bark, 2016, Diederich 18622. **Rivière Noire:** La Preneuse (between Tamarin and Grande Rivière Noire), cemetery (SE part with old graves), on bark at the base of a tree, 2016, Diederich 18386; Chamarel, Ebony Forest, around viewpoint, on exposed rocks, 2019, Diederich 18916.

Previously reported from Mauritius by Crittenden et al. (1995), from centre de Flacq, on *Ficus*, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995), and from Pamplemousses Botanical Garden, on *Hyophorbe amaricaulis*, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995).

picta (Sw.) Schaer. ex Clem.

≡ *Physcia picta* (Sw.) Nyl.

Moka: Réduit, State House Park, on bark, 2019, Diederich 19290; Réduit, close to Mauritius Herbarium building, on bark of *Pinus*, 2019, Diederich 18686. **Pamplemousses:** Jardin Botanique, on bark, 2016, Diederich 18240, 18268, 18591. **Rivière Noire:** Chamarel, Ebony Forest, around viewpoint, on exposed rocks, 2019, Diederich 19390.

Previously reported from Mauritius by Lindau (1908), from Round Island, on W side of the island by Johnston (1894: 263), from Ile aux Aigrettes by Parnell et al. (1989) (BM, det. James), and from Rodrigues, on branches of trees, 1874, Balfour 2373 by Crombie (1876b).

DYPLOLABIA A. Massal.

afzelii (Ach.) A. Massal. [= *Graphis afzelii* Ach.]. Reported from Mauritius by Daruty (1873) and Crittenden et al. (1995).

ENDOCARPON Hedw.***johnstonii** (Müll. Arg.) Stizenb.

Ber. Thätigk. St. Gallischen Naturwiss. Ges. 1893–94: 259 (1895); ≡ *Paracarpidium johnstonii* Müll. Arg., Hedwigia 31: 286 (1892). Type: Ile aux Fouquets, Mauritius,

'vulgaris ad saxa sabulosa, ~5–35 ped. supra mare', Johnston (G 00291830 – holotype, BM – isotype).

ERIODERMA Fée**sorediatum** D. J. Galloway & P. M. Jørg.

Reported from Piton de la Petite Rivière Noire by Timdal (2002: 296), and from the entrance to Macchabee Forest, on bark, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995). Further unpublished specimens from Plaine Champagne towards Piton de la Petite Rivière Noire and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

ETAYOA Ertz & Diederich**+trypethelii** (Flakus & Kukwa) Diederich & Ertz

Plaines Wilhems: Curepipe, Trou aux Cerfs, along road surrounding the crater, on bark, on *Phaeographis*, 2016, Diederich 18275 (sub *Phaeographis* sp.); Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, on *Allographa calcea*, 2016, Diederich 18352 (sub *A. calcea*); Le Pétrin, heathland NW of Pétrin Information Centre, on bark, on *Graphidaceae*, 2019, Diederich 19365.

This lichenicolous fungus is rather common in tropical and subtropical countries, where it can be found on corticolous, crustose lichens belonging to different phylogenetic groups, being particularly frequent on members of *Graphidales* (Ertz et al. 2014). New for Mauritius.

FLAVOPARMELIA Hale

caperata (L.) Hale [= *Parmelia caperata* (L.) Ach.]. Reported from Mauritius by Daruty (1873), and 'Sur les arbres, à l'île Maurice' by Bélanger (1834) (PC 0018177).

GIBBOSPORINA Elvebakk, S. G. Hong & P. M. Jørg.**didyma** Elvebakk, Hong & P. M. Jørg.

Reported from Piton de la Petite Rivière Noire, 1991, Krog & Timdal (O) by Elvebakk et al. (2016: 32).

mascarena Elvebakk, Hong & P. M. Jørg.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18399 (dupl. LG); *ibid.*, 2019, Ertz 23915, 23954. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 18846.

Previously reported from the same two localities and from Macchabee Forest, 1991, Krog & Timdal (O) by Elvebakk et al. (2016: 35).

GLOMERULOPHORON Frisch, Ertz & G. Thor***mauritiaae** Frisch, Ertz & G. Thor

in Frisch et al., Lichenologist 47: 252 (2015). Type: Mauritius, Pamplemousses, Botanical Garden, parc, sur tronc, 18 Febr. 2014, Ertz 19164 (BR – holotype, MAU – isotype).

Moka: Réduit, State House Park, on bark, 2019, Diederich 18731, 18738; Réduit, close to Mauritius Herbarium, on bark, 2019, Diederich 18695. **Pamplemousses:** Same locality as type, on bark, 2016, Diederich 18261. **Rivière Noire:** Chamarel, Ebony Forest, along trail W of viewpoint,

on bark, 2019, Diederich 19447; Le Morne Peninsula, S coast, on bark, 2019, Diederich 19254 & Ertz 24268.

Currently known from Mauritius and Seychelles (Diederich et al. 2017).

GLYPHIS Ach.

cicatricosa Ach.

= *G. cicatricosa* var. *favulosa* (Ach.) Nyl.; = *G. cribrosa* Fée

Moka: Réduit, State House Park, on bark, 2019, Diederich 19286; *ibid.*, on bark of *Terminalia angustifolia*, 2019, Diederich 19292. **Pamplemousses:** Jardin Botanique, on bark of *Verschaffeltia splendens*, 2016, Ertz 21433; *ibid.*, on bark of *Agathis*, Ertz 21467. **Plaines Wilhems:** Plaisance, Rose Hill, sur un Jam Rosadier (*Syzygium jambos*), s. d. (probably 1873 or 1874), Daruty 63 (MAU L1995), sub *Verrucaria nitida*; Curepipe Botanic Gardens, on bark, 2019, Diederich 19137, 19167 & Ertz 24182; Le Pétrin, along trail W of Pétrin Information Centre, up to 600 m W of first viewpoint, on bark, 2019, Diederich 18779 & Ertz 23445. **Rivière Noire:** East of Black River, from Visitor's Centre to Pilgrims Trail, on bark, 2016, Diederich 18505.

Reported from Mauritius by Daruty (1873, as *G. cicatricosa* and *G. cribrosa*), and from Rodrigues, on branches of trees, 1874, Balfour 2295 by Crombie (1876b, as *G. cicatricosa* var. *favulosa*).

cicatricosa var. *favulosa* (Ach.) Nyl. = *Glyphis cicatricosa*

cribrosa Fée = *Glyphis cicatricosa*

scyphulifera (Ach.) Staiger

Moka: Réduit, State House Park, on bark of *Phyllanthus emblica*, 2019, Diederich 19296. **Pamplemousses:** Jardin Botanique, on bark of *Dypsis lutescens*, 2016, Ertz 21439.

New for Mauritius.

tricosula Nyl. ex Cromb. = *Sarcographa tricosula*

GRAPHIS Adans.

aequalis Wedd. ex Nyl. = *Phaeographis aequalis*

afzelii Ach. = *Dyplolabia afzelii*

alboglaucescens Adaw. & Makhija

Pamplemousses: Jardin Botanique, on bark of *Agathis*, 2016, Ertz 21469.

New for Mauritius.

analoga Nyl. Reported from Rodrigues, on bark of trees, 1874, Balfour 2218, by Crombie (1876b).

anfractuosa (Eschw.) Eschw. Reported from Mauritius by Daruty (1873).

anguina (Mont.) Nyl. Reported from Mauritius by Daruty (1873).

angustata Eschw. = *Allographa angustata*

assimilis Nyl. Reported from Rodrigues, on bark of trees, 1874, Balfour 2312, by Crombie (1876b).

cincta (Pers.) Aptroot

Pamplemousses: Jardin Botanique, on bark of *Agathis*, 2016, Ertz 21465.

New for Mauritius.

comma (Ach.) Spreng. = *Allographa comma*

contexta (Pers.) Nyl. Reported from Mauritius by Daruty (1873).

duplicata Ach.

= *Opegrapha duplicata* (Ach.) Bél.

Port Louis and Moka: Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24106, 24107.

This species was reported by Bélanger (1834) 'Sur l'écorce des arbres, dans la péninsule indienne, aux îles Maurice et de Bourbon'.

**gomphospora* Müll. Arg.

J. Linn. Soc., Bot. 30: 458 (1895). Type: Mauritius, Pic du Pouce (G 00047550).

This species belongs to *Fissurina* (https://www.fieldmuseum.org/sites/default/files/online_supplement_T1.txt) but has not yet formally been transferred there.

librata C. Knight

Reported from Moka, below Mt Ory, 200 m, on a shaded tree, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995).

pallescens Vain.

Reported from Moka, Nouvelle Découverte, 3 km N of village, 300 m, on bark, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995).

pulverulenta (Pers.) Ach. [= *Graphis scripta* var. *pulverulenta* (Pers.) Ach.]. Reported from Mauritius by Daruty (1873).

pyrrhocheiloides Zahlbr.

Pamplemousses: Jardin Botanique, on bark of *Verschaffeltia splendens*, 2016, Ertz 21435.

New for Mauritius.

rugulosa (Fée) Spreng. [= *Opegrapha rugulosa* Fée]. 'Sur l'écorce des arbres, à l'île Maurice' (Bélanger 1834).

scalpturata Ach. = *Phaeographis scalpturata*

scripta (L.) Ach. Reported from Mauritius by Daruty (1873).

scripta var. *pulverulenta* (Pers.) Ach. = *Graphis pulverulenta*

turgidula Müll. Arg. = *Allographa rustica*

uniformis Fée. Reported from Mauritius by Daruty (1873).

GYALECTA Ach.

**tropica* Bél., Voyage aux Indes-orientales, pendant les années 1825–1829: 127 (1834). Type: 'Sur l'écorce des arbres, à l'île Maurice' (PC 0027547) (Bélanger 1834).

GYALECTIDIUM Müll. Arg.

filicinum Müll. Arg.

Reported from Mauritius, foliicolous on *Acrostichum obductum* (S) by Santesson (1952: 358).

GYALOLECHIA A. Massal.

bassiae (Ach.) Søchting, Frödén & Arup ex Ahti

= *Caloplaca bassiae* (Ach.) Zahlbr.

*= *Lecanora aurantiaca* var. *isidiosella* Cromb., Journ. Linn. Soc., Bot. 15: 437 (1876); = *Caloplaca isidiosella* (Cromb.) R. Sant., in Moberg, Thunbergia 5: 3 (1987). Type:

Rodrigues, on the bark of trees, 1874, Balfour 2211 (BR 5030019351485, isotype; BM, syntypes) (Crombie 1876b).

Moka: Réduit, State House Park, on bark, 2019, Diederich 18718.

Further reported from Mauritius, Søchting 9748 (C) by Arup et al. (2013), and from Pamplemousses Botanical Garden, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995).

Wetmore (2004: 289) included *L. aurantiaca* var. *isidiosella* in the synonymy of *G. bassiae* and stated that he did not find the type specimen (Balfour 2336) in BM. However, the type of var. *isidiosella* is specimen Balfour 2211, while specimen Balfour 2336 was published as *Lecanora aurantiaca* by Crombie (1876b), a name currently considered a synonym of *Gyalolechia flavorubescens*.

flavorubescens Søchting, Frödén & Arup [= *Lecanora aurantiaca* (Lightf.) Flot.]. Reported from Rodrigues, on bark of trees, 1874, Balfour 2336, by Crombie (1876b).

HAEMATOMMA A. Massal.

africanum (Steiner) Dodge

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on branches of a tree, 2016, Diederich 18462.

Previously reported from Rodrigues, on bark of trees, 1874, Balfour 2238 (BM) by Staiger & Kalb (1995). New for the island of Mauritius.

collatum (Stirton) Dodge

Reported from Mauritius, Plains, 1857, Ayres (BM), 1873, Weddell (H), and 1867 (BM-Hooker) by Staiger & Kalb (1995).

persoonii (Fée) A. Massal.

Reported from Mauritius, 1860, Ayres (BM) by Staiger & Kalb (1995).

puniceum (Sw.) A. Massal. [= *Lecanora punicea* (Sw.) Ach.; = *Parmelia punicea* (Sw.) Ach.]. Reported from Mauritius (Daruty 1873), from Rodrigues, 1874, Balfour 2238 (Crombie 1876b), and ‘Sur l’écorce des arbres, aux îles Maurice et de Java’ (PC 0018860) (Bélangier 1834). The report from Rodrigues refers to *H. africanum*; the two other reports are almost surely erroneous, as *H. puniceum* is a rare species known only from Peru (Staiger & Kalb 1995).

HEPPIA Nägeli ex A. Massal.

rodriguesii Cromb. = *Peltula rodriguesii*

HETERODERMIA Trevis.

comosa (Eschw.) Follmann & Redón [= *Anaptychia comosa* (Eschw.) A. Massal.]. Reported from Mauritius, ‘auf Ästen’ by Lindau (1908).

hypoleuca (Mühl.) Trevis. = *Polyblastidium hypoleucum*

japonica (Satō) Swinscow & Krog = *Polyblastidium japonicum*

obscurata (Nyl.) Trevis.

Port Louis and Moka: Along trail from Moka to Le Pouce, on rock, 2019, Ertz 24103 (TLC: atranorin, zeorin, cf 16β-acetoxyhopane-6α,22-diol, cf. 7-chloroemodin, solvent A). **Rivière Noire:** Chamarel, Ebony Forest, around

viewpoint, on rock, 2019, Ertz 23552 (TLC: atranorin, zeorin, cf 16β-acetoxyhopane-6α,22-diol, cf. 7-chloroemodin, solvent A).

Previously reported from Mauritius by Crittenden et al. (1995). A further unpublished specimen, 1874, Balfour is kept in E.

speciosa (Wulfen) Trevis. [= *Anaptychia speciosa* (Wulfen) A. Massal.; = *Physcia speciosa* (Wulfen) Nyl.]. Reported from Mauritius by Daruty (1873) and Lindau (1908), and from Rodrigues, on trees and rocks, 1874, Balfour 2289, 2324, by Crombie (1876b).

HYPERPHYSCIA Müll. Arg.

adglutinata (Flörke) H. Mayrh. & Poelt

Moka: Réduit, State House Park, on bark, 2019, Diederich 18730 & Ertz 23254; *ibid.*, on bark of *Ficus microcarpa*, 2019, Diederich 19281. **Pamplemousses:** 1 km NNW of Botanical Garden, S of Museum ‘Aventure du sucre’, on bark, 2016, Diederich 18510, 18621; Jardin Botanique, on twigs, 2016, Diederich 18585. **Rivière Noire:** Chamarel, near Seven Coloured Earths, on branches, 2016, Diederich 18627; Le Morne Peninsula, S coast, on bark, 2019, Diederich 19440.

A further unpublished specimen, collected by Jørgensen in Pamplemousses in 1997, is kept in BG (L 34990). New for Mauritius.

HYPOGYMNIA (Nyl.) Nyl.

**inflata* Dodge, Ann. Missouri Bot. Gard. 46: 47 (1959). Type: Mauritius, growing with hepatics (BM).

HYPOTRACHYNA (Vain.) Hale

microblasta (Vain.) Hale

* = *Parmelia mauritiana* Gyeln., Repert. Spec. Nov. Regni Veg. 29: 288/416 (1931b), nom. nov. for *P. caraccensis* f. *isidiosa*; = *Pseudevernia mauritiana* (Gyeln.) Dodge, Ann. Missouri Bot. Gard. 46: 182 (1959); = *Parmelia caraccensis* f. *isidiosa* Müll. Arg., Flora 74: 376 (1891). Type: Mauritius (K, holotype; BM 000550359, isotype; G 00066546, isotype) (Hale 1968, 1971: 18).

Also reported from Macchabee Forest, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995), and from road between Mt Cocotte and Bassin Blanc, 1991, Krog & Tindal (O) by Lücking & Tindal (2016: 194). Further unpublished specimens from Piton de la Petite Rivière Noire, Curepipe (Trou aux Cerfs) and Mt Cocotte, collected by Krog in Tindal in 1991, are kept in O.

JULELLA Fabre

geminella (Nyl.) R. C. Harris

Rivière Noire: Chamarel, Ebony Forest, close to park buildings, on bark, 2016, Diederich 18548.

New for Mauritius.

KROGIA Tindal

**coralloides* Tindal

Lichenologist 34: 293 (2002). Type: Black River, along path from Plaine Champagne towards Piton de la Petite Rivière Noire, 15 Nov. 1991, Krog & Tindal MAU51/83

(O-L-21909, holotype); *ibid.*, Krog & Timdal MAU51/80 (O-L-21908, BM, M, UPS, paratypes) (Timdal 2002, Kistenich et al. 2018: 903).

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18455 (det. Timdal).

LECANOGRAPHA Egea & Torrente

subnothella (Nyl.) Ertz

Pamplemousses: Sir Seewoosagur Ramgoolam Botanical Garden, on bark, 2014, Ertz 19162; *ibid.*, on bark of *Terminalia*, 2016, Ertz 21447.

In specimen Ertz 21447, most of the lirellae have a whitish pruina, but others are yellowish pruinose, showing that this species might, surprisingly, have two types of pruina. New for Mauritius.

LECANORA Ach.

***achroa** Nyl. ex Cromb.

J. Bot. 14: 263 (1876). Type: Rodrigues, on bark of trees, 1874, Balfour 2311 (H-NYL 27475, lectotype, selected by Lumbsch & Feige 1995; H-NYL 27293, isolectotype; E, isolectotype?) (Crombie 1876a, b; Lumbsch et al. 1995; Papong & Lumbsch 2011).

*= *achroella* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on bark of trees, 1874, Balfour 2255 (H-NYL 27135, holotype) (Crombie 1876a, b; Lumbsch et al. 1995).

*= *subflavicans* Nyl. ex Cromb., J. Bot. 14: 264 (1876). Type: Rodrigues, corticole, on bark of trees, 1874, Balfour 2223 (H-NYL 27287, holotype) (Crombie 1876a, b; Lumbsch et al. 1995).

A rather common, corticolous, pantropical species (Lumbsch et al. 1995).

achroella Nyl. ex Cromb. = *Lecanora achroa*

albella (Pers.) Ach. Reported from Mauritius by Daruty (1873).

allophana (Ach.) Nyl. [= *Lecanora subfusca* var. *allophana* Ach.]. Reported from Mauritius by Daruty (1873).

apostatica Nyl. ex Cromb. = *Loekoesia apostatica*

apostatica var. *obliquans* Nyl. ex Cromb. = *Loekoesia apostatica*

argentata (Ach.) Malme [= *Lecanora subfusca* var. *argentata* Ach.]. Reported from Mauritius by Daruty (1873).

atra (Hudson) Ach. = *Tephromela atra*

atra f. *succedanea* Nyl. =? *Tephromela atra* (Huds.) Hafellner

aurantiaca (Lightf.) Flot. = *Gyalolechia flavorubescens*

aurantiaca var. *isidiosella* Cromb. = *Gyalolechia bassiae*

aurantiella Nyl. ex Cromb. = *Caloplaca aurantiella*

campestris (Schaer.) Hue. Reported from Mauritius by Crittenden et al. (1995).

caesiorubella Ach. Reported from Mauritius by Daruty (1873).

carneofusca Nyl. ex Cromb. = *Caloplaca diplacia* var. *carneofusca*

cinnabarina Ach. = *Brownliella cinnabarina*

coniopta Nyl. = *Rinodina luridescens*

conizaea (Ach.) Nyl. Reported from Rodrigues, on decorticated trunks, 1874, Balfour 2335 by Crombie (1876b).

**conizopta* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, 'corticole' (Crombie 1876a) or 'on rocks' (Crombie 1876b) [photos on JSTOR suggest rocks], 1874, Balfour 2217 (H-NYL 26146, holotype [fide Lumbsch 1994: 156]; M, isotype) (Crombie 1876a, b).

glaucofuscula Nyl. ex Cromb. = *Caloplaca glaucofuscula*

glaucofuscula f. *biatoroidea* Cromb., see under *Caloplaca*

leucoxantha Müll. Arg. Reported from Rodrigues, on bark of trees, 1874, Balfour 2366, by Crombie (1876b).

muralis (Schreb.) Rabenh. Reported from Mauritius by Riedl & Riedl-Dorn (1986).

murorum (Hoffm.) Ach. Reported from Mauritius by Hue (1892: 128).

murorum var. *lobulata* (Sommerf.) Schaer. = *Bilimbia lobulata*

oreinoides (Körb.) Hertel & Rambold

*=? *Lecidea melopta* Nyl. ex Cromb., J. Bot. 14: 264 (1876).

Type: Rodrigues, on rocks, 1874, Balfour 2281 (E, G, H, UPS L076078) (Crombie 1876a, b).

Following <http://data.rbge.org.uk/herb/E00465221>, the type of *Lecidea melopta* in E belongs to *L. oreinoides*.

parella var. *pallescens* (L.) Ach. = *Ochrolechia pallescens*

parella var. *phloeoleuca* Nyl. = *Ochrolechia africana*

**perlutescens* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on bark of trees, 1874, Balfour 2222 (H-NYL 26299) (Crombie 1876a, b).

punicea (Sw.) Ach. = *Haematomma puniceum*

sorediifera Fée [= *Parmelia sorediifera* (Fée) Bél.]. 'Sur les écorces d'arbres, à l'île Maurice' (Bélangier 1834).

subflavicans Nyl. ex Cromb. = *Lecanora achroa*

subfusca (L.) Ach. Reported from Mauritius, Round Island, on west side of the island, on dead branches of *Fernelia buxifolia*, 200 ft by Johnston (1894: 263).

subfusca ['*subfurea*'] var. *allophana* ['*alloyara*'] Ach. = *Lecanora allophana*

subfusca ['*subfurea*'] var. *argentata* Ach. = *Lecanora argentata*

**subfusca* f. *pumicola* Nyl., in Crombie, Journ. Linn. Soc., Bot. 15: 438 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2296, 2299 (M, type?; UPS L106912, in database sub *Lecanora pseudistera*) (Crombie 1876b).

sulphureofusca Fée = *Sipmaniella sulphureofusca*

vigilans Taylor = *Megalospora coccodes* subsp. *coccodes*

LECIDEA Ach.

**achroopholis* Nyl. ex Cromb., J. Bot. 14: 264 (1876); = *Psora achroopholis* (Nyl. ex Cromb.) C. W. Dodge, Beih. Nova Hedwigia 12: 230 (1964). Type: Rodrigues, on rocks, 1874, Balfour 2272 (E, H-NYL 13024) (Crombie 1876a, b).

canorubella Nyl. Reported from Mauritius by Daruty (1873).

coccocarpoides Nyl. ex Cromb. = *Rolfidium coccocarpoides*

compacta Nyl. = *Phyllopsora compacta*

**configurans* Nyl. ex Cromb., J. Bot. 14: 264 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2224 (E, H) (Crombie 1876a, b).

continens Nyl. ex Cromb. = *Buellia continens*

disciformis Nyl. Reported from Mauritius by Daruty (1873) and from Rodrigues, on bark of trees, 1874, Balfour 2331, by Crombie (1876b).

immutans Nyl. ex Cromb. = *Buellia immutans*

**leucoxantha* var. *bispora* Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 5: 123 (1857), nom. nud. (description missing). Original material: ‘Guyan., ins. Maurit.’.

**leucoxantha* var. *ochrocarpa* Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg 5: 123 (1857), nom. nud. (description missing). Original material: ‘Ins. Maurit.’.

mauritiana Taylor = *Phyllopsora mauritiana*

megacarpa Nyl. = *Megalospora sulphurata*

megaspora Leight. = *Megalospora sulphurata*

melopta Nyl. ex Cromb. =? *Lecanora oreinoides*

mutabilis Fée. Reported from Mauritius by Daruty (1873).

spuria Schaer. = *Buellia spuria*

triphragmia Nyl. = *Buellia geophila*

tuberculosa Fée = *Megalospora tuberculosa*

vulpina Tuck. = *Letrouititia vulpina*

LEIODERMA Nyl.

erythrocarpum (Nyl.) D. J. Galloway & P. M. Jørg.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2019, Ertz 23998. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 18864 & Ertz 23508, 23512.

Also reported from Piton de la Petite Rivière Noire by Timdal (2002: 296), from Curepipe, 1933, Vaughan (BM), Plaine Champagne, 20 km S of Rose Hill, 1979, Arvidsson & Nilsson (GB), Plaine Raoul, 15 km S of Rose Hill, 1979, Arvidsson & Nilsson (GB) by Galloway & Jørgensen (1987), from entrance to Macchabee Forest, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995), and from road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 194). Further unpublished specimens from the Macchabee Forest, Le Pouce and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

LEPIDOCOLLEMA Vain.

brisbanense (C. Knight) P. M. Jørg.

*=? *Pannaria rubiginosa* var. *dispartita* Nyl., in Crombie, J. Linn. Soc. (Bot.) 15: 436 (1876b); = *P. dispartita* (Nyl.) Vain. Type: Rodrigues, on rotten stumps on the ground, 1874, Balfour (BM, lectotype, selected by Jørgensen 2003).

Plaines Wilhems: Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18300 (dupl. LG); Le Pétrin, heathland NW of Pétrin Information Centre, on bark, 2019, Diederich 18832; Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18333 (dupl. LG), 18334. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18435 (dupl. LG),

18440 (dupl. LG), 18446; east of Black River, from Visitor’s Centre to Pilgrims Trail, on bark, 2016, Diederich 18482 (MAU), 18495, 18496 (dupl. LG), 18497 (dupl. LG), 18498 (dupl. LG).

Following Jørgensen (2003), the type of *Pannaria rubiginosa* var. *dispartita* belongs to ‘*Parmeliella stylophora* s.lat.’. As the distinction between *Lepidocollema stylophorum* (Vainio) P. M. Jørg. and *L. brisbanense* needs further investigation [Jørgensen (2000) even suggested that the mainly neotropical *L. stylophorum* may be a later synonym of *L. brisbanense*], we have provisionally included all isidiate specimens in *L. brisbanense*.

New for Mauritius.

marianum (Fr.) P. M. Jørg.

*= *Pannaria luridula* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on the ground, 1874, Balfour 2208 (H-NYL 31278, holotype) (represents *L. marianum*, det. Jørgensen 2002) (Crombie 1876a, b).

Further unpublished specimens from Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

LEPRA Scop.

amara (Ach.) Hafellner

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18397, 18430 (det. Kukwa; TLC: picrolichenic).

This is a surprising discovery of a mainly temperate species. New for Mauritius.

LEPRARIA Ach.

arbuscula (Nyl.) Lendemer & B. P. Hodk.

= *Stereocaulon arbuscula* Nyl.; = *Leprocaulon arbuscula* (Nyl.) Nyl.

Reported from Mauritius, 1869, Peck (CAN, FH) (Lamb 1966, Lamb & Ward 1974: 518).

cf. *elobata* Tønsberg

Rivière Noire: Chamarel, Ebony Forest, along trail to viewpoint, ~50 m before viewpoint, terricolous, on vertical banks of road protected from rain, 2016, Diederich 18522 (det. Kukwa; dupl. UGDA).

Following Kukwa (pers. comm.), this specimen is very close to *Lepraria elobata*. It has small, more or less regular greyish granules and lacks projecting hyphae, typical for this species; however, the granules are a bit smaller than in typical specimens and form a really thick layer, which is rather atypical for *L. elobata*. Although the entire variation of the species may not be known, especially in the tropics, it is possible that the examined specimen is old, resulting in a relatively thick layer of granules. New for Mauritius.

finkii (B. de Lesd.) R. C. Harris

Plaines Wilhems: Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18295, 18310; *ibid.*, 2019, Diederich 19152; Le Pétrin, along trail W of Pétrin Information Centre, up to 600 m W of first viewpoint, on bark, 2019, Diederich 18767. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18397, 18403; Brise Fer Forest, on bark, 2019, Diederich 19238 (all det. Kukwa dupl. UGDA).

New for Mauritius.

flava (Willd.) Ach. = *Chrysothrix candelaris*

pallida Sipman

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18611 (det. Kukwa; TLC: atranorin, zeorin, fatty ac.).

New for Mauritius.

LEPROCAULON Nyl.

arbuscula (Nyl.) Nyl. = *Lepraria arbuscula*

LEPTOGIUM (Ach.) Gray

azureum (Sw.) Mont.

= *Collema azureum* (Sw.) Ach.; = *Leptogium tremelloides* var. *azureum* (Sw.) Nyl.

Plaines Wilhems: Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18306; *ibid.*, 2019, Diederich 19099, 19199. **Port Louis and Moka:** Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24101. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18449; *ibid.*, 2019, Ertz 23919; east of Black River, from Visitor's Centre to Pilgrims Trail, on bark, 2016, Diederich 18479; Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18555; *ibid.*, along trail W of viewpoint, on bark, 2019, Diederich 18944, 18947, 19403 & Ertz 23572. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 19386 & Ertz 23464.

Previously reported from Mauritius by Daruty (1873) by Crittenden et al. (1995), and 'Sur l'écorce des arbres, dans les lieux humides des forêts' by Bélanger (1834) (PC 0071319).

burgessii (L.) Mont. [= *Collema burgessii* (L.) Ach.] 'Sur les arbres, dans les forêts des îles Maurice et de Java' (Bélanger 1834).

cyanescens (Rabenh.) Körb.

Plaines Wilhems: Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18309. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18415, 18439; *ibid.*, 2019, Ertz 23920; east of Black River, from Visitor's Centre to Pilgrims Trail, on bark, 2016, Diederich 18475; Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18552, 18553 & Ertz 23565; *ibid.*, along trail W of viewpoint, on bark, 2019, Diederich 18933, 18940 & Ertz 23580, 23611 p.p. Le Morne Peninsula, S coast, on bark, 2019, Ertz 24273. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 18898.

Also reported from Mauritius by Crittenden et al. (1995) and from Ile aux Aigrettes by Parnell et al. (1989) (BM, det. James).

**fuliginellum* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n.s. 7: 164 (1873), nom. nud. (description missing).

marginellum (Sw.) Gray

= *Collema marginellum* (Sw.) Raesch.

Port Louis and Moka: Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24047. **Rivière Noire:** Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18550; *ibid.*, along trail W of viewpoint, on bark, 2019, Diederich 18929 & Ertz 23579.

Previously reported from Mauritius by Bélanger (1834) (PC 0071380). An unpublished specimen from Le Pouce, collected by Krog & Timdal in 1991, is kept in O.

mastocheilum (Vain.) Kitaura & Marcelli

Rivière Noire: Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18551; *ibid.*, along trail W of viewpoint, on bark, 2019, Diederich 18924, 18930 & Ertz 23611; trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18618.

New for Mauritius.

phyllocarpum (Pers.) Mont. Reported from Mauritius by Daruty (1873).

tremelloides (L. f.) Gray. Reported from Mauritius by Daruty (1873) and Lindau (1908), 1889, fr. Rodriguez by Hue (1898: 223), and from Rodrigues, on trunks of trees, 1874, Balfour 2201, by Crombie (1876b).

tremelloides var. *azureum* Nyl. = *Leptogium azureum*

tremelloides var. *rugulosum* Nyl. Reported 'In ins. Mauriti, sur les rochers humides et les arbres, à Plaisance, près de Rose-Hill, Daruty 90, 30 mai 1873' by Hue (1898).

LETROUTIA Hafellner & Bellem.

vulpina (Tuck.) Hafellner & Bellem.

= *Lecidea vulpina* Tuck.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18420; Chamarel, Ebony Forest, along trail W of viewpoint, on bark of *Diospyros tessellaria*, 2019, Diederich 19399.

Previously reported from Mauritius by Hue (1892: 200), ex herb. Hooker (H-NYL 18038) by Hafellner (1981: 718), and from Brise de Fer, 2001, Søchting (C) and Le Pouce, 2001, Søchting (C) by Johannson et al. (2005: 148).

LEUCODERMIA Kalb

leucomelos (L.) Kalb [= *Anaptychia leucomelaena* (L.) A. Massal.]. Reported from Mauritius by Lindau (1908).

LICHEN L.

floridus L. = *Usnea florida*

roccella L. The report from Mauritius by Flörke (1809) probably refers to *Roccella boryi*.

LICHENOPELTELLA Höhn.

+***ramalinae*** Etayo & Diederich

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, 2016, on bark, on *Ramalina sprengelii*, Diederich 18458.

This lichenicolous ascomycete, confined to *Ramalina* hosts, is new for Mauritius.

LOBARIA (Schreb.) Hoffm.

holstiana (Müll. Arg.) Zahlbr.

Reported from Le Pouce, 600 m, 2001, by Holm & Grogensen (2002). Further unpublished specimens from Plaine Champagne towards Piton de la Petite Rivière Noire and Mt Corps de Garde, collected by Krog & Timdal in 1991, are kept in O.

patinifera (Taylor) Hue

Reported from Mt des Créoles, 1991, Krog & Timdal (MAU, O) by Lücking & Timdal (2016: 198). Further unpublished specimens from Le Pouce, Piton de la Petite Rivière Noire, Mt Corps de Garde and Macchabee Forest, collected by Krog & Timdal in 1991, are kept in O.

pulmonaria (L.) Hoffm. [= *Sticta pulmonacea* (Ach.) Ach.].

Reported from Mauritius by Laurer (1827).

retigera (Bory) Trevis.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18400 (dupl. LG). **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 18853, 18861.

Previously reported from Mauritius by Lindau (1908) and from le Pouce, 600 m, 2001, by Holm & Gregersen (2002). Further unpublished specimens from Le Pouce, Plaine Champagne towards Piton de la Petite Rivière Noire, Grand Bassin and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

wightii Dodge = *Ricasolia sublaevis**LOBARIELLA* Yoshim.*crenulata* (Hook. f.) Yoshim. [= *Parmelia crenulata* Hook f.].

‘Sur l’écorce des arbres, à l’île Maurice’ (Bélangier 1834).

LOEKOESIA S. Y. Kondr., S.-O. Oh & Hur**Loekoesia apostatica* (Nyl. ex Cromb.) Ertz & Diederich, comb. nov. (Figs 9–10)

Mycobank MB 834924

Basionym: *Lecanora apostatica* Nyl. ex Cromb., J. Bot. 14: 263 (1876); ≡ *Lecidea apostatica* (Nyl. ex Cromb.) Hue, Nouvelles archives du Muséum d’histoire naturelle, sér. 5, 4: 9 (1914); ≡ *Blastenia apostatica* (Nyl. ex Cromb.) Zahlbr., Cat. Lich. Univ 7: 24 (1930); ≡ *Huea apostatica* (Nyl. ex Cromb.) C. W. Dodge, Beih. Nova Hedwigia 38: 84 (1971). Type: Rodrigues, on rocks, 1874, Balfour (BM 001096467!, lectotypus hic designatus; E, H, syntypes, non vid.).

Mycobank MBT 391339

*Syn. nov.: *Lecanora apostatica* var. *obliquans* Nyl. ex Cromb., J. Bot. 14: 263 (1876); ≡ *Lecidea obliquans* (Nyl. ex Cromb.) Hue, Nouvelles archives du Muséum d’histoire naturelle, sér. 5, 4: 16 (1914); ≡ *Blastenia obliquans* (Nyl. ex Cromb.) Zahlbr., Cat. Lich. Univ. 7: 37 (1930); ≡ *Huea obliquans* (Nyl. ex Cromb.) C. W. Dodge, Beih. Nova Hedwigia 38: 87 (1971). Type: Rodrigues, on rocks, 1874, Balfour (BM 001096465!, lectotypus hic designatus; BM 001096466!, BM 001096467!, BM 001096469!, BM 001096471!, syntypes; E, H, syntypes, non vid.).

Mycobank MBT 391340

Description. Thallus white to pale yellowish or greyish, varying from thin and continuous to thick and cracked or areolate, up to 0.3 mm thick. Apothecia abundant, dispersed, sessile with a constricted base, 0.4–0.8 mm diam.; disc slightly concave, brownish to greenish black, becoming dark greenish in damaged areas, without pruina; proper margin greenish black, 70–100(–120) µm thick, often becoming slightly to strongly undulate, some apothecia eventually becoming gyrose; thalline margin absent. Hymenium not interspersed, hyaline, in the upper

part bluish green, 80–140 µm thick; epihymenium not granulose, with a bluish green, K– pigment, additionally appearing brownish because of the paraphyses tips; hypothecium hyaline, 50–100 µm thick; exciple 80–120 µm, outer layer greenish, K–, inner layer hyaline, of rounded cells 4.5–7 µm diam. Paraphyses branched in the middle or close to the apex, 2–2.5 µm thick, apically brownish, up to 3 µm. Asci claviform, wall apically thickened, 8-spored, 44–62 × 12–22 µm. Ascospores polarilocular, ellipsoid, 16–18 × 7–8.5 µm (Diederich 18400), or (11–)12–16 × 8–10(–10.5) µm (lectotype of *L. apostatica*), or 11–15 × 5–8 µm (original description), septum 2.5–4(–5) µm wide. Pycnidia immersed, blackish; pycnidial wall absent; ostiolar region bluish green, K–; conidiophores hyaline, irregularly branched, occupying almost the entire pycnidial cavity, septate; conidiogenous cells enteroblastic, integrated into chains, acro-pleurogenous; conidia arising from the apex of a chain and laterally, hyaline, bacilliform, aseptate, 3–4 × 1–1.5 µm. Chemistry: thallus K+ yellow, C–, KC–, PD–, UV–; no substance detected by TLC (solvent A).

Ecology and distribution. Previously known only from Rodrigues, where the large number of specimens available in different herbaria suggests that it is a relatively common species. We collected it in one Mauritius locality near Chamarel.

Notes. Crombie (1876a) published the new species ‘8. *L. apostatica*, Nyl.’ and the new taxon ‘**L. obliquans*, Nyl.’; all new species in his paper were preceded by a number, except *L. obliquans*, preceded by *. In Crombie (1876b), all new species, including *L. apostatica*, were followed by ‘sp. n.’, while *L. obliquans* was not. Several original herbarium specimens examined are annotated as ‘*Lecanora apostatica* **obliquans* Nyl.’. This clearly shows that ‘*obliquans*’ was intended to be published as a new variety, not a new species.

Crombie (1876a) published both taxa based on minor differences. *Lecanora apostatica* was said to be characterized by ‘Thallus whitish, thin, areolato-rimose’, while var. *obliquans* ‘differs in having the thallus greyish, very thin, continuous’. Examination of five original specimens (one of *L. apostatica* and four of var. *obliquans*) and our recent material convinced us that they all belong to a single species with a rather variable thallus.

A phylogenetic analysis, using nuLSU and mtSSU sequences from our recent specimen, places *Lecanora apostatica* in a poorly supported clade comprising also the genera *Eilifdahlia*, *Frankwilsia*, *Gyalolechia*, *Huneckia*, *Jasonhurea* and *Loekoesia*. In the combined nuLSU/mtSSU tree (not shown here), the species does not group in a convincing way with any of these genera. In the mtSSU tree (Fig. 10), our species groups with *Loekoesia austrocoreana* but without any support, similarly to the other genera from this clade that are also not supported. No nuLSU sequences are available yet for *L. austrocoreana*.

Morphologically, *Lecanora apostatica* is extremely similar to *Loekoesia austrocoreana*. That species has a grey to greyish white, cracked or areolate thallus, black apothecia 0.4–0.7 mm diam., a plane, brownish black disc, a prominent, bluish black margin, an 80–100 µm thick, greenish blue, K– exciple, a 60–70 µm high hymenium with a bluish epihymenium, and ascospores 12–16 × 5–7 µm in K (Kondratyuk et al. 2013). It differs from *L. apostatica* by a thallus presenting bluish soralia, 0.3–0.5 mm diam., and paraphyses tips up to 4–5 µm.

We conclude that *Lecanora apostatica* either belongs to *Loekoesia* or represents a distinct genus closely related to that genus. Owing to the very low molecular support and the remarkable resemblance of *Lecanora apostatica* and *Loekoesia austrocoreana*, we decided to combine *L. apostatica* in *Loekoesia*.

The species is new for the island of Mauritius.

Additional specimens examined. MAURITIUS. **Rivière Noire:** Chamarel, Ebony Forest, around viewpoint, saxicolous, on exposed rocks, 2016, Diederich 18518.

LOPADIUM Körb.

leucoanthum (Spreng.) Zahlbr. \equiv *Brigantiaea leucoantha*

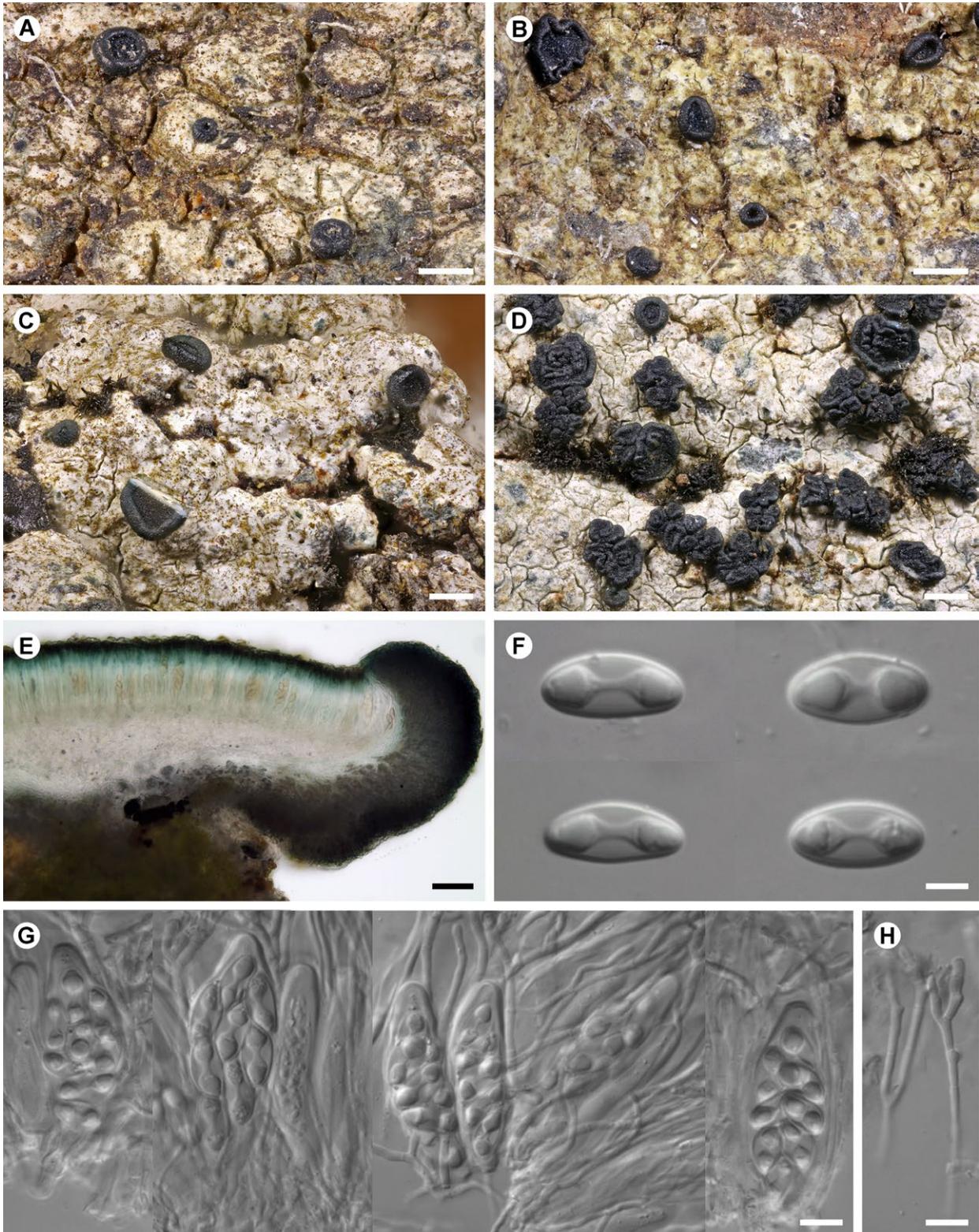


Figure 9. *Loekoesia apostatica* [A: lectotype of *Lecanora apostatica*; B: lectotype of *Lecanora apostatica* var. *obliquans*; C–H: Diederich 18518]. A–D – thalli with apothecia; note the undulate margin of upper left apothecium in B and of most apothecia in D; E – section through apothecium, in water; F – ascospores, in KOH; G – hymenium with paraphyses, asci and ascospores, in KOH; H – paraphyses, in KOH. Scales: A–D = 500 μ m; E = 50 μ m; F = 5 μ m; G–H = 10 μ m. Photos: P. Diederich.

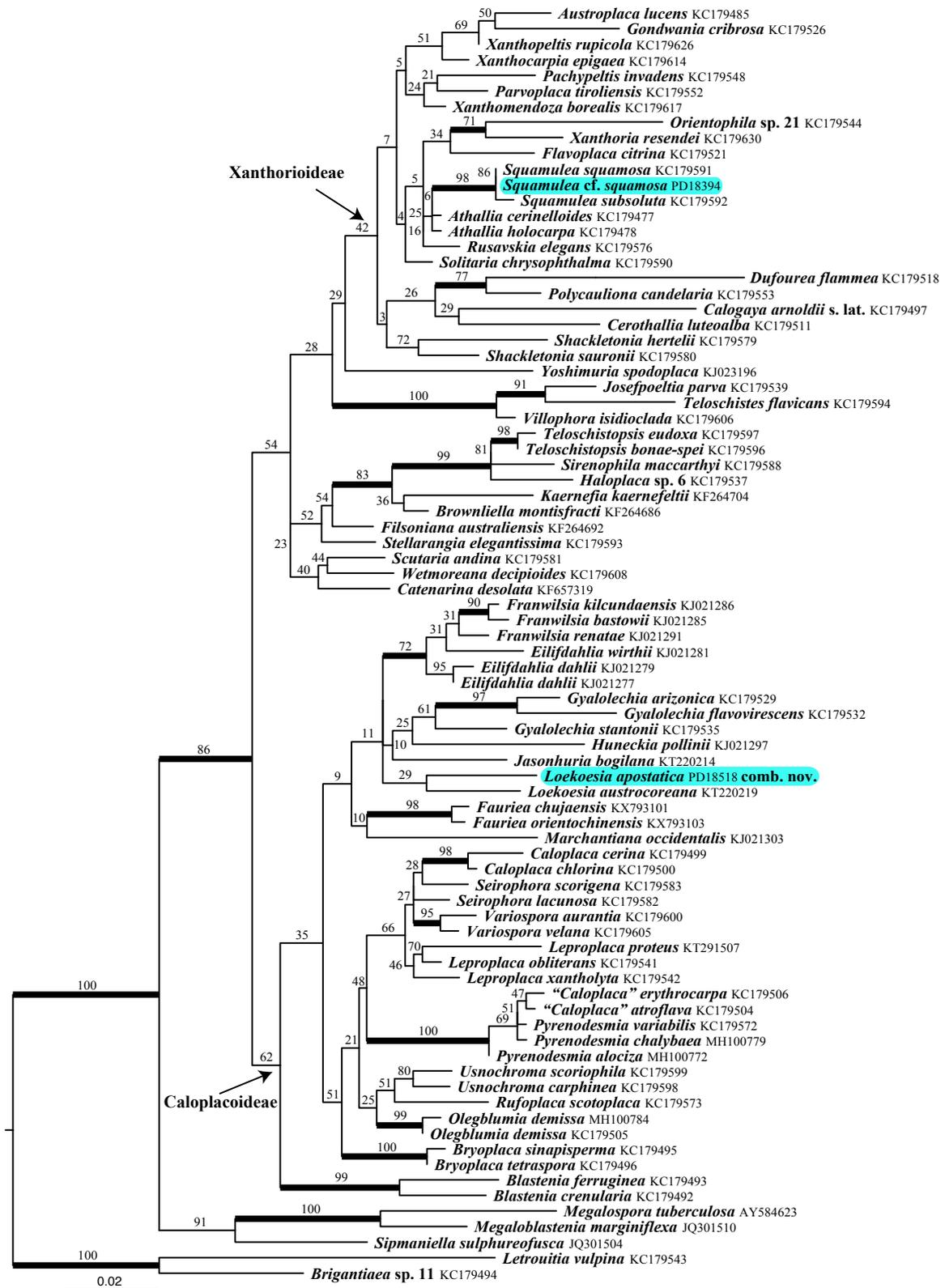


Figure 10. Phylogeny of *Teloschistales* based on a data set of mtSSU sequences that resulted from a RAXML analysis. Maximum likelihood bootstrap values are shown above or near internal branches. Internal branches considered strongly supported by both the RAXML and Bayesian analyses are represented by thicker lines. The newly sequenced samples from Mauritius are highlighted and their names followed by collecting numbers of authors, which act as specimen and sequence identifiers. Their respective subfamilies are indicated.

MEDUSULA Tode*tricosa* (Ach.) Mont. ≡ *Sarcographa tricosa***MEGALOSPORA** Meyen***atrorubicans*** (Nyl.) A. Zahlbr. subsp. ***atrorubicans***

Reported from Mauritius, 1867 (BM) by Sipman (1983: 96, 230).

coccodes (Bél.) Sipman subsp. ***coccodes**** = *Lecanora vigilans* Taylor, J. Bot., London 6: 159 (1847).

Type: Mauritius, on bark (G 00292552, isotype; FH-Taylor, sheet 644, isotype) (Sipman 1983: 132; Taylor 1847: 159).

Also reported from Mauritius, Ayres (BM) by Sipman (1983: 230).

sulphurata Meyen s.str.* = *Lecidea megacarpa* Nyl., Ann. Sci. Nat., Bot., sér. 4, 11: 260 (1859). Type: 'Ad cortices in Insula Mauriti, ex herb. cel. Fée' (H, isotype?) (Sipman 1983: 126).**Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18438.

Also reported from Mauritius by Daruty (1873), anon. 7 (H-NYL), 'M. Bogn Hub' (BM), and Mt Pouce (G) by Sipman (1983: 126), and Pamplemousses Botanical Garden, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995).

tuberculosa (Fée) Sipman≡ *Lecidea tuberculosa* Fée**Plaines Wilhems:** Le Pétrin, heathland NW of Pétrin Information Centre, on bark, 2019, Diederich 18816, 18799 & Ertz 23325. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Ertz 23518.Also reported 'Sur l'écorce des arbres, à l'île Maurice' (Bélangier 1834). Sipman (1983: 161) suggested on a distribution map (fig. 40) that this species occurs in Mauritius and Reunion; however, on p. 230, a specimen from Reunion and a second specimen from Mascarene Islands from herb. Bory de Saint-Vincent (PC-Thuret), but without indication of locality, are given. Crittenden et al. (1995) further reported the species, as *M. cf. tuberculosa*, from Savanne, Plaines Champagne, at viewpoint of Black River Gorge, 1990, Hawksworth (K-IMI).**MELANOTREMA** A. Frisch***platystomum*** (Mont.) A. Frisch**Plaines Wilhems:** Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18341 (TLC: no substance detected, solvent A).

New for Mauritius.

MELASPILEA Nyl.+cf. ***lekae*** Brackel & Kalb**Pamplemousses:** Sir Seewoosagur Ramgoolam Botanical Garden, on bark of *Ptychosperma macarthurii*, on *Phaeographis intricans*, 2016, Ertz 21452.*Melaspilea lekae* was described from Thailand as a lichenicolous fungus on *Sarcographa labyrinthica* (Kalb et al. 2012). Our specimen is on a new host genus, and the ascospores are slightly smaller. Further studies are needed.**MYCOMICROTHELIA** Keissl.*leuckertii* D. Hawksw. & J. C. David ≡ *Bogoriella leuckertii***MYCOPORUM** G. Mey.***eschweileri*** (Müll.Arg.) R. C. Harris≡ *Tomasellia eschweileri* (Müll. Arg.) R. C. Harris**Moka:** Réduit, State House Park, on bark of *Phyllanthus emblica*, 2019, Diederich 19300. **Plaines Wilhems:** Curepipe Botanic Gardens, on bark of *Pinus*, 2019, Diederich 19107; *ibid.*, on bark, Diederich 19110.Also reported from Flacq, Sandy Bay Hotel, on *Cocos nucifera*, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995).**MYRIOTREMA** Fée***microporum*** (Mont.) Hale= *Thelotrema crassulum* Nyl. [fide Frisch (2006: 177)].**Plaines Wilhems:** Le Pétrin, heathland NW of Pétrin Information Centre, on bark, 2019, Ertz 23318.*T. crassulum* was described by Nylander (1859: 258) in the chapter 'Lichenes Insulae Borboniae', i.e. from Reunion. Later, this was inadvertently cited as 'Mauritius' (Dodge 1964: 93) or 'Mauritius ['Bourbon']' (Frisch 2006: 177). The former report from Mauritius is therefore erroneous. Our specimen has a mainly white thallus similar to the type specimen of *Thelotrema crassulum* described from Reunion.***olivaceum*** Fée [= *Thelotrema olivaceum* (Fée) Mont.]. Reported from Mauritius by Daruty (1873).**NIGROVOTHELIUM** Lücking, M. P. Nelsen & Aptroot***tropicum*** (Ach.) Lücking, M. P. Nelsen & Aptroot [= *Verrucaria tropica* Ach.]. 'Sur l'écorce des arbres, dans les forêts de la péninsule indienne et dans les bois de la Montagne-Noire à l'île Maurice' (Bélangier 1834) (PC 0019113).**NORMANDINA** Nyl.***pulchella*** (Borrer) Nyl.**Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18441. **Savanne:** Near Grand Bassin, on bark, 2019, obs. Ertz & Diederich (no specimen).

Previously reported from Macchabee Forest, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995).

NYUNGWEA Sérus., Eb. Fischer & Killmann***Nyungwea pyneei*** Ertz & Diederich, sp. nov.

(Figs 4, 11)

Mycobank MB 834926

Diagnosis: A species of *Nyungwea* producing goniocysts on slightly convex cushions, without forming distinct stipes.

Type: Mauritius, Pamplemousses district, Pamplemousses, Sir Seewoosagur Ramgoolam Botanical Garden, 20.1063°S, 57.5813°E, alt. 80 m, on bark of trees, 28 July 2016, Diederich 18265 (MAU – holotype, BR, LG, herb. Diederich – isotypes).

Description. Thallus corticolous, crustose, very thin and partly endophloeodal and intermingled with dead cells of bark, up to 40 µm thick, continuous, white, I+ pale orange;

hyphae hyaline, smooth, branched, without crystals, 1–2 μm diam., I+ pale orange. Prothallus not seen, but the presence of a dark brown to black borderline $\sim 0.05\text{--}0.15$ mm wide formed in contact with other lichens. Photobiont trentepohlioid; cells subspherical to \pm oblong-elongated, 5–12 \times 4–7 μm , sometimes densely filling a dead cell of the bark. Goniocyst-producing thallus cushions numerous, white to pale cream, becoming greenish just below the layer of goniocysts when abraded, rounded, without or with a slightly constricted base, 95–190 μm diam, sometimes fused forming irregular patches of up to 1(–2) mm diam, slightly raised

above the level of the thallus, up to 160 μm high when single and up to 280 μm high when forming larger patches, containing numerous colourless crystals 1–7 μm diam. dissolving in K. Hyphae forming cushions hyaline, richly branched, a few anastomosed, 1.5–2 μm , I+ pale orange. Goniocysts numerous on upper surface of thallus cushions, dark brown when mature, formed of a single trentepohlioid algal cell (or rarely a couple of them) that is tightly embedded in a branched network of short dark brown hyphae, 8–10 μm diam; these hyphae stay tightly on the algal cell without forming hairs and do not form any structure that could be

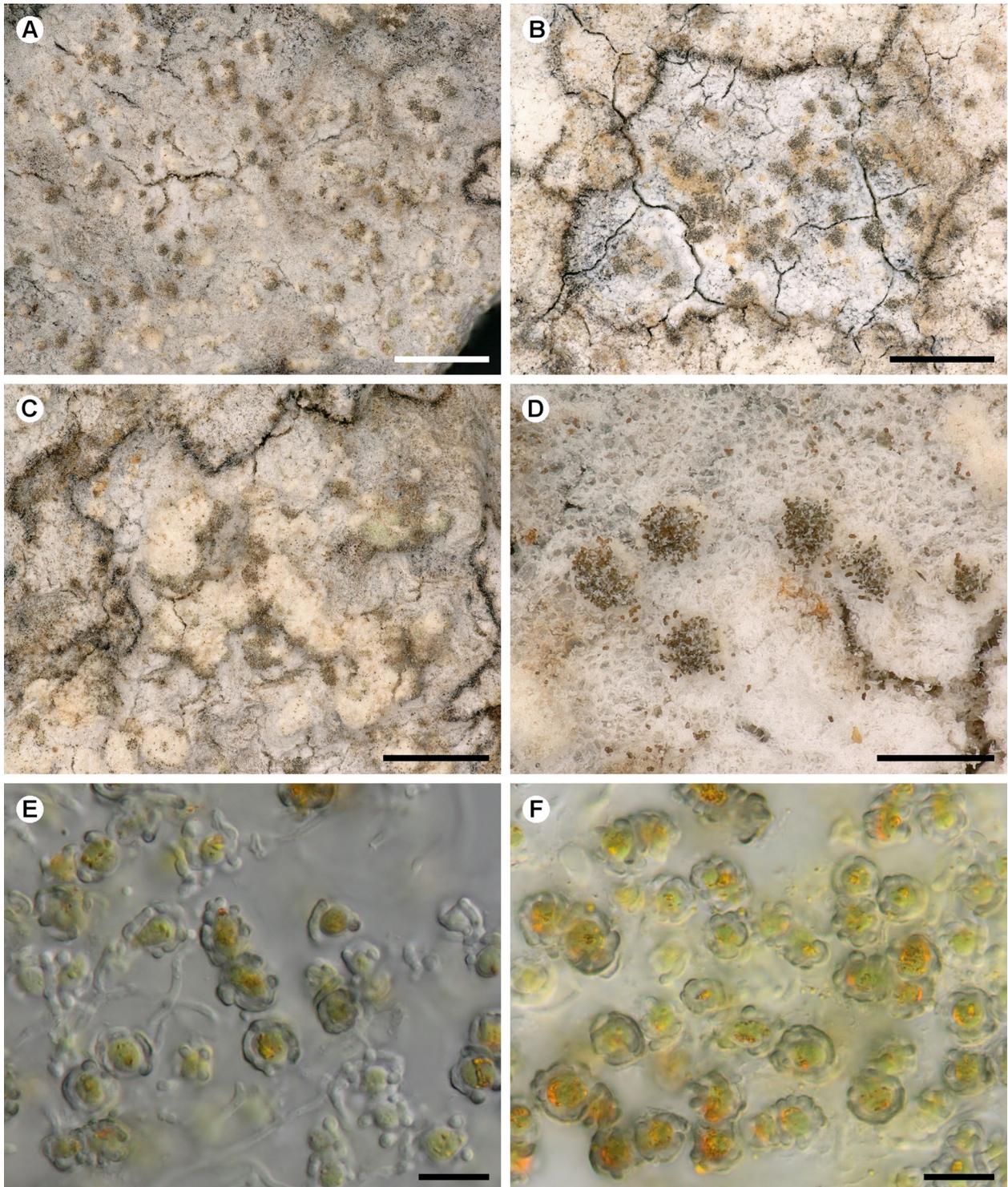


Figure 11. *Nyungwea pyneei* [A, C–F: holotype; B: Ertz 21450]. A–D – thallus with goniocyst-producing cushions; E–F – goniocysts in water. Scales: A–C = 1 mm; D = 250 μm ; E–F = 10 μm . Photos: D. Ertz.

described as paraplectenchymatous or a cortex of isodiametric cells. Goniocysts easily detached from their thallus cushions and act as diaspores. Ascomata and conidiomata absent. Chemistry: thallus K–, C–, P–, UV–; goniocyst-producing thallus cushions K–, C+ red, P–, UV–; lecanoric acid detected by TLC (solvents B', EA).

Ecology and distribution. The species is only known from the Sir Seewoosagur Ramgoolam Botanical Garden in Mauritius, where it grows on the bark of trees, including *Swietenia mahagoni*.

Notes. The generic placement is confirmed by our phylogeny, where the new species groups with the generic type (Fig. 4). The new species is unique in having slightly convex goniocyst-producing thallus cushions. *Nyungwea pallida* Sérus., Eb. Fischer & Killmann described from the mountains of East Africa differs by goniocysts producing on distinct stipes up to 1 mm long and by paler goniocysts (Sérusiaux et al. 2006).

Etymology. The new species is dedicated to Mauritian botanist Kersley Pynee, formerly working in The Mauritius Herbarium, now Technical Officer at the Ministry of Agro Industry and Food Security in Mauritius, to thank him for having guided us during several collecting trips in 2016.

Additional specimen examined. MAURITIUS. Same locality as the type, on bark of *Swietenia mahagoni*, 2016, Ertz 21450.

OCELLULARIA G. Mey.

bahiana (Ach.) Frisch [= *Thelotrema bahianum* (Ach.) Ach.]. Reported from Mauritius by Daruty (1873).

bonplandii (Fée) Müll. Arg. [= *Thelotrema bonplandii* Fée]. 'Sur l'écorce des arbres de la montagne du Pouce, à l'île Maurice' (PC0028108) (Bélangier 1834).

cavata (Ach.) Müll. Arg. [= *Thelotrema cavatum* Ach.]. Reported from Mauritius by Daruty (1873).

**mauritiana* Hale

Mycotaxon 3: 175 (1975). Type: Mauritius: Pouce, Ayres (BM, holotype; US, isotype) (Frisch & Kalb 2006: 506–509).

Port Louis and Moka: Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24061.

A pantropical species (Frisch & Kalb 2006). Our specimen comes from the type locality (Le Pouce) and has slightly more septate ascospores, (3–)5–7-septate, than in the description by Frisch & Kalb (2006; 3–5(–6)-septate).

**petrinensis* J. C. David

in David & Hawksworth, Biblioth. Lichenol. 57: 99 (1995). Type: Plaines Wilhems, Vacoas, Le Pétrin Nature Reserve, heathland, ~640 m, in cortice *Sideroxyli puberuli*, 11 June 1990, Hawksworth (K-IMI 400608, holotype) (David & Hawksworth 1995; Crittenden et al. 1995).

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, on bark, 2019, Ertz 23338; Curepipe, Curepipe Botanical Gardens, on bark, 2019, Ertz 24230; Curepipe, Trou aux Cerfs, along road surrounding the crater, on bark, 2019, Ertz 24260. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2019, Ertz 23993.

A pantropical species, also known from Australia (Lücking & Pérez-Ortega 2015) and Venezuela (Kraichak et al. 2014).

OCHROLECHIA A. Massal.

africana Vain.

* = *Lecanora parella* var. *phloeoleuca* Nyl., in Crombie, Journ. Linn. Soc., Bot. 15: 440 (1876); ≡ *Ochrolechia parella* f. *phloeoleuca* (Nyl.) Zahlbr., Cat. Lich. Univ. 5: 690 (192). Type: Rodrigues, on bark of trees (twigs), 1874, Balfour 2330 (H-NYL 3635, type?, verified by M. Kukwa 2006; H-NYL 23919).

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18675; Brise Fer Forest, on bark, 2019, Diederich 19221 (MAU).

Specimen 18675 presents numerous young, immature apothecia, while in specimen 19221 all apothecia are old. Both are, however, well characterized by the white thallus with a rugose surface, a cortex not giving any positive reactions, and a medulla and a hymenium that are C+ red (Brodo 1991). The species is new for the island of Mauritius.

pallescens (L.) A. Massal. [= *Lecanora parella* var. *pallescens* (L.) Ach.]. Reported from Mauritius by Daruty (1873).

OPEGRAPHA Ach.

angulosa Müll. Arg. = *Opegrapha semiatra*

atra Pers. var. *abbreviata* Flörke, see *Arthonia atra*

bonplandii Fée ≡ *Zwackhia bonplandii*

dendritica Ach. ≡ *Phaeographis dendritica*

**difficilior* Nyl. ex Cromb.

Journ. of Bot. 14: 264 (1876). Type: Rodrigues, on decaying (decorticated) stumps of trees, 1874, Balfour 2251 (H-NYL 6802, lectotype, designated by Ertz 2009; BM, N-Nyl 6208, isolectotypes) (Crombie 1876a, b; Ertz 2009).

Moka: Réduit, close to Mauritius Herbarium building, on bark of *Mangifera*, 2019, Ertz 23246. **Pamplemousses:** Jardin Botanique, on bark of *Mangifera*, 2016, Ertz 21442, 21504; *ibid.*, on bark, Ertz 21487, 21493; *ibid.*, on bark of *Terminalia*, Ertz 21491.

The species is also known from Kenya and West Africa (Ertz 2009), and is here reported as new for the island of Mauritius.

duplicata (Ach.) Bél. ≡ *Graphis duplicata*

+*foreaui* (Moreau) Hafellner & R. Sant.

= *Opegrapha trassii* S. Y. Kondr. & Coppins

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, on *Heterodermia*, 2019, Ertz 24041.

A lichenicolous fungus, previously reported from Mauritius, on *Heterodermia obscurata*, Ayres (E) by Coppins & Kondratyuk (1998).

laubertiana (Fée) Bél. ≡ *Allographa laubertiana*

poitaei (Fée) Bél. ≡ *Diorygma poitaei*

rugulosa Fée ≡ *Graphis rugulosa*

semiatra Müll. Arg.

* = *Opegrapha angulosa* Müll. Arg., Journ. Linn. Soc., Bot. 30: 457 (1895). Type: Mauritius, Pouce, 1894, Ayres (G 00047533, holotype) (Ertz 2009: 99).

Rivière Noire: Chamarel, Ebony Forest, around viewpoint, on bark, 2019, Ertz 23562.

sordida (Fée) Mont. & Bosch ≡ *Phaeographis sordida*

trassii S. Y. Kondr. & Coppins = *Opegrapha foreaui*

OXYSTOMA Eschw.

**friesianum* Bél. [as ‘*Friesana*’], Voyage aux Indes-orientales, pendant les années 1825–1829: 132 (1834). Type: ‘Sur l’écorce des arbres, dans le quartier des Pampelmousses, à l’île Maurice’, Bélanger (PC 0070012, G 00116393).

According to the type specimen (G00116393, photograph on JSTOR) the species might belong to the genus *Celothelium*.

PANNARIA Delise ex Bory

**cinerascens* (Nyl.) P. M. Jørg.

Biblioth. Lichenol. 88: 241 (2004); ≡ *Pannaria rubiginosa* f. *cinerascens* Nyl., in Crombie, Bot. J. Linn. Soc. 15: 436 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2321 (BM, lectotype, selected by Jørgensen 2004).

Also reported from the forested mountainside between Yemen and Mt Brise Fer, 1991, Krog & Timdal (O) by Jørgensen (2004: 242).

luridula Nyl. ex Cromb. = *Lepidocollema marianum*

**macrocarpa* Müll. Arg.

Hedwigia 31: 277 (1892). Type: ‘In ins. Mauriti cum Psoromate sphinctrino, corticola’, Ayres (G 00047528, K).

Further unpublished specimens from Le Pouce, Mt Cocotte and Piton de la Petite Rivière Noire, collected by Krog & Timdal in 1991, are kept in O.

multifida P. M. Jørg.

Reported from Piton de la Petite Rivière Noire, Macchabee Forest (0.5–1 km ESE of Macchabee Kiosk) and along the road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O) (Jørgensen 2004: 241; Lücking & Timdal 2016: 194; all det. Jørgensen 2002). Further unpublished specimens from Le Pouce and Mt Cocotte, collected by Krog & Timdal in 1991 and identified by Jørgensen in 2002, are kept in O.

pannosa Nyl. ≡ *Parmeliella pannosa*

**pruinosa* P. M. Jørg. & Timdal

Biblioth. Lichenol. 88: 242 (2004). Type: Savanne, Mt Cocotte, along path towards the peak, 11 Nov. 1991, Krog & Timdal MAU 32/56 (O L-21609, holotype).

Also reported from Piton de la Petite Rivière Noire, Le Pouce and Mt Cocotte, 1991, Krog & Timdal (O) by Jørgensen (2004).

ramosii Vain.

Reported from the road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 194). Further unpublished specimens from Piton de la Petite Rivière Noire, Macchabee Forest, Mt des Créoles, Le Pouce, Pétrin and Mt Cocotte, collected by Krog & Timdal in 1991 and some identified by Jørgensen in 2002, are kept in O.

rubiginosa (Thunb.) Delise. Reported from Mauritius by Lindau (1908).

rubiginosa f. *cinerascens* Nyl. ≡ *Pannaria cinerascens*

rubiginosa var. *dispartita* Nyl., see *Lepidocollema brisbanense*

santessonii Swinscow & Krog

Reported from the viewpoint WNW of Mt Cocotte, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 194). Further unpublished specimens from Pétrin and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

sphinctrina (Mont.) Hue [= *Psoroma sphinctrinum* (Mont.) Nyl.].

Reported from the road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 194); also from Mauritius by Daruty (1873) and Nylander (1859: 256). Reports of this species should be revised, as most Mauritius herbarium specimens named *P. sphinctrina* in the past proved to represent species of *Gibbosporina* (Elvebakk et al. 2016).

PARACARPIDIUM Müll. Arg.

johnstoni Müll. Arg. ≡ *Endocarpon johnstonii*

PARMELIA Ach.

**afromontana* Parnell, J. Trop. Ecol. 5: 374 (1989), nom. nud. (description missing). Original material: Ile aux Aigrettes, on *Maytenus pyria*, Parnell et al. (1989), BM, det. James.

appendiculata Fée ≡ *Parmotrema appendiculatum*

atrachoides Nyl. Rodrigues, on rocks, 1874, Balfour 2227 (Crombie 1876b).

caperata (L.) Ach. ≡ *Flavoparmelia caperata*

caraccensis f. *isidiosa* Müll. Arg. = *Hypotrachyna microblasta*

conspersa (Ehrh. ex Ach.) Ach. ≡ *Xanthoparmelia conspersa*

crenulata Hook. f. ≡ *Lobariella crenulata*

cristifera Tayl. ≡ *Parmotrema cristiferum*

**darutyi* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n.s. 7: 165 (1873), nom. nud. (description missing).

decorata (Hue) Dodge = *Parmotrema reticulatum*

glomulifera (Lightf.) Ach. = *Ricasolia amplissima*

hildenbrandtii Kremp. Reported from Rodrigues, 1874, Balfour (K) by Dodge (1959: 150).

imerinensis Dodge = *Parmotrema cristiferum*

latissima Fée ≡ *Parmotrema latissimum*

limbata Laurer ≡ *Relicina limbata*

mauritiana Gyeln. = *Hypotrachyna microblasta*

meiosperma (Hue) Dodge. Reported from Mauritius, on the Bruce, on trees, Ayres (K), and Pouce, Ayres (K, several specimens) by Dodge (1959: 140), and from Rodrigues, 1874, Balfour 2249 (K) by Dodge (1959: 140).

microblasta Vain. ≡ *Hypotrachyna microblasta*

olivetorum Nyl. ≡ *Cetrelia olivetorum*

ornata (Hue) Dodge = *Parmotrema reticulatum*

pannosa (Sw.) Sw. ≡ *Parmeliella pannosa*

perforata (Wulfen) Ach. ≡ *Parmotrema perforatum*

perlata (Huds.) Ach. ≡ *Parmotrema perlatum*

perlata var. *ciliata* (DC.) Duby. Reported from Mauritius by Daruty (1873). Almost surely belongs to *Parmotrema*.

pulverulenta (Schreb.) Ach. = *Physconia distorta*

punicea (Sw.) Ach. ≡ *Haematomma puniceum*

quercizans var. *denudata* Laurer = *Ricasolia sublaevis*

saccatiloba Taylor ≡ *Parmotrema saccatilobum*

sieberi Dodge = *Parmotrema dilatatum*

sorediifera (Fée) Bél. ≡ *Lecanora sorediifera*

subconspersa Nyl. ≡ *Xanthoparmelia subconspersa*

subfuscescens Nyl. ≡ *Xanthoparmelia subfuscescens*

subhypochlysta Dodge = *Xanthoparmelia subramigera*

**viridula* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n.s. 7: 165 (1873), nom. nud. (description missing).

wightii Dodge = *Xanthoparmelia phaeophana*

zeyheri Dodge, see under *Xanthoparmelia*

PARMELIELLA Müll. Arg.

endoferruginea Aptroot

Reported from the road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 194).

mariana (Fr.) P. M. Jørg. & D. J. Galloway ≡ *Lepidocollema marianum*

pannosa (Sw.) Müll. Arg. [≡ *Pannaria pannosa* Nyl.]. Reported from Mauritius by Daruty (1873) and Lindau (1908), and ‘Sur les arbres, dans les lieux humides des forêts, aux îles Maurice et de Bourbon’ by Bélanger (1834).

papillata P. M. Jørg. ≡ *Lepidocollema papillatum*

stylophora (Vainio) P. M. Jørg. ≡ *Lepidocollema stylophorum*

PARMOTREMA A. Massal.

acrotrychum (Kurok.) Streimann

Plaines Wilhems: Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18332 (det. Masson; TLC: atranorin, protolichesterinic, fumarprotocetraric, succinprotocetraric).
New for Mauritius.

appendiculatum (Fée) Hale [≡ *Parmelia appendiculata* Fée]. Reported from Mauritius (FH: herb. Tuckerman sub *P. perlata* var. *ciliata*) by Dodge (1959: 171).

crinitum (Ach.) Choisy

Reported from Mauritius by Crittenden et al. (1995, as *Parmotrema* cf. *crinitum*). Other unpublished specimens from Le Pouce and Curepipe (Trou aux Cerfs), collected in 1991 by Krog & Timdal, are kept in O. A further specimen named *Parmelia crinita* and collected in 1802 by Bory de Saint-Vincent ‘sur les grands arbres’ at Le Pouce is kept in PC (PC 0009140).

cristiferum (Taylor) Hale

≡ *Parmelia cristifera* Taylor; = *Parmelia imerinensis* Dodge
Reported from Mauritius, Wright (BM, FH-00259715) by Hale (1965: 243) and Krog & Swinscow (1981: 174), Robillard (M, US) by Hale (1965: 243), Réduit, Orian 7 (K) by Dodge (1959: 143–144), and from Ile aux Aigrettes (BM, det. James) by Parnell et al. (1989).

dilatatum (Vain.) Hale

≡ *Parmelia dilatata* Vain.

* = *Parmelia sieberi* C. W. Dodge, Ann. Missouri Bot. Gard. 46: 148 (1959). Type: Mauritius, corticole, Sieber, Crypt. Exot. 44 (FH-00259711) (Dodge 1959: 117, 148–149; Hale 1965: 245).

Plaines Wilhems: Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18308 (det. Masson; TLC: atranorin, usnic, protocetraric, echinocarpic).

Previously also reported from Mauritius, Robillard (FH, sub *Parmelia cristifera*), Wight (FH-Tayl, sub *Parmelia cristifera*) and Pouce, Ayres (K) by Dodge (1959: 149).

latissimum (Fée) Hale [≡ *Parmelia latissima* Fée]. Reported from Rodrigues, on trees and rocks, 1874, Balfour 2249, 2205 by Crombie (1876b).

perforatum (Wulfen) A. Massal. [≡ *Parmelia perforata* (Wulfen) Ach.]. Reported from Mauritius by Daruty (1873).

perlata (Huds.) M. Choisy [≡ *Parmelia perlata* (Huds.) Ach.]. Reported from Mauritius by Laurer (1827).

reticulatum (Taylor) M. Choisy

≡ *Rimelia reticulata* (Taylor) Hale & Fletcher; = *Parmelia decorata* (Hue) Dodge; = *Parmelia ornata* (Hue) Dodge

Rivière Noire: Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18544 [det. Masson; TLC: atranorin, salazinic (major), consalazinic (minor)].

Previously also reported from Mauritius by Crittenden et al. (1995), Moka, below Mt Ory, on shaded volcanic rocks by a track, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995), Pamplemousses Botanical Garden, on bark, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995), and Grand Port, Mt des Créoles, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 198). Also, as *P. ornata*, from Mauritius, Wight (FH-Tayl, glued to sheet with *P. cristifera* Tayl.), and Bojer (K: herb Hooker) (Dodge 1959: 98), and as *P. decorata* from Robillard (FH, sub *P. perlata* var. *olivetorum* Nyl., det. Müll. Arg.) by Dodge (1959: 96). Further unpublished specimens from Mt Corps de Garde, Macchabee Forest, Riche en Eau, Ile aux Aigrettes, Réduit, Le Pouce and Henrietta, collected by Krog & Timdal in 1991, are kept in O.

saccatilobum (Taylor) Hale = *Parmotrema tinctorum*

subcorallinum (Hale) Hale

≡ *Parmelia subcorallina* Hale

Reported from Mauritius, Robillard (G) by Hale (1962, 1965: 310). A further unpublished specimen from Pétrin heath, collected by Krog & Timdal in 1991, is kept in O.

subsidiosum (Müll. Arg.) Hale

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18464 [det. Masson; TLC: atranorin, salazinic (major), consalazinic (minor)].

A further specimen from Le Pouce, collected by Krog & Timdal in 1991, is kept in O. New for Mauritius.

tinctorum (Delise ex Nyl.) Hale agg.

= *Parmelia saccatiloba* Taylor; ≡ *Parmotrema saccatilobum* (Taylor) Hale

Pamplemousses: Jardin Botanique, on bark, 2016, Diederich 18233, 18266, Ertz 21476. **Rivière Noire:** Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich

18543; trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18451. **Plaines Wilhems:** Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18299, 18595 (all det. Masson, except Ertz 21476; TLC (all Diederich, except 18595): at-ranorin, lecanoric).

Also reported from Mauritius by Hale (1965: 262), from Grand Port, Mt des Créoles, 1991, Krog & Timdal (O) and Grand Port, Bambou Mountains, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 192, 198), from Pamplemousses Botanical Garden, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995), and from Mauritius by Crittenden et al. (1995, as *Parmotrema* cf. *tinctorum*). Further unpublished specimens from Piton de la Petite Rivière Noire, Morne Brabant, Macchabee Forest, between Yemen and Mt Brise Fer, Mt Corps de Garde, Baie du Cap, Flacq, Riche en Eau, Réduit, Le Pouce, Pamplemousses Botanical Garden, Curepipe (Trou aux Cerfs), Henrietta, Tamarin Falls and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

zollingeri (Hepp) Hale

≡ *Parmelia zollingeri* Hepp

Reported from Mauritius, McGregor s.n. (BM) by Hale (1965: 268).

PELTIDEA Ach.

floerkeana Laurer = *Coccocarpia erythroxyli*

PELTULA Nyl.

**rodriguesii* (Cromb.) Büdel

Lichenologist 21: 293 (1989); ≡ *Heppia rodriguesii* Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2302 (BM, lectotype, selected by Büdel 1989); Balfour 2233 (BM, isoelectotype) (Büdel 1987, 1989; Crombie 1876a, b).

The species is widespread and further known from Italy, Cape Verde Islands, South Africa, Zimbabwe and Australia (Büdel 1989).

PERTUSARIA DC.

cicatricosa Müll. Arg.

*= *Pertusaria subtruncata* Müll. Arg., Flora 67: 397 (1884). Type: Mauritius, 1876, Robillard (G 00066427, holotype) (Archer 1997: 51).

communis DC. = *Pertusaria pertusa*

communis var. *minor* Müll. Arg. ≡ *Pertusaria pertusa* var. *minor*

**hymenelioides* J. C. David

in David & Hawksworth, Biblioth. Lichenol. 57: 101 (1995). Type: Moka, sub monte Ory, in petris vulcanicis secundum viam, 12 June 1990, Hawksworth (K-IMI 400639, holotype) (David & Hawksworth 1995; Crittenden et al. 1995).

**impallescens* Nyl. ex Cromb.

J. Bot. 14: 264 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2214 (Crombie 1876a, b).

This poorly known species is accepted by Archer (1997: 164) and keyed out by Archer & Elix (2018).

leioplaca DC. Reported from Mauritius by Daruty (1873).

margaritifera Zahlbr. Reported from Mauritius by Daruty (1873).

**muricata* J. C. David

in David & Hawksworth, Biblioth. Lichenol. 57: 102 (1995). Type: Plaines Wilhems, Vacoas, Le Pétrin Nature Reserve, in cortice, 11 June 1990, Hawksworth (K-IMI 400607, holotype) (Archer 1997: 111; David & Hawksworth 1995; Crittenden et al. 1995).

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, on bark, 2019, Ertz 23365 (TLC: constictic, stictic and trace of norstictic, solvent A).

pertusa (L.) Tuck. [= *Pertusaria communis* DC. (illeg., nom. superfl.)]. Reported from Mauritius by Daruty (1873), and from Flacq, near Mare La Chauz village, on bark of *Delonix regia*, 1990, Hawksworth (K-IMI 400600) by Crittenden et al. (1995).

**pertusa* var. *minor* (Müll. Arg.) Zahlbr., Cat. Lich. Univ. 5: 201 (1928); ≡ *Pertusaria communis* var. *minor* Müll. Arg., Lichenol. Beitr. VI, Flora 60: 478 (1877). Type: Mauritius, Robillard. Also reported from Mauritius by Dodge (1964: 253).

**pertusella* Müll. Arg.

Flora 67: 283 (1884). Type: Mauritius, 1876, Robillard (G 00295201, holotype) (Archer 1997: 124).

A rare Paleotropical species.

subtruncata Müll. Arg. = *Pertusaria cicatricosa*

trypetheliiformis Nyl. Reported from Mauritius by Daruty (1873).

velata (Turn.) Nyl. ≡ *Varicellaria velata*

PHAEOGRAPHINA Müll. Arg.

heterospora (Nyl.) Zahlbr. ≡ *Sarcographina heterospora*

PHAEOGRAPHIS Müll. Arg.

**aequabilis* (Wedd. ex Nyl.) Zahlbr., Cat. Lich. Univ. 2: 364 (1923); ≡ *Graphis aequabilis* Wedd. ex Nyl., Bull. Soc. Linn. Normandie, sér. 2, 7: 175 (1874 [*1873*]); ≡ *G. aequabilis* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n.s. 7: 164 (1873), nom. nud. Type: Mauritius, corticolous (H 9507963).

dendritica (Ach.) Müll. Arg. [= *Opegrapha dendritica* Ach.]. ‘Sur l’écorce des arbres, à l’île Maurice’ (Bélanger 1834).

intricans (Nyl.) Staiger

Pamplemousses: Jardin Botanique, on bark of *Ptychosperma macarthurii*, 2016, Ertz 21452 (sub. *Melaspilea* cf. *lekae*)

New for Mauritius.

**medusuliza* Müll. Arg., J. Linn. Soc., Bot. 30: 461 (1895). Type: ‘Corticola, in ins. Mauriti’, Balfour (G-00047651). Although the annotation of the specimen and the original publication say that the specimen was collected in Mauritius, it almost surely originates from Rodrigues, where Balfour made extensive collections in 1874.

scalpturata (Ach.) Staiger [= *Graphis scalpturata* Ach.]. Reported from Rodrigues, on branches of trees, 1874, Balfour 2365 (Crombie 1876b).

sordida (Fée) Müll. Arg. [= *Opegrapha sordida* (Fée) Mont. & Bosch.]. ‘Sur l’écorce des arbres, à l’île Maurice’ (Bélanger 1834).

PHAEOPHYSCIA Moberg

hispidula (Ach.) Essl. [= *Physcia setosa* (Ach.) Nyl.]. Reported from Mauritius, 'auf Rinde' by Lindau (1908).

PHYLLOCHARIS Fée

elegans Fée = *Strigula smaragdula*

PHYLLOPELTULA Kalb

corticola (Büdel & R. Sant.) Kalb

Pamplemousses: Jardin Botanique, on bark, 2016, Diederich 18583, Ertz 21498. **Rivière Noire:** La Preneuse (between Tamarin and Grande Rivière Noire), cemetery, on bark at the base of a tree, 2016, Diederich 18384.

New for Mauritius.

PHYLLOPSORA Müll. Arg., nom. cons. prop.

africana Timdal & Krog

Reported from Piton de la Petite Rivière Noire, 1991, by Timdal & Krog (2001).

albicans Müll. Arg. The report of this species from Mauritius by Timdal & Krog (2001) refers to *P. porphyromelaena*.

borbonica Timdal & Krog

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2019, Ertz 23952.

Also reported from Macchabee Forest (0.5–1 km ESE of Macchabee Kiosk), 1991, by Timdal & Krog (2001).

Kistenich et al. (2018) showed that this species belongs to *Sporacestra* A. Massal, but no new combination has been published yet.

breviuscula (Nyl.) Müll. Arg.

Reported from Macchabee Forest (along path to Mt Brise Fer) and Bambou Mountains (0.5–1 km NNE of Piton Rouge), 1991, by Timdal & Krog (2001).

buettneri (Müll. Arg.) Zahlbr.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2019, Ertz 23929 (TLC: pannarin and zeorin, solvent A).

Also reported from Piton de la Petite Rivière Noire, Macchabee Forest (along path to Mt Brise Fer) and Macchabee Forest (0.5–1 km ESE of Macchabee Kiosk), 1991, by Timdal & Krog (2001), and from the road between Mt Cocotte and Bassin Blanc, 1991, by Lücking & Timdal (2016: 194).

castaneocincta (Hue) Kistenich & Timdal

Rivière Noire: East of Black River, from Visitor's Centre to Pilgrims Trail, on bark, 2016, Diederich 18494 (det. Timdal).

New for Mauritius.

chlorophaea (Müll. Arg.) Müll. Arg.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18416 (det. Timdal); *ibid.*, 2019, Ertz 23961 (TLC: furfuracein, solvent A), 23963 (TLC: furfuracein, solvent A).

Also reported from Piton de la Petite Rivière Noire, Le Pouce and Mt Cocotte, 1991, by Timdal & Krog (2001).

compacta (Nyl.) Gotth. =? *Phyllopsora mauritiana*

confusa Swinscow & Krog

Port Louis and Moka: Along trail from Moka to Le Pouce, on rock, 2019, Ertz 24100 (TLC: no substance detected, solvent A). **Rivière Noire:** Chamarel, Ebony Forest, along trail W of viewpoint, on rock, 2019, Ertz 23594 (TLC: no substance detected, solvent A).

Also reported from Piton de la Petite Rivière Noire and Macchabee Forest (0.5–1 km ESE of Macchabee Kiosk), 1991, by Timdal & Krog (2001), and from the road between Mt Cocotte and Bassin Blanc, 1991, by Lücking & Timdal (2016: 194).

**dolichospora* Timdal & Krog

Mycotaxon 77: 76 (2001). Type: Mauritius, Plaine Wilhems, Macchabee Forest, 0.5–1 km ESE of Macchabee kiosk, 1991, Krog & Timdal MAU65/22 (O L22197, holotype; CANB, isotype [Elix 2008]).

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2019, Ertz 23918, 23962 (TLC of both specimens: furfuracein and two unknown of higher Rf).

Also reported from Piton de la Petite Rivière Noire, 1991, by Timdal & Krog (2001).

gossypina (Sw.) Kistenich, Timdal, Bendiksby & S. Ekman [= *Crocynia gossypina* (Sw.) A. Massal.]. Reported from Mauritius by Hue (1892: 182).

**mauritiana* (Taylor) Swinscow & Krog

Lichenologist 13: 242 (1981); = *Lecidea mauritiana* Taylor, London J. Bot. 6: 151 (1847). Type: Mauritius, on bark (FH, lectotype, designated by Swinscow & Krog 1981; G 00127487).

*=? *Lecidea compacta* Nyl., Ann. Sci. Nat., Bot., sér. 4, 11: 259 (1859); = *Phyllopsora compacta* (Nyl.) Gotth. Schneid., Biblioth. Lichenol. 13: 175 (1979). Type: Mauritius (H-NYL 20654) (Swinscow & Krog 1981). Probably a synonym of *Phyllopsora mauritiana*, fide Swinscow & Krog (1981: 240).

Rivière Noire: Brise Fer Forest, on bark, 2019, Ertz 24291, 24302.

Also reported from Piton de la Petite Rivière Noire and Macchabee Forest (along path to Mt Brise Fer), 1991, by Timdal & Krog (2001), Kistenich et al. (2018: 903) and Kistenich et al. (2019a).

mediocris Swinscow & Krog

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18396, 18571; Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18534, 18573 (Kistenich et al. 2019b).

Also reported from Macchabee Forest (0.5–1 km ESE of Macchabee Kiosk) and along the Bois Chéri–Grand Bassin road, at the bridge over Rivière des Anguilles, 1991, by Timdal & Krog (2001).

Crocynia molliuscula (Nyl.) Nyl.

= *Byssocaulon molliusculum* Nyl.].

Reported from Mauritius, ad saxa, herb. Fée by Nylander (1859: 259), and from the road between Mt Cocotte and Bassin Blanc, 1991, by Lücking & Timdal (2016: 194) and Kistenich et al. (2019a). Further unpublished specimens from Piton de la Petite Rivière Noire and Macchabee Forest, collected by Krog & Timdal in 1991, are kept in O.

The generic type *Crocynia gossypina* was recently shown to be nested within the *Phyllopsora* clade and consequently was combined there (Kistenich et al. 2018). *Crocynia molliscula* also belongs to *Phyllopsora* (Kistenich et al. 2019a) and is genetically so close to *C. gossypina* that the authors did not propose a new combination, awaiting further taxonomic studies of this group.

porphyromelaena (Vain.) Zahlbr.

Savanne: Along trail to Mt Cocotte, on bark, 2019, Ertz 23497, 23516 (TLC of both specimens: argopsin and norargopsin, solvent A).

Previously reported from Piton de la Petite Rivière Noire, Macchabee Forest (0.5–1 km ESE of Macchabee Kiosk), Mt Cocotte (along path towards peak), along the road between Mt Cocotte and Bassin Blanc, and Mt Cocotte (NW of the peak), 1991, by Timdal & Krog (2001, sub *P. albicans*), and from the road between Mt Cocotte and Bassin Blanc, 1991, by Lücking & Timdal (2016: 194).

***swinscowii** Timdal & Krog

Mycotaxon 77: 88 (2001). Type: Mauritius, Black River, along the path from Plaine Champagne towards Piton de la Petite Rivière Noire, 1991, Krog & Timdal MAU9/50 (O L21220, holotype) (phylogeny: Kistenich et al. 2019a).

Also reported from Le Pouce and from the road between Mt Cocotte and Bassin Blanc, 1991, by Timdal & Krog (2001) and Lücking & Timdal (2016: 194).

PHYSCIA (Schreb.) Michx.

aegialita (Afzel ex Ach.) Nyl. ≡ *Dirinaria aegialita*

flavicans f. *crocea* (Ach.) Cromb. = *Teloschistes flavicans*

obscura (Ehrh.) Hampe ex Fűrnr. Reported from Mauritius by Daruty (1873).

picta (Sw.) Nyl. ≡ *Dirinaria picta*

pulverulenta (Schreb.) Hampe ex Fűrnr. = *Physconia distorta*

pulverulenta var. *muscigena* (Ach.) Nyl. ≡ *Physconia muscigena*

setosa (Ach.) Nyl. = *Phaeophyscia hispidula*

speciosa (Wulfen) Nyl. ≡ *Heterodermia speciosa*

PHYSCIDIA Tuck.

wrightii (Tuck.) Tuck.

Reported from Macchabee Forest, 1991, Krog & Timdal (O, MAU) by Kistenich et al. (2018: 903).

PHYSCONIA Poelt

distorta (With.) J. R. Laundon [= *Parmelia pulverulenta* (Schreb.) Ach.; ≡ *Physcia pulverulenta* (Schreb.) Hampe ex Fűrnr.]. Reported from Mauritius by Lindau (1908), and ‘Sur l’écorce des arbres, à l’île Maurice’ (Bélangier 1834).

muscigena (Ach.) Poelt [= *Physcia pulverulenta* var. *muscigena* (Ach.) Nyl.]. Reported from Mauritius by Daruty (1873).

PHYSMA A. Massal.

byrsaeum (Ach.) Müll. Arg.

Plaines Wilhems: Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18311 (dupl. LG); Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18357. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la

Petite Rivière Noire, on bark, 2016, Diederich 18402 (dupl. LG), 18436 (dupl. LG); *ibid.*, 2019, Ertz 23916; Chamarel, Ebony Forest, along trail W of viewpoint, on bark, 2019, Diederich 18949; Brise Fer Forest, on bark, 2019, Diederich 19243. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Diederich 18879.

Previously reported from Mt des Créoles, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 198) and Macchabee Forest, 1990, Hawksworth (K-IMI) Crittenden et al. (1995, as ‘*P. byrsaceum*’). Further unpublished specimens from Piton de la Petite Rivière Noire, Pétrin heath and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

byrsinum (Ach.) Müll. Arg. [= *Collema byrsinum* Ach.]. Reported from Mauritius by Daruty (1873).

PICCOLIA A. Massal.

wrightii (Tuck.) Hafellner

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18417.

New for Mauritius.

PLACODIUM Weber ex F. H. Wigg.

murorum DC. = *Caloplaca saxicola*

POLYMERIDIUM (Müll. Arg.) R. C. Harris

quinquseptatum (Nyl.) R. C. Harris

Plaines Wilhems: Curepipe, Trou aux Cerfs, along road surrounding the crater, on bark, 2016, Diederich 18283; Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18307; *ibid.*, 2019, Diederich 19103, 19105, 19173 & Ertz 24245, 24232; Le Pétrin, heathland NW of Pétrin Information Centre, on bark, 2019, Ertz 23366. **Rivière Noire:** Brise Fer Forest, on bark, 2019, Diederich 19209.

The ascospores of *P. quinquseptatum* are (4–)5(–7)-septate, 18–28 × 4–7 μm, following Aptroot & Lücking (2016), respectively (4–)5–7(–8)-septate, 18–22.5–27 × 4–5.5–7 μm, following Harris (1990). Those of the similar *P. pleiomerellum* are 7–11-septate, 25–36 × 5–9 μm (Aptroot & Lücking 2016), respectively (5–)7–9(–10)-septate, 24–32.3–40 × 5.5–7–8.5 μm (Harris 1990). Our specimens have 5–7(–8)-septate ascospores, mainly 22–33 × 7–8 μm, and some are intermediate between the published descriptions of the two species. We call our material *P. quinquseptatum*, as this species was known from Africa (Angola, Mozambique) and the Indian Ocean (Seychelles), while *P. pleiomerellum* is known only from America and Papua New Guinea (Aptroot & Lücking 2016). New for Mauritius.

PORINA Müll. Arg.

americana Fée. Reported from Mauritius by Crittenden et al. (1995, as *Porina* cf. *americana*).

chlorotica (Ach.) Müll. Arg. [= *Verrucaria chlorotica* Ach.]. Reported from Rodrigues, on rocks, 1874, Balfour 2282, by Crombie (1876b).

epiphylla (Fée) Fée

Reported from Mauritius, on *Acrostichum obductum* (S F74625) by Santesson (1952: 238).

Porina florensii Diederich & Ertz, sp. nov. (Figs 12–13)

Mycobank MB 834927

Diagnosis: Characterized by a smooth to slightly rugulose thallus, perithecia immersed in 1–2 mm diam. convex, poorly delimited verrucae, a black ostiole, and large, mainly 10–14-septate ascospores, $\sim 93\text{--}111 \times 11.5\text{--}13.5 \mu\text{m}$, with a very thick perispore, laterally $\sim 5\text{--}7 \mu\text{m}$, apically $\sim 9\text{--}18 \mu\text{m}$ thick.

Type: Mauritius, Rivière Noire: Black River Gorges National Park, trail from Plaine Champagne towards Piton de la Petite Rivière Noire, 20.4212°S (± 200 m), 57.4195°E (± 700 m), alt. 630–700 m, on bark of trees, 5 Aug. 2016, Diederich 18453 (MAU – holotype, BR, herb. Diederich – isotypes).

Description. Thallus corticate, smooth to slightly rugulose, continuous, thin, pale olivaceous grey or green, sometimes with a narrow blackish prothallus; isidia and soralia absent. Photobiont *Trentepohlia*. Ascomata perithecioid, simple, dispersed, semiglobose, immersed, in $\sim 1\text{--}2$ mm diam. convex, poorly delimited verrucae, covered by a thin thallus layer, except around the ostiole; ostiole apical, blackish; wall not carbonized. Hamathecium hyaline, not interspersed, of thin, simple, 1–1.5 μm diam. paraphyses. Asci cylindrical-clavate, 1–, $\sim 290\text{--}300 \times 36\text{--}47 \mu\text{m}$ ($n = 3$), 8-spored. Ascospores hyaline, 1–, transversally mostly (8–)10–14(–15)-euseptate, fusiform, surrounded by a thick gelatinous sheath (perispore); measurements in water without perispore: (86–)93.4–110.6(–120) \times (10.5–)11.6–13.4(–14) μm , ratio L/B (6.8–)7.3–9.1(–10.1); with perispore: (110–)118.1–139.4(–153) \times (21–)22.6–26.1(–26.8) μm , ratio (4.8–)4.9–5.7(–6.0); perispore thickness laterally: (4.8–)5.2–6.7(–7.7) μm ; perispore apically (6–)8.8–17.9(–25.8) μm ($n = 20$). Pycnidia not observed. Chemistry: thallus K+ reddish brown, C–, KC–, P–, UV–. No substances detected by TLC in specimen 18453 (solvent A).

Ecology and distribution. The species is known from five localities in Mauritius, where it is rather abundant and grows on trees of parks and in well-preserved forest.

Notes. Amongst the similar Australian corticolous taxa keyed out by McCarthy (2001), two species have more than 7-septate ascospores: *Porina bellendenica* has much smaller, 11–13-septate ascospores, $32\text{--}56 \times 3\text{--}5 \mu\text{m}$, and *P. internigrans* has smaller, (7–)9–11(–13)-septate ascospores, $51\text{--}92 \times 9\text{--}17 \mu\text{m}$; *P. internigrans* is further distinguished from the new species by a smooth to strongly rugulose-verruculose thallus and convex, hemispherical, well-delimited perithecial verrucae (e.g., see photo at <http://www.tropicallichens.net/4028.html>). Among the names that are nowadays considered to be synonyms of *Porina internigrans* (e.g., McCarthy 2001), *P. auracariae*, described from Australia, differs from the new species by shorter and broader ascospores ($65\text{--}78 \times 13\text{--}15 \mu\text{m}$) (Müller 1891a); *P. brisbanensis*, described from Australia, differs by 7–9-septate, shorter and wider ascospores ($\sim 80 \times 16 \mu\text{m}$) (Müller 1891a); *P. exasperata*, described from Australia, differs by 5–9-septate and much smaller ascospores ($43\text{--}50 \times 8\text{--}11 \mu\text{m}$) (Bailey 1886); and *P. praestantior*, described from Java, differs by slightly shorter and much wider ascospores ($60\text{--}100 \times 15\text{--}20 \mu\text{m}$) (Müller 1882). Most *Porina* species have a much thinner perispore, e.g., thin or not apparent in *C. bellendenica* and 2–4 μm in *P. internigrans*. The North American *Porina*

rhapidospermum has 14–21-septate ascospores, which are much narrower, $100\text{--}140 \times 3\text{--}5 \mu\text{m}$.

David & Hawksworth (1995) reported *Porina mastoidea* agg. from Plaines Wilhems, Vacoas, Macchabee Forest, on *Diospyros tessellaria*, 1990, Hawksworth (K-IMI 400613). The detailed description and illustrations given by these authors leave little doubt that they were dealing with the same species as the new one described here. The ascospores they examined were (8–)10–12-septate, $100\text{--}120 \times (15\text{--})17\text{--}20 \mu\text{m}$, similar to those of our specimens. *Porina mastoidea* differs by smaller, 7(–8)-septate ascospores, $32\text{--}66 \times 6\text{--}13 \mu\text{m}$ (McCarthy 2001).

Our phylogenetic analyses (Fig. 13) shows that the new species belongs to a clade also containing *Porina alba*, *P. imitatrix*, *P. mirabilis*, *P. mastoidea* and *P. radiata*, while *P. internigrans* is only distantly related.

Etymology. The new species is dedicated to Vincent Florens, Associate Professor of Ecology and former Head of the Department of Biosciences at the University of Mauritius. He is mainly interested in the conservation of biodiversity in tropical terrestrial systems, with particular emphasis on the impact of invasive alien species on the biodiversity of tropical forests.

Additional specimens examined. MAURITIUS. **Plaines Wilhems:** Curepipe, Curepipe Botanical Gardens, on bark, 2019, Diederich 19131; Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18348; *ibid.*, 2019, Ertz 23409. **Rivière Noire:** Same locality as type, 2016, Diederich 18405, 18426; Brise Fer Forest, on bark, 2019, Diederich 19213, 19220, 19242, 19426. **Savanne:** Along trail to Mt Cocotte, on bark, 2019, Ertz 23486.

innata (Nyl.) Müll. Arg. McCarthy (2003) erroneously reported this species from Mauritius (confusion with Reunion).

mastoidea (Ach.) Müll. Arg. agg. The report of this species by David & Hawksworth (1995) almost surely refers to the newly described *Porina florensii*.

nucula Ach.

Pamplemousses: Jardin Botanique, on bark of *Brownea grandiceps*, 2016, Ertz 21461.

New for Mauritius.

tetracerae (Ach.) Müll. Arg. var. ***tetracerae***

Rivière Noire: Chamarel, Ebony Forest, close to park buildings, on bark, 2016, Diederich 18542.

New for Mauritius.

PSEUDEVERNIA Zopf

mauritiana (Gyelnik) Dodge = *Hypotrachyna microblasta*

PSEUDOCYPHELLARIA Vain.***argyrea*** (Delise) Vain.

≡ *Cyanisticta argyrea* (Delise) Gyeln.

* = *Sticta aspera* Laurer, *Linnaea* 2: 41 (1827); ≡ *Sticta argyrea* var. *aspera* (Laurer) Kremp., *Verh. Zool.-Bot. Ges. Wien* 18: 316 (1868); ≡ *Cyanisticta aspera* (Laurer) C. W. Dodge, *Beih. Nova Hedwigia* 12: 170 (1964). Type: Mauritius, Sieber 40 (L 910, 215-1683, lectotype, selected by Galloway & James 1986) (Galloway 1994: 116, 118).

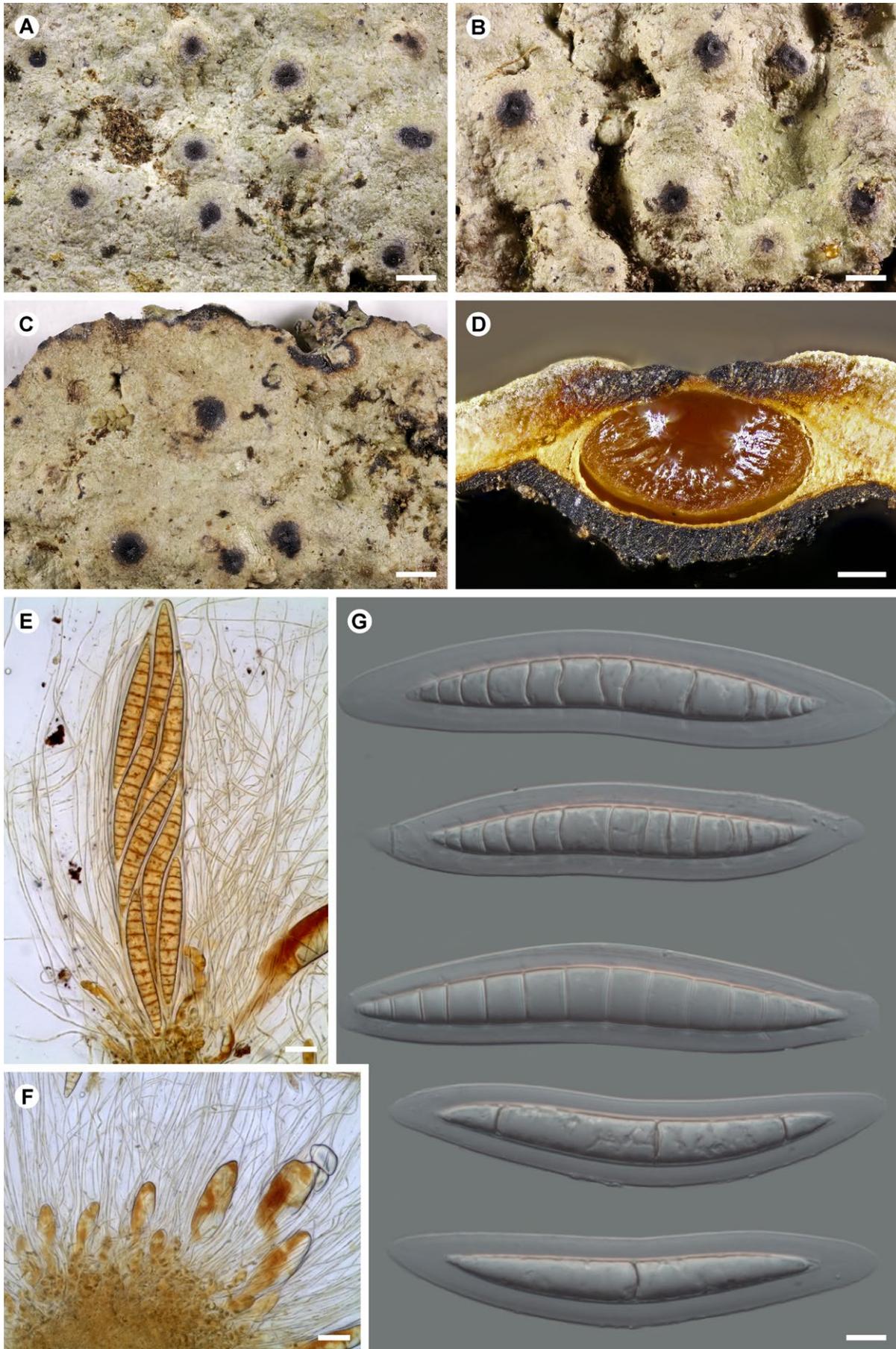


Figure 12. *Porina florensii* [A: Diederich 18405; B–C: Diederich 18348; D–G: holotype]. A–C – thalli with perithecia immersed in poorly delimited verrucae; black prothallus visible in C; D – section through wetted perithecium; E – hymenium with mature 8-spored ascus and paraphyses, in Lugol; F – lower part of hymenium, with young asci, in Lugol; G – immature (below) and mature ascospores, showing perispore, in water. Scales: A–C = 1 mm; D = 200 μ m; E–F = 20 μ m; G = 10 μ m. Photos: P. Diederich.

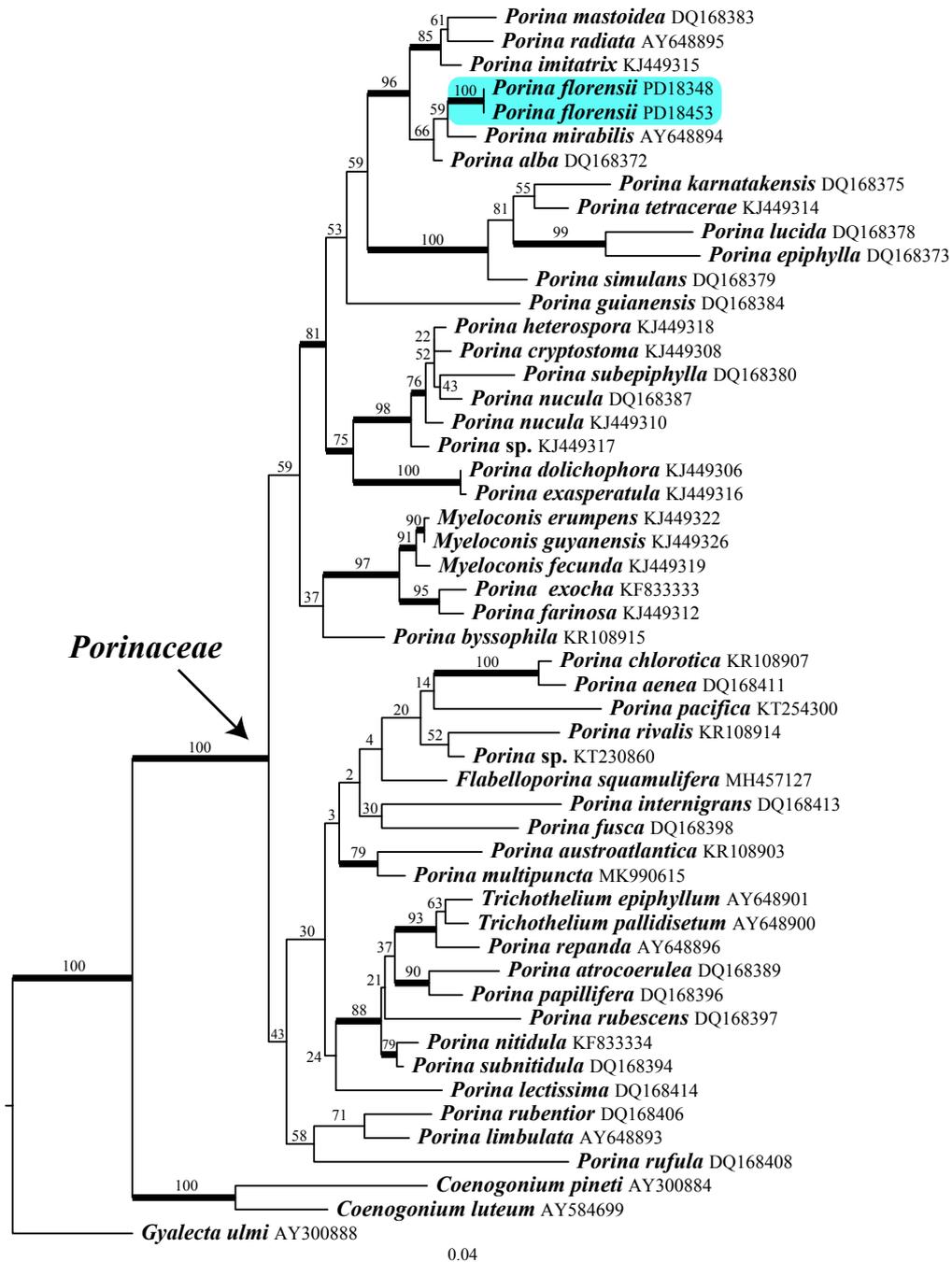


Figure 13. Phylogeny of *Porinaceae* based on a data set of mtSSU sequences that resulted from a RAxML analysis. Maximum likelihood bootstrap values are shown above or near internal branches. Internal branches considered strongly supported by both the RAxML and Bayesian analyses are represented by thicker lines. The newly sequenced samples of *Porina florensii* are highlighted.

*= *Stictina argyracea* f. *insidiata* Nyl., in Crombie, J. Linn. Soc. (Bot.) 15: 435 (1876); ≡ *Sticta argyracea* f. *insidiata* (Nyl.) Zahlbr., Cat. Lich. Univ. 3: 371 (1925). Type: Rodrigues, 1874, Balfour 2279 (H-NYL 34058, holotype; BM, isotype). ‘The holotype material in Nylander’s herbarium is a small scrap taken from a larger collection in Crombie’s herbarium (BM) which is preserved as two separate specimens, only one of which is numbered 2279. All three specimens are labelled ‘f. *isidiata* Nyl.’ and not *insidiata* as appears in the protologue’ (Galloway 1994: 117).

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18428, 18433 (dupl. LG); Chamarel, Ebony Forest, on bark, 2019, Diederich 18942. **Savanne:** Along trail to Mt Cocotte, on

bark, 2019, Diederich 18845, 18871, 18873, 18899, 19377, 19385 & Ertz 23465, 23502.

Previously also reported from Mauritius by Lindau (1908), Robillard (W) by Galloway (1994: 118), McGregor 1819 (BM) by Galloway (1994: 118), Vacquois, Ayres (BM) by Galloway (1994: 118), ‘in Taylor herb. on sheet 450 at Harvard Univ. com. Müller Argau’ by Dodge (1964: 169), Macchabee Forest, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995) and Crittenden et al. (1995), Bedrock (20°19’02”S, 57°26’78”E), Pétrin heath, Pétrin rainforest and Le Pouce, 2001, by Holm & Gregersen (2002), along the road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 194), and from Rodrigues, 1874, Balfour 2279 (BM) by Galloway (1994:

118). Further unpublished specimens from Piton de la Petite Rivière Noire, Mt Corps de Garde, Macchabee Forest to Mt Brise Fer, Macchabee Kiosk and Mt Cocotte, collected by Krog & Tindal in 1991, are kept in O.

aurata (Ach.) Vainio ≡ *Crocodia aurata*

clathrata (De Not.) Malme

Galloway & Arvidsson (1990: 126) reported this species from Mauritius without giving any additional information.

crocata (L.) Vainio

≡ *Sticta crocata* L.

(*)= *Pulmonaria aurigera* Bory, in Flörke, Mag. Neuesten Entdeck. Gesammten Naturk. Ges. Naturf. Freunde Berlin 2: 126 (1809); ≡ *Cyanisticta aurigera* (Bory) Dodge, Beih. Nova Hedwigia 12: 171 (1964). Type: Les arbres des forêts montagneuses des Iles de France (Mauritius) et de Mascareigne, Bory de Saint-Vincent (PC-Thuret, lectotype, fide Galloway 1988: 113) (Galloway et al. 2001: 56; Dodge 1964: 171–172).

(*)= *Sticta aurigera* var. *nuda* Delise, Hist. Lich. Sticta: 55 (1825). Type: Iles de France (Mauritius) et Mascareigne, ?Bory de Saint-Vincent (PC-Thuret, lectotype, selected by Galloway & James 1986).

*= *Sticta mougeotiana* Delise, Hist. Lich. Sticta: 62 13 (1825); ≡ *Cyanisticta mougeotiana* (Delise) Dodge, Beih. Nova Hedwigia 12: 177 (1964). Type: Ile de France, Bory de Saint-Vincent (PC-Thuret, lectotype, selected by Galloway & James 1986) (Galloway et al. 2001: 56).

(*)= *Sticta mougeotiana* var. *xantholoma* Delise, Hist. Lich. Sticta: 63 (1825). Type: ‘Insulae Borboniae ou Franciae’ [i.e., Reunion or Mauritius] (PC-Lenormand, lectotype, selected by Galloway & James 1986).

Also reported from Mauritius, ‘auf Rinde’ by Lindau (1908) and Moncada et al. (2014: 122), Wight, by Dodge (1964: 178), ‘Sur les arbres, dans le quartier de Pampelmousses, à l’île Maurice’ by Bélanger (1834), Pouce Mt, Ayres (BM) by Galloway (1994: 125) and Curepipe (BM) by Galloway (1994: 125). Further unpublished specimens from Mt Corps de Garde, Mt Cocotte and Curepipe Botanical Garden, collected by Krog & Tindal in 1991, are kept in O.

The species was also reported from Mauritius, Söchting 30A13a (TUR) by Stenroos et al. (2006) [almost surely the same collection as the one reported by Holm & Gregersen (2002) from Pétrin heath, 2001 (C)], but Lücking et al. (2017a: 451) concluded that this specimen is best included in *P. desfontainii* because of the presence of laminal isidia. This specimen was sequenced and included in a phylogenetic study by Lücking et al. (2017a).

desfontainii (Delise) D. J. Galloway

Savanne: Along trail to Mt Cocotte, on bark, 2019, Diederich 18878 & Ertz 23463.

Also reported from Mauritius, McGregor (BM), Les Mares, Ouhamed 8 (BM) by Galloway (1994: 128), Le Pouce, 2001, Söchting 30A13a p. p. (C) by Lücking et al. (2017a), Bedrock (20°19'02"S, 57°26'78"E) and Le Pouce, 2001, by Holm & Gregersen (2002). Further unpublished specimens from Piton de la Petite Rivière Noire, Le Pouce and Mt Cocotte, collected by Krog & Tindal in 1991, are kept in O.

dissimilis (Nyl.) D. J. Galloway & P. James [≡ *Stictina dissimilis* Nyl.]. Reported from Rodrigues, on trees, 1874, Balfour 2277, by Crombie (1876b).

dozyana (Mont. & Bosch) D. J. Galloway

Savanne: Along trail to Mt Cocotte, on bark, 2019, Diederich 19378.

Our specimen is rather typical, with a cyanobacterial photobiont, a white medulla, an upper uneven surface devoid of pseudocyphellae, a lower surface with white protruding pseudocyphellae, and marginal, greyish soralia distinctly eroding yellow below, and it agrees with descriptions in Galloway (1994) and Lücking et al. (2017). Additional unpublished specimens from Mt Cocotte, collected by Krog & Tindal in 1991, are kept in O.

New for Mauritius.

gilva (Ach.) Malme

Reported from Mauritius, Blackburn (BM) by Galloway (1994: 133).

intricata (Delise) Vain. Galloway (1994) indicated the presence of this species in Mauritius on a distribution map (fig. 19), but no corresponding specimen is listed under ‘Specimens examined’: possibly a lapsus for Reunion, from where the species has been described. Holm & Gregersen (2002) reported this species as ‘Uncommon on Mauritius and La Réunion’, also probably a lapsus, as their only specimen examined is from Reunion.

neglecta (Müll. Arg.) H. Magn.

Savanne: Along trail to Mt Cocotte, on bark, 2019, Diederich 18881, 18883 & Ertz 23513.

Also reported from Le Pouce, 2001, Söchting 30A13a p. p. (C, TUR) by Lücking et al. (2017a). Our specimens perfectly agree with the description given by Lücking et al. (2017).

orygmaea (Ach.) Malme [≡ *Sticta orygmaea* Ach.]. Reported from Mauritius by Laurer (1827).

PSOROMA Ach. ex Michx.

sphinctrinum (Mont.) Nyl. ≡ *Pannaria sphinctrina*

PULMONARIA Hoffm.

aurigera Bory = *Pseudocyphellaria crocata*

dichotoma Bory ≡ *Sticta dichotoma*

(*)*gigantea* Bory in Flörke, Magazin Ges. naturf. Fr. Berlin 2: 127 (1809). Type: ‘An den Bäumen der Inseln Frankreich [Mauritius] und Bourbon [Reunion]’, Bory de Saint-Vincent (PC-Thuret, holotype). Following Galloway (1995), this is an earlier name for *Sticta plumbea* Delise. Galloway (1995) lectotyped the latter name on a specimen from Reunion. Following Simon et al. (2018), the species exists only in Reunion.

PYRENASTRUM Eschw.

americanum Spreng. = *Pyrenula astroidea*

PYRENULA Ach.

astroidea (Fée) R. C. Harris [= *Pyrenastrum americanum* Spreng.]. Reported from Rodrigues, on thin bark of trees, 1874, Balfour 2274 (Crombie 1876b).

complanata (Mont.) Trevis.

Plaines Wilhems: Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18350.

New for Mauritius.

confinis (Nyl.) R. C. Harris [= *P. corticata* (Müll. Arg.) R. C. Harris, fide Aptroot 2012]. Reported from Mauritius by Crittenden et al. (1995, as *P. cf. corticata*).

***cruenta* (Mont.) Vain.**

≡ *Trypethelium cruentum* Mont.

*= *Trypethelium cruentulum* Nyl., in Crombie, Journ. Linn. Soc., Bot. 15: 445 (1876). Type: Rodrigues, on branches of trees, 1874, Balfour 2240 (Crombie 1876b).

Also reported from Rodrigues, on bark of trees, 1874, Balfour 2275 (Crombie 1876b, sub *T. cruentum*).

***fetivica* (Krempelh.) Müll. Arg.**

*=? *Pyrenula truncata* Müll. Arg., nom. nud.? Original material: Mt Pouce, P. B. Ayres (G 00293752).

Plaines Wilhems: Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18345, 18349; Le Pétrin, heathland NW of Pétrin Information Centre, on bark, 2019, Ertz 23331.

Pyrenula truncata probably is a synonym of *P. fetivica*, fide Aptroot (2012). We were not able to find any paper describing *P. truncata*. An annotation on the specimen conserved in G says ‘*Pyrenula truncata* Müll. Arg. ined.’, suggesting that the name has never been published. The name is also missing in the online databases Index Fungorum and MycoBank.

***mamillana* (Ach.) Trevis.**

≡ *Verrucaria mamillana* Ach.; = *Pyrenula marginata* Hook. (fide Aptroot 2012); ≡ *Verrucaria marginata* (Hook.) Hepp

Plaines Wilhems: Le Pétrin, along trail W of Pétrin Information Centre, up to 600 m W of first viewpoint, on bark, 2019, Diederich 18776. **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18431; Brise Fer Forest, on bark, 2019, Diederich 19210, 19223, 19437, 19427, 19435 & Ertz 24293.

Previously reported ‘Sur l’écorce des arbres, à l’île Maurice’ by Bélanger (1834) (PC0018922) and from Mauritius by Daruty (1873).

***Pyrenula muriciliata* Diederich & Ertz, sp. nov. (Fig. 14)**

MycoBank MB 834929

Diagnosis: Characterized by a thin, brownish to greyish brown, ecorticate thallus, 0.5–0.7 mm wide perithecia with an apical ostiole, and dark brown, muriform ascospores, each with a basal cilium.

Type: Mauritius, Rivière Noire, Black River Gorges National Park, 5 km NW of Pétrin, Brise Fer Forest, 20.3779°S, 57.4404°E (±200 m), alt. 585 m, on the bark of a tree, 10 Sept. 2019, Diederich 19226 (MAU, holotype; BR, herb. Diederich, isotypes).

Description. Thallus ecorticate, brownish to greyish brown, continuous, very thin (20–70 µm); prothallus medium to dark brown; photobiont *Trentepohlia*. Ascomata perithecioid, simple, dispersed to aggregated, sometimes confluent, subspherical to conical, emergent, 0.5–0.7 mm diam., black, not covered by the thallus. Wall laterally and apically more or less equally carbonized, K–, 100–150 µm thick, basally reduced or missing. Ostiole more or less apical. Hamathecium hyaline, densely interspersed with oil droplets; paraphyses unbranched, 1–1.5 µm thick. Asci

cylindrical, I–, 8–spored, 90–120 × 10–12.5 µm. Ascospores when young hyaline, soon dark brown, I–, muriform with 3 transverse eusepta and each row with (0–)1 longitudinal septum, ellipsoid, not or slightly constricted near septa, (13–)14.3–16.7(–18) × (8–)8.5–10.1(–11.5) µm, ratio L/B (1.4–)1.6–1.8(–1.9) (n = 53, from holotype), ends rounded, lumina rounded (best visible in hyaline young ascospores), basally with a 2–10 µm long and 0.5–0.7 µm thick, straight or sometimes curved cilium. Pycnidia not observed. Chemistry: thallus K–, C–, KC–, P–, UV–; no substance detected by TLC (solvent A).

Ecology and distribution. The new species is corticolous on the bark of trees in forests and parklands. It is known from three Mauritian localities (Brise Fer Forest, Pétrin, Curepipe) at 565–680 m elevation.

Notes. The new species differs from all known *Pyrenula* species by ascospores presenting a basal cilium. Aptroot (2012) reported two species with ciliate ascospores: *P. ciliata* Aptroot and *P. hirsuta* Etayo. They both differ from the new species by the presence of many hyaline cilia at both ends (vs one basal cilium) and by transseptate (vs muriform) ascospores. As the cilium may have been overlooked in other species, especially when using a microscope without DIC optics, the new species needs to be compared with similar species with muriform ascospores. Using Aptroot (2012), it keys out at *Pyrenula borneensis* Aptroot ined., formally described by Aptroot et al. (2012), a species readily distinguished by much larger ascospores, 20–26 × 10–12 µm, lacking a basal cilium, and larger ascomata, 0.5–1.3 mm diam.

Etymology. The epithet refers to the muriform ascospores, each with a basal cilium.

Additional specimens examined. MAURITIUS. **Plaines Wilhems:** Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18296; Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18347.

nitida (Weigel.) Ach. [≡ *Verrucaria nitida* (Weigel.) Schrad.]. The report from Mauritius by Daruty (1873) is erroneous, as the corresponding specimen (Daruty 63, MAU) belongs to *Glyphis cicatricosa*.

***ochraceoflava* (Nyl.) R. C. Harris**

Moka: Réduit, State House Park, on bark, 2019, Ertz 23300.

Pamplemousses: Jardin Botanique, on bark of palm tree, 2016, Diederich 18244.

New for Mauritius.

***parvinuclea* (Meyen & Flot.) Aptroot**

Rivière Noire: East of Black River, from Visitor’s Centre to Pilgrims Trail, on bark, 2016, Diederich 18490.

New for Mauritius.

***quassiiicola* (Fée) Fée**

= *P. pinguis* Fée, fide Aptroot 2012

Pamplemousses: Jardin Botanique, on bark of *Brownea grandiceps*, 2016, Ertz 21460.

Already known from Mauritius ‘Sur l’écorce des arbres, dans la péninsule indienne et à l’île Maurice’ (Bélanger 1834, sub *P. pinguis*). In the phylogenetic tree of the *Pyrenulaceae* (Fig. 16) our specimen is nested in a poorly resolved clade including specimens of *Pyrenula*



Figure 14. *Pyrenula muriciliata* [A–B: holotype; C–G: Diederich 18347]. A–B – thallus with perithecia; dark prothallus visible in A; C – section through dry perithecium; D – young ascus, in water; E – interspersed hymenium with two asci and ascospores, in water; F – 8-spored ascus and paraphyses, in water; G – muriform ascospores with basal cilium, in water; young immature ascospore on bottom left. Scales: A = 1 mm; B = 500 μ m; C = 200 μ m; D–F = 10 μ m; G = 5 μ m. Photos: P. Diederich.

quassiicola, *P. bahiana*, *P. sexlocularis* and *P. thelomorpha*, while other specimens of *P. quassiicola* are more distantly related. As already shown by Gueidan et al. (2016), species delimitation of the widespread pantropical *P. quassiicola* is problematic, because the species is polyphyletic, with at least four distinct lineages highlighted in their three-gene dataset.

***sexlocularis* (Nyl.) Müll. Arg.**

Rivière Noire: East of Black River, from Visitor's Centre to Pilgrims Trail, on bark, 2016, Diederich 18488.

New for Mauritius.

PYXINE Fr.

***cocoes* (Sw.) Nyl.**

Moka: Réduit, State House Park, on bark, 2019, Diederich 19288; *ibid.*, on bark of *Cinnamomum*, Diederich 19316.

Rivière Noire: Le Morne Peninsula, S coast, on bark, 2019, Diederich 19251.

Also reported from Mauritius by Daruty (1873) and from Ile aux Aigrettes by Parnell et al. (1989) (BM, det. James). Further unpublished specimens from Yemen, Flic-en-Flac, Tamarin, Morne Brabant, Flacq and Ile aux Aigrettes, collected by Krog & Timdal in 1991, are kept in O.

palmicola. A lapsus for *Coccocarpia palmicola* in Parnell et al. (1989: 374).

**petricola* Nyl. ex Cromb.

J. Bot. 14: 263 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2391 (E, H) (Crombie 1876a, b).

Reported from Ile aux Aigrettes (BM, det. James) by Parnell et al. (1989).

petricola var. *pallida* Swinscow & Krog

Rivière Noire: Le Morne Peninsula, S coast, on bark, 2019, Diederich 19550 & Ertz 24272.

Our specimens have apothecia with a brownish white and K– internal stipe characteristic of var. *pallida* (Swinscow & Krog 1975). New for Mauritius.

retirugella Nyl.

Rivière Noire: Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18531.

Further unpublished specimens from Mt des Créoles and Ile aux Aigrettes, collected by Krog & Timdal in 1991, are kept in O. New for Mauritius.

retirugella f. *sorediigera* Müll. Arg. Reported from Mauritius by Dodge (1971: 171).

subcinerea Stirton

Moka: Réduit, State House Park, on bark, 2019, Diederich 19289; *ibid.*, on bark of *Ficus microcarpa*, Diederich 19280.

Rivière Noire: Le Morne Peninsula, S coast, on bark, 2019, Diederich 19252.

Also reported from Mt des Créoles, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 198). Further unpublished specimens from Yemen, Tamarin and Flacq, collected by Krog & Timdal in 1991, are kept in O.

RAMALINA Ach.

arabum (Dill. ex Ach.) Meyen & Flot.

Reported from Mauritius by Daruty (1873). The corresponding specimen (Mauritius, Iles aux Aigrettes, 1873, Daruty 143, MAU L1964) was studied by Krog (1994), who confirmed its identity.

calicaris (L.) Röhl.

Reported from W side of Round Island, on *Fernelia buxifolia* (Johnston 1894: 263). As the species is unknown from Africa and Australia, this possibly refers to *R. subfraxinea* var. *leiodea*.

canaliculata Taylor. Reported from Mauritius by Nylander (1870), and from Rodrigues, on branches of trees, 1874, Balfour 2210, by Crombie (1876b). A poorly known species.

**canaliculata* f. *brevior* Cromb., J. Linn. Soc., Bot. 15: 434 (1876). Type: Rodrigues, on branches of trees, 1874, Balfour 2386 (Crombie 1876b). A poorly known taxon.

farinacea (L.) Ach. Reported from Mauritius by Daruty (1873) and from Rodrigues, on branches of trees, 1874, Balfour 2324, by Crombie (1876b).

farinacea f. *pendula* (Schrad.) Cromb. Reported from Rodrigues, on branches of trees, 1874, Balfour 2324b (Crombie 1876b).

gracilentata (Ach.) Röhl. Reported from Rodrigues, on rocks and trees, 1874, Balfour 2283, 2297, by Crombie (1876b).

**gracilentata* f. *nodulosa* Cromb., J. Linn. Soc., Bot. 15: 434 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2297b (BM). A poorly known taxon.

intermedia Delise ex. Nyl. Reported from Rodrigues, on rocks, 1874, Balfour 2284, by Crombie (1876b).

linearis var. *pumela* Mont. Reported from Mauritius by Daruty (1873). A poorly known taxon.

litorea N. Stevens

Reported from Mauritius (saxicolous) and Rodrigues (saxicolous) (M, as *R. microspora*, with evernic acid) (Stevens 1986: 187; 1987: 169).

maritima Krog & Swinscow. Reported from Ile aux Aigrettes, on *Maytenus pyria*, by Parnell et al. (1989) (BM, det. James). This species strongly resembles *Ramalina subfraxinea* var. *leiodea* (Stevens 1987: 207), and therefore the specimen might belong to that species.

nervulosa (Müll. Arg.) des Abb.

Moka: Réduit, State House Park, on bark, 2019, Diederich 18700 [medulla K–]; *ibid.*, on bark of *Latania lodigesii*, Diederich 18705 [medulla K–]; Réduit, close to Mauritius Herbarium building, on bark, 2019, Ertz 23249 [medulla K+ pink]. **Pamplemousses:** Jardin Botanique, on bark, 2016, Diederich 18263 (dupl. LG) [medulla K+ pink]; *ibid.*, on bark of *Dyopsis lutescens*, Ertz 21470 [medulla K+ pink]; 1 km NNW of Botanical Garden, S of Museum ‘Aventure du sucre’, on bark, 2016, Diederich 18509 (dupl. LG) [medulla K–].

Previously reported from Pamplemousses Botanical Garden, 1990, Hawksworth (K-IMI) by Crittenden et al. (1995) and from the same locality, 1987, Kubodera (TNS) by Kashiwadani & Moon (2007).

sprengelii Krog & Swinscow

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18458 (dupl. LG) (specimen kept under *Lichenopeltella ramalinae*); *ibid.*, 2019, Ertz 23973, 24037; Chamarel, Ebony Forest, around viewpoint, on bark, 2016, Diederich 18538 (dupl. LG); *ibid.*, along trail W of viewpoint, on bark, 2019, Diederich 18943.

New for Mauritius.

subcalicaris Nyl. Reported from Mauritius (herb. Lenorm.) by Nylander (1870: 139).

subfraxinea Nyl. Reported from Mauritius by Daruty (1873), Gretan (ex herb. Lenorm.) by Nylander (1870: 139), and from Rodrigues, on branches of trees, 1874, Balfour 2340, by Crombie (1876b). Probably refers to *R. subfraxinea* var. *leiodea* (Stevens 1987).

subfraxinea var. *leiodea* (Nyl.) N. Stevens

Reported from Mauritius, corticolous, Gretan (herb. Lenorm.: H-NYL or PC?) (with boninic ac.) by Nylander (1870: 139, sub *R. subfraxinea*) and Stevens (1987: 203, 207–208), and from Mauritius (H-NYL 37185) (with boninic ac.) by Krog & Swinscow (1976: 167, sub *R. subfraxinea*; belongs to var. *leiodea*, fide Stevens 1987: 207).

RELICINA (Hale & Kurok.) Hale

limbata (Laurer) Hale [= *Parmelia limbata* Laurer]. Reported from Mauritius by Lindau (1908).

RHABDODISCUS Vain.**fissus** (Nyl.) Vain.

≡ *Stegobolus fissus* (Nyl.) A. Frisch

Reported from Mauritius, 1876, Robillard (G), on the shoulder of the Pouce (BM), and Pouce, Ayres (BM) by Frisch & Kalb (2006: 460).

RICASOLIA De Not.

amplissima (Scop.) De Not. [= *Parmelia glomulifera* (Lightf.) Ach.]. ‘Sur les rochers et sur les arbres, aux îles Maurice et de Bourbon’ (Bélanger 1834).

crenulata var. *stenospora* Nyl. = *Ricasolia sublaevis*

sublaevis Nyl.

(*) = *Ricasolia crenulata* var. *stenospora* Nyl., Ann. Sci. Nat., Bot., sér. 4, 11: 254 (1859). Type: Mauritius (H-Nyl 33387, syntype, identified by I. Yoshimura as *R. sublaevis*. N.B.: syntype H-Nyl 33382 ‘is not *R. sublaevis* and not belong to *R. crenulata*’, fide Yoshimura, herbarium annotation) and Reunion (H-Nyl. 33380, syntype, identified by Y. Yoshimura as *R. sublaevis*).

* = *Parmelia quercizans* var. *denudata* Laurer, Linnaea 2: 40 (1827). Type: ‘Ad arbores Insulae St. Mauritii’, Sieber. This name was considered a synonym of *R. crenulata* var. *stenospora* by Dodge (1964: 158).

* = *Lobaria wightii* C. W. Dodge, Beih. Nova Hedwigia 12: 158 (1964). Type: Mauritius, Wight (FH 00302075). Published as nom. nov. for var. *denudata* and var. *stenospora*. Also reported from Mauritius by Daruty (1873) and Hue (1892: 101).

RIMELIA Hale & A. Fletcher

reticulata (Taylor) Hale & Fletcher ≡ *Parmotrema reticulatum*

subsidiosa (Müll. Arg.) Hale & Fletcher ≡ *Parmotrema subsidiosum*

RINODINA (Ach.) Gray

luridescens (Anzi) Arnold [= *Lecanora coniopta* Nyl.]. Reported from Rodrigues by Dodge (1971: 10).

oxydata (A. Massal.) A. Massal. Reported from Moka, below Mt Ory, on shaded volcanic rocks by a track, 1990, Hawksworth (K-IMI) by David & Hawksworth (1995; ‘agrees in all characters ... except that the thallus does not react with K’) and Crittenden et al. (1995, as *Rinodina* cf. *oxydata*).

ROCCELLA DC.**boryi** Delise ex Fée

* = *Roccella montagnei* f. *teretior* Cromb., J. Linn. Soc., Bot. 15: 433 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2206, 2288 (BM 674747, lectotype selected by Tehler & Irestedt 2007; BM 674746, H-NYL 36728, H-NYL 36735, isolectotypes) (Tehler et al. 2010).

* = *Roccella flaccida* Bory, Dict. Class. Hist. Nat. 14: 631 (1828); ≡ *Roccella flaccida* Delise ex Darb., Biblioth. Bot. 9: 44 (1898) nom. hom. Type: Ile de France [Mauritius], 1826, Jussieu 2444 (PC, lectotype selected by Tehler & Irestedt 2007; PC, isolectotype) (Tehler et al. 2010).

Also reported from Mauritius by Fée (1824: CI), from Port Louis, Mt Signal, 2003, Tehler (S, UPS), Black River, Pointe Corail de la Prairie, 2003, Tehler (S, UPS), Black River, Mt

St. Pierre, the eastern peak near Bambous, ~7 km E Quatre Bornes, 2003, Tehler (S, UPS), Black River, in gorge just E of Cascavelle, ~7 km W of Quatre Bornes, on vertical cliffs, 2003, Tehler 8521 (UPS), Plaine Wilhems, Corps de Garde, 2003, Tehler (S, UPS), and Savanne, Maconde, 2003, Tehler (S), by Tehler et al. (2010).

flaccida Delise = *Roccella boryi*

fuciformis (L.) DC. Reported from Mauritius by Daruty (1873) and ‘Sur les rochers du grand port, à l’île Maurice’ by Bélanger (1834).

fuciformis var. *gracilentata* Vain. ex Darb. Reported from Mauritius by Daruty (1873).

mauritiana Darb. Although the epithet refers to Mauritius and a Mauritian specimen (NMW 0000953) is annotated as ‘isotype’ of *R. mauritiana*, this name is a nomenclatural synonym of *Roccella fuciformis* f. *linearis* and thus based on the type of the latter name from Sumatra.

montagnei f. *teretior* Cromb. = *Roccella boryi*

phycopsis Ach. Reported from Mauritius by Daruty (1873).

tinctoria DC. Reported from Mauritius by Nylander (1859: 252). See notes under *Roccellina hypomecha*.

tinctoria var. *hypomecha* Ach. ≡ *Roccellina hypomecha*

ROCCELLINA Darb.

hypomecha (Ach.) Tehler [≡ *Roccella tinctoria* var. *hypomecha* Ach.]. Reported from Mauritius by Nylander (1859). Following Tehler (pers. comm.), several Mauritius specimens in PC-Delise, incorrectly identified as *R. hypomecha*, belong to *Roccella boryi*. One specimen labelled ‘*Roccella tinctoria* – Ile de France’ (S-L21425), with a handwriting resembling that of Nylander, belongs to *R. hypomecha*; it might have been taken by Nylander from Commerson’s herbarium in Paris, where other collections state both ‘Cap Bon de S.’ and ‘Ile de France’ on the same label; consequently, it must be considered likely that this specimen is mislabelled and does not originate from Mauritius.

ROLFIDIUM Moberg***coccocarpioides** (Nyl. ex Cromb.) Timdal

Opera Bot. 110: 121 (1991); ≡ *Lecidea coccocarpioides* Nyl. ex Cromb., J. Bot., Lond. 14: 264 (1876). Type: Rodrigues, on rocks, 1874, Balfour 2219 (BM, H-NYL 13025, syntypes) (Crombie 1876a, b; Timdal 1991: 121).

Rivière Noire: East of Black River, from Visitor’s Centre to Pilgrims Trail, on rocks along trail, 2016, Diederich 18474; Chamarel, Ebony Forest, around viewpoint, saxicolous, on exposed rocks, 2016, Diederich 18519 (MAU); *ibid.*, 2019, Diederich 18919.

Also reported from Mt Corps de Garde, 430 m, 1991, Krog & Timdal (OMAU, O) by Kistenich et al. (2018: 904), and from continental Africa by Swinscow & Krog (1988).

SAGEDIOPSIS Vain.**+pertusariicola** Zhurb.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, on *Pertusaria* sp., 2016, Diederich 18434.

Zhurbenko (2009) showed that the material of *Sagediopsis* growing on *Pertusaria* slightly differs by several

morphological characters from *S. campsteriana* (Linds.) D. Hawksw. & R. Sant., a species possibly confined to *Ochrolechia*, and he consequently described the new *S. pertusariicola*. The Mauritius specimen is in a very poor condition, with most perithecia either immature or overmature. We observed mainly immature, 1-septate ascospores, $11.5\text{--}14 \times 3\text{--}4 \mu\text{m}$, and a single 2- or 3-septate ascospore, $13.2 \times 3.2 \mu\text{m}$. These fall in the lower range of 3-septate ascospores of *S. pertusariicola*, given as $(11\text{--})17.5\text{--}24\text{--}(31) \times (3\text{--})4\text{--}5\text{--}(6) \mu\text{m}$ by Zhurbenko (2009). Although our specimen cannot be distinguished on a morphological basis from *S. campsteriana*, we include it in *S. pertusariicola* because of the host selection. The host is a fertile *Pertusaria* with apothecia immersed in convex warts, with punctiform hymenia. New for Mauritius.

SARCOGRAPHA Fée

tricosa (Ach.) Müll. Arg.

≡ *Medusula tricosa* (Ach.) Mont.

Pamplemousses: Jardin Botanique, on bark of *Ptychosperma macarthurii*, 2016, Ertz 21453.

Previously reported from Mauritius by Daruty (1873).

**tricosula* (Nyl. ex. Cromb.) Zahlbr., Cat. Lich. Univ. 2: 467 (1923 [‘1924’]); ≡ *Glyphis tricosa* Nyl. ex Cromb., J. Bot. 14: 264 (1876). Type: Rodrigues, on the thin epidermis of bark, 1874, Balfour 2363 (BM, H) (Crombie 1876a, b).

SARCOGRAPHINA Müll. Arg.

heterospora (Nyl.) Z. F. Jia & Lücking [≡ *Phaeographina heterospora* (Nyl.) Zahlbr.]. This species was described from Reunion but later reported by Dodge (1964: 76) as known only from Mauritius, which is most likely a lapsus.

SERUSIAUXIA Ertz & Diederich, gen. nov.

Mycobank MB 834931

Diagnosis: Distinguished from all known *Pyrenulaceae* genera by a sorediate thallus and chemistry with gyrophoric acid (C+ red soralia).

Type: *Serusiauxia inexpectata* Ertz & Diederich.

Description. See specific description below.

Notes. In our phylogenetic tree (Fig. 16), this lichen is sister taxon to *Lithothelium septemseptatum* in a basal position within a main clade including also the genus *Anthracothecium* and several species of *Pyrenula* (including the generic type, *P. nitida*). This clade was defined as ‘*Pyrenulaceae*, Group 1’ in the phylogeny of the *Pyrenulaceae* by Gueidan et al. (2016). We wondered if we should include our new species within an enlarged concept of *Pyrenula*, which would then include the two *Pyrenula* clades recognized by Gueidan et al. (2016), the genus *Anthracothecium* and *Lithothelium septemseptatum*. However, the phylogenetic results strongly suggest that *Pyrenula* needs to be split into several genera. ‘*Pyrenulaceae*, Group 1’ is divided, with high support, in a clade comprising *Pyrenula* s.str. and *Anthracothecium*, and a second clade comprising our new species and *Lithothelium septemseptatum*. Following our tree, the two taxa are genetically rather distinct. Further, as long as the type of *Lithothelium* has not been sequenced, we cannot affirm that this clade refers to *Lithothelium* s.str. Finally, to our knowledge the new species is unique within the *Pyrenulaceae* by having a sorediate thallus and

chemistry with lecanoric/gyrophoric acid, strongly resembling *Dendrographa decolorans*. We conclude that the description of a new genus *Serusiauxia* is the best option, supported by both molecular results and morphological characters.

Etymology. Named after Emmanuël Sérusiaux (Liège, Belgium) to honour his outstanding contribution to the lichenology of tropical regions.

Serusiauxia inexpectata Ertz & Diederich, sp. nov.

(Figs 15–16)

Mycobank MB 834932

Diagnosis: Distinguished from all known *Pyrenulaceae* species by a sorediate thallus and chemistry with gyrophoric acid (C+ red soralia).

Type: Mauritius, Pamplemousses district, Pamplemousses, Sir Seewoosagur Ramgoolam Botanical Garden, 20°06’21”S, 57°34’49”E, elev. 80 m, on bark of a ±vertical trunk of *Terminalia*, 29 Dec. 2016, Ertz 21490 (MAU – holotype, BR, herb. Diederich – isotypes).

Description. Thallus crustose, thin, rather inconspicuous, mostly endophloeodal, whitish to pale cream; prothallus brownish. Photobiont trentepohlioid, with cells $6\text{--}11 \times 4\text{--}8 \mu\text{m}$. Soralia numerous, dense, punctiform when young, erumpent, flat to slightly convex with loosely heaped soredia, mostly rounded, up to 0.6 mm diam, spreading and becoming confluent, sometimes almost forming a continuous leprose crust covering large areas of the thallus, pale creamish brown, rarely pale greyish-almost white. Soredia without projecting hyphae, $25\text{--}60 \mu\text{m}$ diam; hyphae $2\text{--}2.5 \mu\text{m}$ diam covered by tiny hyaline crystals dissolving in K (polarized light!); presence of calcium oxalate crystals mostly $0.5\text{--}4 \mu\text{m}$ diam, a few larger up to $12 \mu\text{m}$ diam (H_2SO_4 25% !). Ascospores and conidiomata unknown. Chemistry: thallus and soralia C+ red fleeting, K± pale yellowish (weak), P–, UV–, I–, KI–. TLC revealed gyrophoric acid in solvents B’ and EA (specimens Ertz 21490, 21496, Diederich 17815 and 18239 tested).

Ecology and distribution. The species is known from the Sir Seewoosagur Ramgoolam Botanical Garden and the Curepipe Botanic Gardens in Mauritius, where it grows on the bark of big trees, including *Mangifera* and *Terminalia*, and from the isle of Mahé in the Seychelles, where it has been collected in the ‘Jardin du Roi’ parkland.

Notes. The new species is most similar to *Dendrographa decolorans* (*Arthoniomycetes*), which differs by soralia with a mauve-grey to pale lilac-grey colour, different chemistry (unidentified fatty acids; thallus C–) (Wolseley & Hawksworth 2009), a non-tropical distribution (mainly in the Mediterranean and temperate regions) and a very different phylogenetic position (*Arthoniomycetes*, *Roccellaceae*) (Ertz & Tehler 2011). Sorediate morphs of *Synoesia myrticola* differ from the new species by a different chemistry (protocetraric acid; thallus PD+ rust-red) (Ertz et al. 2018a). *Opegrapha fumosa* also has a thin, inconspicuous thallus with C+ red soralia (gyrophoric acid), but the soralia are less dense, more irregular, often elliptical, and the species occurs only in temperate regions (Coppins et al. 1992).

Etymology. The epithet refers to the unexpected taxonomic position within the *Pyrenulaceae*, despite morphological similarities with some species of *Arthoniales*.

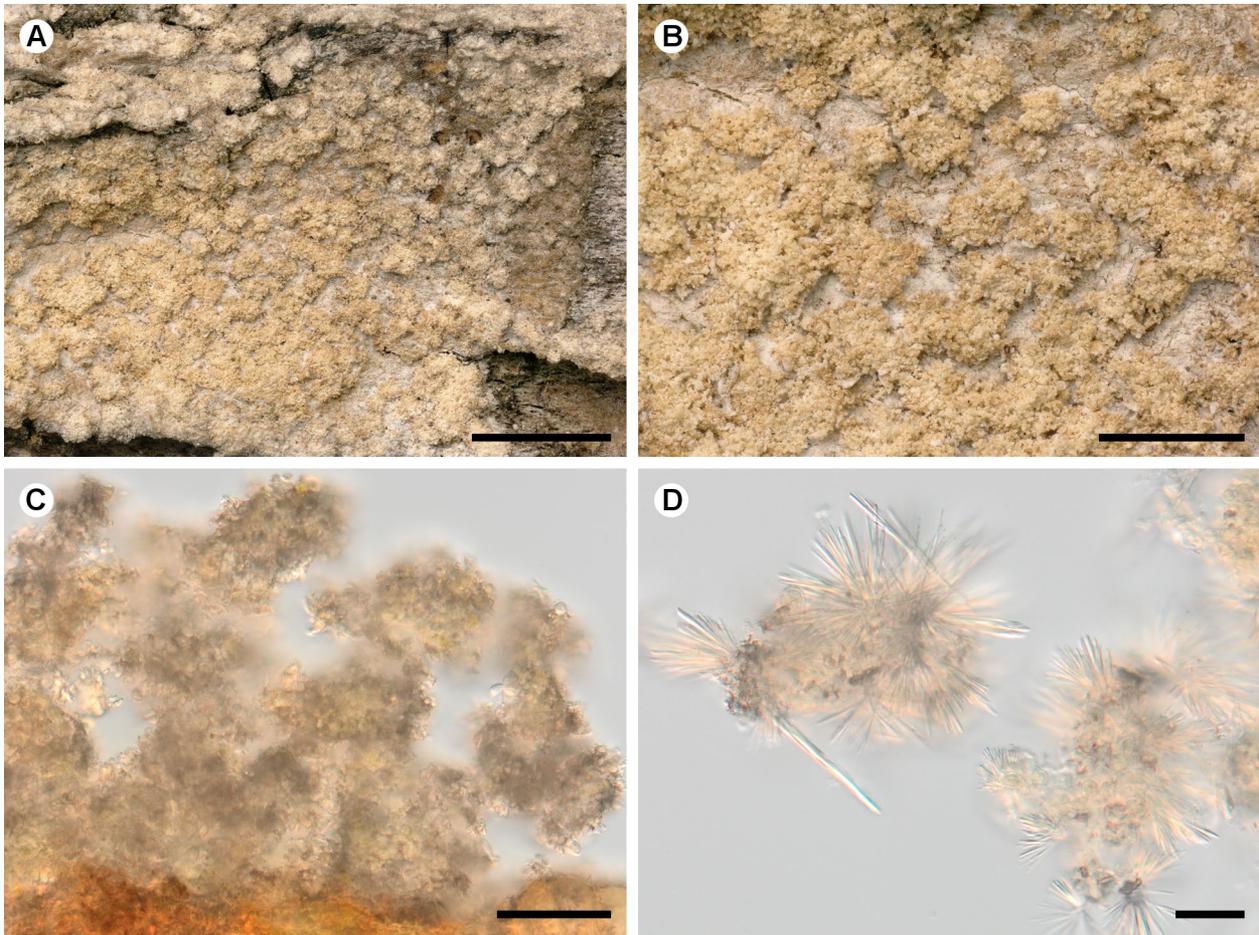


Figure 15. *Seriauxia inexpectata* [holotype]. A–B – thallus, showing soralia; C – soredia, in K; D – soredia, showing crystals formed after addition of H₂SO₄, revealing the presence of calcium oxalate crystals. Scales: A = 2.5 mm; B = 1 mm; C = 50 µm; D = 20 µm. Photos: D. Ertz.

Additional specimens examined. MAURITIUS. **Pamplemousses:** Same locality as type, on bark of *Mangifera*, 2016, Ertz 21496; *ibid.*, 2016, Diederich 18239. **Plaines Wilhems:** Curepipe, Curepipe Botanic Gardens, 2019, Diederich 19200. SEYCHELLES. **Mahé:** W of Anse Royale, Le Jardin du Roi, parkland, on a tree, 2015, Diederich 17815 (SEY, herb. Diederich).

SIPHULA Fr.

mascarena Mathey

Plaines Wilhems: Le Pétrin, heathland NW of Pétrin Information Centre, terricolous, 2016, Diederich 18372; *ibid.*, 2019, Ertz 23315A (TLC: thamnolic, solvents A, B'). **Savanne:** Road from Le Pétrin to Chamouny, beginning of trail to Montagne Cocotte, on bark, 2016, Diederich 18378; along trail to Mt Cocotte, on bark, 2019, Diederich 18843, 18874.

Previously reported from Pétrin by Mathey (1974), David & Hawksworth (1995) and Crittenden et al. (1995).

SIPMANIELLA Kalb

sulphureofusca (Fée) Kalb [= *Lecanora sulphureofusca* Fée]. Reported from Mauritius by Daruty (1873).

SPHAEROPHORUS Pers.

australis Laurer = *Bunodophoron australe*

compressus Ach. [as '*Sphaerophoron compressum*'] = *Bunodophoron melanocarpum*

SPILOMA Ach.

verrucaria Ach. 'Sur l'écorce des arbres, île Maurice' (Bélanger 1834).

SPIROGRAPHA Zahlbr.

+*lichenicola* (D. Hawksw. & B. Sutton) Flakus, Etayo & Miadlikowska

= *Cornutispora lichenicola* D. Hawksw. & B. Sutton

A lichenicolous pycnidial fungus reported from Mauritius, 'Plains', on *Haematomma collatum*, 1857, Ayres (BM), by Kalb et al. (1995).

SPORACESTRA A. Massal.

pertexta (Nyl.) Stapnes & Timdal

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18432, 18454 (det. Timdal).

New for Mauritius.

SQUAMULEA Arup, Søchting & Frödén

cf. *squamosa* (B. de Lesd.) Arup, Søchting & Frödén

Rivière Noire: La Preneuse (between Tamarin and Grande Rivière Noire), cemetery (south-east part with old graves), on old tombstones from c. 1850, 2016, Diederich 18394; *ibid.*, 2019, Diederich 18682 & Ertz 23237; Flic-en-Flac, cemetery, on historic tombs, 2019, Diederich 19553.

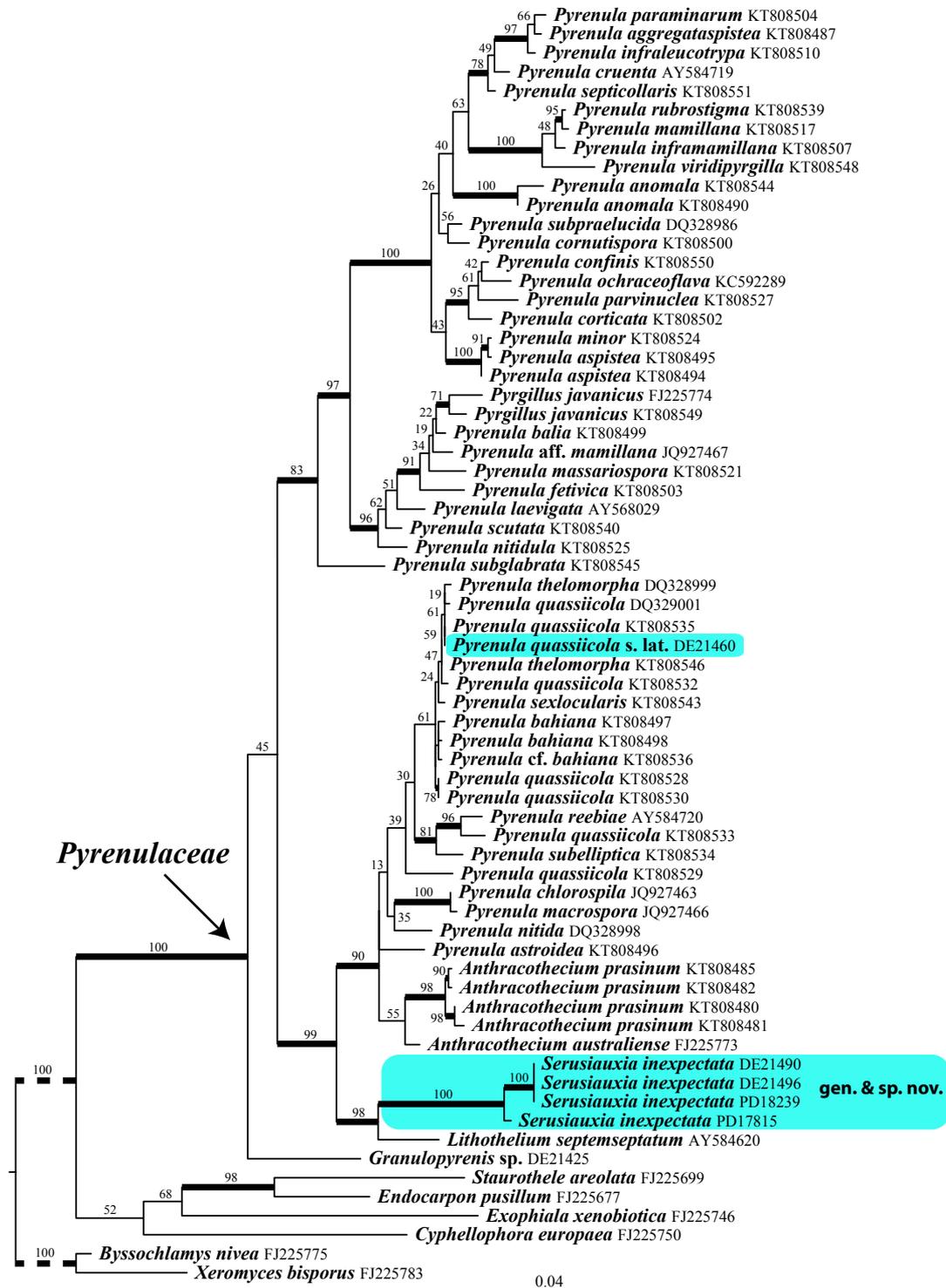


Figure 16. Phylogeny of *Pyrenulaceae* based on a data set of mtSSU sequences that resulted from a RAxML analysis. Maximum likelihood bootstrap values are shown above or near internal branches. Internal branches that are considered strongly supported by both RAxML and Bayesian analyses are represented by thicker lines. The newly sequenced samples from Mauritius are highlighted, and their names followed by collecting numbers of authors, which act as specimen and sequence identifiers. A newly sequenced sample of *Granulopyrenis* from Iles Éparses is also added. The length of the branches represented by dashed lines was reduced by 50% for editing reasons.

mtSSU and nuLSU sequences clearly place our specimen within *Squamulea* (Fig. 10). While our mtSSU sequence is identical to sequence KC179591 from *S. squamosa* but differs from sequence KC179592 of *S. subsoluta* by two nucleotides, our nuLSU sequence differs by nine nucleotides from both species. Thus, our specimen belongs either to *S. squamosa* s.lat. or to a closely related, possibly undescribed species. New for Mauritius.

STEGOBOLOUS Mont.

fissus (Nyl.) A. Frisch ≡ *Rhabdodiscus fissus*

STEREOCAULON Hoffm.

arbuscula Nyl. ≡ *Lepraria arbuscula*

**pulchellum* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n. s. 7: 166 (1873), nom. nud. (description missing).

salazinum (Bory) Fée. Reported from Mauritius, 1891, ‘supra saxa vulcanica’, fr. Rodriguez (Hue 1898). Specimen Daruty 93 (MAU L1976) from Le Pouce, ‘sur la terre au sommet’, 1873, was examined by Lamb in 1960 and annotated ‘*Stereocaulon* sp.’, apparently related to *S. sentelligerum* Th. Fr. (syn. *S. salazinum* Bory p. p.). Too scrappy for certain identification at present.

STICTA (Schreb.) Ach.

Simon et al. (2018) presented a phylogenetic study of the genus *Sticta* in Madagascar and the Mascarenes, comprising 31 endemic species. Its diversity on Mauritius was sampled by E. Sérusiaux in 2013. Following these authors, five of the endemic species of *Sticta* are known from Mauritius: *S. dichotoma* and *S. macrophylla* were both described from Mauritius and are also known from Reunion; *S. variabilis* was described from Reunion and is also known from Mauritius and Madagascar; two further unnamed species have been recognized in Mauritius. None of these species is endemic to Mauritius. Because of the ‘dramatic example of the tremendous impact of human contact’, these authors ‘consider that a significant part of the lichen flora in Mauritius is now extinct and our study only incorporates the few surviving taxa’. The two unnamed species are called ‘*S. sp. 1*’ and ‘*S. sp. 10*’ in their phylogenetic tree. In an unpublished thesis by Simon (2015), ‘*S. sp. 1*’ is called *Sticta pseudodiversa* ad int., and ‘*S. sp. 10*’ is called *Sticta mascarena* ad int. Following that author, *Sticta pseudodiversa* has a thallus with rounded lobes (lobules and phylidia lacking), lacks apothecia, and has a cyanobacterial photobiont, while *S. mascarena* has a thallus with elongated and dichotomously branching lobes with apothecia, and a green algal photobiont.

Simon et al. (2018) stated that ‘Five validly published epithets are available for the species studied’ in their paper. They obviously missed *Sticta glaberrima* Laurer, *Stictina flavireagens* Gyeln. [see comments below] and *Stictina robillardii* Dodge, all described from Mauritius. Three further infraspecific taxa have been described from Mauritius: *Sticta damicornis* var. *fucoides* Laurer, *S. damicornis* var. *polita* Laurer and *S. dichotoma* var. *pendula* Bory ex Delise.

Duplicates of all our 2016 specimens are kept in LG, and most of these have been sequenced (indicated below by ‘DNA’ followed by the sequence number). A. Simon kindly sent us identifications of the sequenced specimens.

ambavillaria (Bory) Ach. Reported from Pétrin rainforest and Le Pouce, 600 m, 2001, by Holm & Gregersen (2002).

argyrea Delise ≡ *Pseudocyphellaria argyrea*

argyrea f. *insidiata* (Nyl. ex Cromb.) Zahlbr. = *Pseudocyphellaria argyrea*

aspera Laurer = *Pseudocyphellaria argyrea*

aurata Ach. ≡ *Crocodia aurata*

aurigera var. *nuda* Delise = *Pseudocyphellaria crocata*

cometia Ach. Reported from Mauritius by Laurer (1827).

crocata (L.) Ach. ≡ *Pseudocyphellaria crocata*

cypbellulata (Müll. Arg.) Hue

Reported from Bedrock (20°19'02"S, 57°26'78"E) and Le Pouce, 600 m, 2001, by Holm & Gregersen (2002). Other unpublished specimens, collected by Krog & Timdal in 1991 in Mt Cocotte, Plaine Champagne towards Piton de

la Petite Rivière Noire, Curepipe (Trou au Cerfs), between Pétrin and Mt Brise Fer, Macchabee Kiosk, along the road from Bois Chéri to Grand Bassin, are kept in O.

damicornis (Sw.) Ach. [‘*damaecornis*’ and ‘*damaecornem*’ are orthographic variants]. Reported from Mauritius (herb. Lenormand) by Laurer (1827), Nylander (1859) and Daruty (1873), and ‘Sur les arbres et les rochers, aux îles Maurice et de Bourbon’ by Bélanger (1834). Following Moncada et al. (2018), although the name *Sticta damicornis* has frequently been used for *Sticta* specimens from most continents, the species appears to occur only in the Caribbean.

**damicornis* [as ‘*damaecornis*’] var. *fucoides* Laurer, Linnaea 2: 42 (1827). Type: ‘In Insula St. Mauriti’, Sieber 38 p.p. (FH) (Laurer 1827, Dodge 1964: 193).

damicornis var. *macrophylla* Nyl. Reported from Mauritius by Daruty (1873).

damicornis var. *polita* Laurer =? *Sticta dichotoma*

***dichotoma** (Bory) Delise

Hist. Lich. *Sticta*: 107 (1825); ≡ *Pulmonaria dichotoma* Bory in Flörker, Magazin Ges. naturf. Fr. Berlin 2: 127 (1809). Type: ‘An Bäumen auf der Insel Frankreich [Mauritius] und Reunion’, Bory de Saint-Vincent (PC-Thuret, lectotype, selected by Galloway 1995).

*=? *Sticta dichotoma* var. *pendula* Delise, Hist. Lich. *Sticta*: 108 (1825). Type: ‘dans les bois de l’île de France [Mauritius]’, Bory de Saint-Vincent (PC-Lenormand, holotype) (Galloway 1995).

*=? *Sticta damicornis* [as ‘*damaecornis*’] var. *polita* Laurer, Linnaea 2: 42 (1827); ≡ *Stictina polita* (Laurer) Dodge, Beih. Nova Hedwigia 12: 195 (1964). Type: ‘In Insula St. Mauriti’, Sieber, Pl. Crypt. Exot. 38 p. p. (sub. *S. damaecornis* var. *platyphylla*) (FH, ex herb. Merrill) (Dodge 1964, Laurer 1827). Following the description given by Dodge (1964), this might be a synonym of *S. dichotoma*.

*=? *Sticta glaberrima* Laurer, Linnaea 2: 42 (1827). Type: ‘Ad arborem cortices Insulae St. Mauriti’, 1826, Sieber (G 00294732, FH, isotypes) (Laurer 1827, Dodge 1964: 183). Following a redescription by Dodge (1964), based on the FH specimen, and a photo at <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=241516&base=img&lang=en>, this might be a synonym of *S. dichotoma*.

*=? *Stictina robillardii* Dodge [as ‘*robillardii*’], Beih. Nova Hedwigia 12: 196 (1964). Type: Mauritius, Robillard (FH). Following the original description, this might be a synonym of *Sticta dichotoma*.

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18425 (dupl. LG, DNA 6222).

Also reported from Mauritius by Swinscow & Krog (1988), Le Pouce, 600 m, 2001, by Holm & Gregersen (2002), Mauritius, 2013, Sérusiaux 3448 (LG) by Simon (2015) and Simon et al. (2018), and Mt des Créoles, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 198). Further unpublished reliable herbarium specimens from Le Pouce (1873, Daruty, MAU L1977, det. Krog), Piton de la Petite Rivière Noire, Mt Corps de Garde, Le Pouce and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

dichotoma var. *pendula* Bory ex Delise =? *Sticta dichotoma*

faveolata var. *cervicornis* (Nyl.) Zahlbr. Reported from Mauritius, ‘auf Rinde’, by Lindau (1908).

(*)*Sticta flavireagens* (Gyeln.) Diederich & Ertz, comb. nov. (Fig. 17)

Basionym: *Stictina flavireagens* Gyeln., Repert. Spec. Nov. Regni Veg. 29: 4 (1931). Type: Mauritius, Sieber 51 (W 2010-00530, holotype!).

Mycobank MB 834933

Description. Thallus rosette-forming to irregularly spreading, several cm diam., closely attached centrally, without basal holdfast, margins \pm free, not visibly ascendant. Lobes 6–15 mm broad, at least 2 cm long, rounded, \pm discrete at margins, contiguous. Margins rounded to irregular, incised, not thickened, phyllidiate and ciliate, not isidiate. Upper surface medium slate blue to olivaceous, rather even, without maculae, pseudocyphellae, isidia, phyllidia or soralia. Marginal phyllidia minute, initially almost digitiform (but not originating from isidia), soon becoming broader and flat, thallus-like, squamiform, rounded or more often incised, reaching 1–2 mm in diam. Marginal cilia sparse, ochraceous, 0.15–0.5 mm long, either simple and 20–30 μ m thick or splitting and reaching 60 μ m. Medulla white, K+ yellow (TLC not performed on type specimen). Photobiont cyanobacterial. Lower surface in marginal 1.5–3 mm ochraceous, slightly tomentose to occasionally glabrous, \pm smooth, tomentum concolorous to lower surface; centrally dark brown, densely tomentose, tomentum shaggy, densely entangled, medium to dark brown, occasionally with anchoring bundles or tufts of rhizines. Cyphellae common, round to irregular, 0.1–0.7 mm diam., deeply urceolate; margins narrow, raised, sharply defined, \sim 20 μ m thick, concolorous with lower surface, free of tomentum; basal membrane white. Apothecia not seen.

Notes. *Sticta flavireagens* is mainly characterized by the cyanobacterial photobiont, the rosette-forming thallus without basal holdfast, the K+ yellow medulla, the absence of apothecia, the thallus surface devoid of maculae, pseudocyphellae, isidia, phyllidia or soralia, and the margin with both phyllidia and cilia.

Sticta diversa (Stirt.) Zahlbr. is one of the rare species from the genus with a K+ yellow-orange medulla. The epithet ‘*pseudodiversa*’ chosen for an undescribed species from Mauritius (Simon 2015) is based on similar morphology and chemistry. We collected several specimens in Mauritius belonging to *S. pseudodiversa*. As Gyelnik (1931a) described the new species *S. flavireagens* from Mauritius, mainly distinguished by the K+ yellow medulla, we wondered if Gyelnik’s name might represent an earlier name for Simon’s new *S. pseudodiversa*. An examination of the holotype kept in W showed a similar species, distinguished from our Mauritius specimens and from *S. diversa* by at least two characters: (1) marginal phyllidia are present but isidia are lacking (vs. flattened to coralloid marginal isidia are abundant); (2) the margin presents isolated cilia (such cilia are lacking in our specimens and in *S. diversa*).

We conclude that our specimens do not belong to *Sticta flavireagens*. As Sieber’s herbarium specimens sometimes have wrong locality annotations (e.g., see discussion under *Cora gyrolophia*), it is even uncertain whether Sieber’s specimen originates from Mauritius, or possibly from the Antilles (as suggested for *C. gyrolophia*) or another country. Nevertheless, *S. flavireagens* seems to be a distinct species that needs to be combined in *Sticta*. The species should be searched for in Mauritius and in the Neotropics. Only when more specimens become available will it be possible to determine whether the annotation ‘Mauritius’ is accurate

or an error. Dodge (1964: 188) gave a new description of the species based on a Mauritius specimen from Sieber, kept in FH (sub *S. variabilis*).

fragillima Bab. [= *Stictina fragillima* (Bab.) Nyl.] Reported from Mauritius by Daruty (1873).

glaberrima Laurer =? *Sticta dichotoma*

**macrophylla* Bory ex Delise

in Delise, *Hist. Lich. Sticta*: 110 (1825); = *Stictina macrophylla* (Bory ex Delise) Nyl., *Flora* 52: 111 (1869). Type: ‘Ile de France, dans les bois assez clairs’, Bory de Saint-Vincent (PC-Thuret, lectotype, selected by Galloway 1995).

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18450 (dupl. LG, DNA 6219), 18459 (dupl. LG, DNA 6220).

Previously reported from Ile de France (Mauritius), dans les bois assez clairs, 1801, by Delise (1825), ‘Sur les rochers, aux îles Maurice et de Bourbon’ by Bélanger (1834), Mauritius, Robillard (FH) by Dodge (1964: 190), Le Pouce, 600 m, 2001, by Holm & Gregersen (2002), 2013, Sérusiaux 3445, 3452, 3454 (LG) by Simon (2015) and Simon et al. (2018), and Bambou Mountains and viewpoint WNW of Mt Cocotte, 1991, Krog & Timdal (O), by Lücking & Timdal (2016: 192, 194). Further unpublished reliable herbarium specimens from Piton de la Petite Rivière Noire, Le Pouce, Macchabee Forest and Macchabee Kiosk, collected by Krog & Timdal in 1991, are kept in O.

macrophylla var. *badia* Delise [= *Stictina macrophylla* f. *badia* (Delise) Müll. Arg.]. Reported from Mauritius, Robillard (FH) by Dodge (1964: 190).

**mascarena* Simon ined.

Les photomorphes au sein des *Lobariaceae* (*Peltigerales*, *Ascomycota*): 9 (2015).

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18452 (dupl. LG, DNA 6213), 18460 (dupl. LG, DNA 6214).

Reported from Mauritius, 2013, Sérusiaux 3447, 3453 (LG) by Simon (2015) and Simon et al. (2018, sub ‘*Sticta* sp. 10’).

mougeotiana Delise = *Pseudocyphellaria crocata*

nylanderiana Zahlbr. = *Dendriscosticta platyphylla*

orygmaea Ach. = *Pseudocyphellaria orygmata*

(*)*plumbea* Moug. ex Delise. This species was initially described from Reunion and Mauritius (‘dans les bois des îles de France et Bourbon’). Galloway (1995) lectotypified the name on a specimen from PC-Lenormand. Following Simon et al. (2018), the species exists only in Reunion.

**pseudodiversa* Simon ined.

Les photomorphes au sein des *Lobariaceae* (*Peltigerales*, *Ascomycota*): 9 (2015).

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18437 (dupl. LG, DNA 6218), 18442 (dupl. LG, DNA 6217).

Reported from Mauritius, 2013, Sérusiaux 3450 (LG) by Simon (2015) and Simon et al. (2018, sub ‘*Sticta* sp. 1’).

pulmonacea (Ach.) Ach. = *Lobaria pulmonaria*

rigidula Delise [= *Stictina rigidula* Nyl.]. Reported from Mauritius by Daruty (1873).



Figure 17. *Sticta flaviregens* [W, holotype]. A – type specimen; B – left thallus; C – middle thallus; D – right thallus; E–F – upper surface of thallus, showing marginal phyllidia; G – lower surface of thallus, showing marginal cilia. Scales: B–D = 5 mm; E–G = 0.5 mm. Photos: P. Diederich.

tomentosa (Sw.) Ach.

Reported from Mauritius, 'auf Rinde', by Lindau (1908), from the road between Mt Cocotte and Bassin Blanc, 1991, Krog & Timdal (O), by Lücking & Timdal (2016: 194), and from Le Pouce, 600 m, 2001, by Holm & Gregersen (2002). Further unpublished specimens from Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O. Simon (2015) and Simon et al. (2018) did not confirm the presence of this species in Mauritius.

variabilis Ach.

= *Sticta papyracea* Delise

Rivière Noire: Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18418 (dupl. LG), 18427 (dupl. LG, DNA 6221).

Previously reported from Mauritius, 'auf Rinde', by Lindau (1908), Pétrin rainforest and Le Pouce, 600 m, 2001, by Holm & Gregersen (2002, as *S. papyracea*), 2013, Sérusiaux 3451 (LG) by Simon (2015) and Simon et al. (2018), 'herb. Lenormand' by Nylander (1859: 254), and by Galloway (2001: 97). Further unpublished reliable herbarium specimens are available from Curepipe (1933, Vaughan, MAU L42, det. Krog) and from Piton de la Petite Rivière Noire, Le Pouce and Mt Cocotte (1991, Krog & Timdal, O). One of our specimens (Diederich 18427) has been sequenced and identified as *S. variabilis* by Simon (pers. comm.). Our other specimen (Diederich 18418) is morphologically similar and provisionally kept under the same name.

variabilis f. *linearifolia* Nyl. Reported from Mauritius (herb. Lenormand) by Nylander (1859).

aff. **weigeli** (Ach.) Vain.

Plaines Wilhems: Curepipe, Curepipe Botanic Gardens, on bark, 2016, Diederich 18301 (dupl. LG, DNA 6215). **Rivière Noire:** Trail from Plaine Champagne towards Piton de la Petite Rivière Noire, on bark, 2016, Diederich 18424 (dupl. LG). Reported from Mt des Créoles, between Mt Cocotte and Bassin Blanc and Bambou Mountains, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 192, 194, 198, as *S. weigeli* s.lat.), from Plaines Champagne, at viewpoint of Black River Gorge, on bark, 1990, Hawksworth (K-IMI) by Crittenden et al. (1995), and from Bedrock (20°19'02"S, 57°26'78"E), Pétrin rainforest and Le Pouce, 600 m, 2001, by Holm & Gregersen (2002, as *S. cf. weigeli*).

One of our specimens (Diederich 18301) has been sequenced and identified as *S. aff. weigeli* by Simon (pers. comm.), the uncertainty being due to the missing sequences of *S. weigeli* s.str. The other specimen (Diederich 18424) is morphologically similar and obviously represents the same species.

Simon (2015) and Simon et al. (2018) did not confirm the presence of this species in Mauritius, and the previously reported specimens should also be compared with the morphologically similar *S. pseudodiversa*.

Further unpublished specimens from Le Pouce and Curepipe Botanical Garden, collected by Krog & Timdal in 1991 and named *S. weigeli*, are kept in O.

STICTINA Nyl.

argyrea f. *insidiata* Nyl. = *Pseudocyphellaria argyrea*

dissimilis Nyl. = *Pseudocyphellaria dissimilis*

flavireagens Gyl. = *Sticta flavireagens*

fragillima (Bab.) Nyl. = *Sticta fragillima*

macrophylla (Bory ex Delise) Nyl. = *Sticta macrophylla*

macrophylla f. *badia* (Delise) Müll. Arg. = *Sticta macrophylla* var. *badia*

nylanderiana (Zahlbr.) Dodge = *Dendrioscicta platyphylla*

polita (Laurer) Dodge = *Sticta damicornis* var. *polita*

rigidula Nyl. = *Sticta rigidula*

robillardii Dodge =? *Sticta dichotoma*

strictula (Delise) Nyl. Reported from Mauritius, Andersson, 1855 (FH), by Dodge (1964: 198), and from Mauritius by Hue (1892: 91).

STRIGULA Fr.

elegans (Fée) Müll. Arg. = *Strigula smaragdula*

elegans var. *stellata* (Nyl. & Cromb.) R. Sant. = *Strigula smaragdula* var. *stellata*

smaragdula Fr.:Fr.

*= *Phyllocharis elegans* Fée, Essai Crypt. Ecorc. 1 (1–7): 94, 100 (1824); = *Strigula elegans* (Fée) Müll. Arg., Flora 63: 41 (1880). Type: 'in insula Franciae, supra folia arborum', Petit-Thouars (G 00292267, holotype) (Santesson 1952: 169).

Rivière Noire: Chamarel, Ebony Forest, SW part of forest, on leaves, 2019, Ertz 23640.

smaragdula var. **stellata** (Nyl. & Cromb.) Farkas

= *S. elegans* var. *stellata* (Nyl. & Cromb.) R. Sant.

Mauritius, Commerson (L, on n. 491 *Erythrospermum lanceolatum*) (Santesson 1952: 172).

SYNECHOBLASTUS Trevis.

coilocarpus Müll. Arg. = *Collema coilocarpum*

robillardii Müll. Arg. =? *Collema leptaleum* var. *leptaleum*

TELOSCHISTES Norman**flavicans** (Sw.) Norman

= *Physcia flavicans* f. *crocea* (Ach.) Cromb.

Reported from Rodrigues, on branches of trees, 1874, Balfour 2253 (BM) by Crombie (1876b) and Alborn (1989). Further unpublished specimens identified by Krog from Mt Corps de Garde are kept in MAU, O and US.

TEPHROMELA M. Choisy**atra** (Huds.) Hafellner

= *Lecanora atra* (Hudson) Ach.

*=? *Lecanora atra* f. *succedanea* Nyl., in Crombie, Journ. Linn. Soc., Bot. 15: 440 (1876). Type: Rodrigues, on bark of trees, dead wood and on rocks, 1874, Balfour 2207, 2292 (BR 5030073484648) (Crombie 1876b).

Port Louis and Moka: Along trail from Moka to Le Pouce, on bark, 2019, Ertz 24081.

Previously also reported from Mauritius by Daruty (1873).

THALLOIDIMA A. Massal.

**ayresianum* Müll. Arg., Hedwigia 31: 280 (1892); = *Toninia ayresiana* (Müll. Arg.) Zahlbr., Cat. Lich. Univ. 4: 262 (1926 [1927]). Type: 'Ravine of Grand River, ad terram', Febr. 1857, Ayres (BM, holotype; G 00047510, isotype) (Müller 1892).

Following Timdal (1991: 120), ‘The holotype in BM is very poor and did not allow thorough examination. A few poorly developed apothecia were present, but asci and well developed paraphyses were not found. The morphology of the thallus did not resemble any known *Toninia* species, however, but resembles *Lecidea lurida* or *Solenopsora holophaea*.’

THECARIA Fée

quassiicola Fée

Plaines Wilhems: Curepipe, Trou aux Cerfs, along road surrounding the crater, on bark, 2016, Diederich 18277.

New for Mauritius.

THELOTREMA Ach.

**affine* Wedd., in Daruty, Trans. Roy. Soc. Arts Mauritius, n.s. 7: 166 (1873), nom. nud. (description missing).

bahianum (Ach.) Ach. ≡ *Ocellularia bahiana*

bonplandii Fée ≡ *Ocellularia bonplandii*

cavatum Ach. ≡ *Ocellularia cavata*

diplostroma Nyl. This species was described by Nylander (1859: 258) from Reunion. Later this was inadvertently cited as ‘Mauritius’ (Dodge 1964: 93). The report from Mauritius is therefore erroneous.

olivaceum (Fée) Mont. ≡ *Myriotrema olivaceum*

TOMASELLIA A. Massal.

eschweileri (Müll. Arg.) R. C. Harris ≡ *Mycoporum eschweileri*

zollingeri Müll. Arg., see under *Celothelium*

TONINIA A. Massal.

ayresiana (Müll. Arg.) Zahlbr. ≡ *Thalloidima ayresianum*

TRYPETHELIUM Spreng.

cruentulum Nyl. = *Pyrenula cruenta*

cruentum Mont. ≡ *Pyrenula cruenta*

sprengelii Ach. Reported from Mauritius by Daruty (1873).

USNEA Dill. ex Adans.

articulata (L.) Hoffm. [≡ *Usnea barbata* var. *articulata* (L.) Ach.]. Reported from Mauritius by Daruty (1873).

baileyi (Stirt.) Zahlbr.

= *Usnea implicata* (Stirt.) Zahlbr.

Reported from Mauritius [almost surely Rodrigues], 1874, Balfour (W) (Motyka 1936: 62), from Savanne, Plaine Champagne, near viewpoint WNW of Mt Cocotte, 1991, Krog & Timdal (O) (Lücking & Timdal 2016: 194). Also from Mauritius (Crittenden et al. 1995, as *Usnea* cf. *baillyi*). Further unpublished specimens from Piton de la Petite Rivière Noire, Le Pouce, Curepipe (Trou aux Cerfs), Pétrin heath, Macchabee Forest and Mt Cocotte, collected by Krog & Timdal in 1991, are kept in O.

barbata var. *articulata* (L.) Ach. ≡ *Usnea articulata*

barbata var. *ceratina* (Ach.) Schaer. ≡ *Usnea ceratina*

barbata var. *hirta* (L.) Fr. ≡ *Usnea hirta*

barbata var. *sorediuscula* Müll. Arg. Reported from Mauritius, ‘an Ästen’, by Lindau (1908).

ceratina Ach. [≡ *Usnea barbata* var. *ceratina* (Ach.) Schaer.]. Reported from Mauritius by Daruty (1873).

contorta Jatta. Reported from Mauritius, Robillard (WRS�) and Sieber (W) by Motyka (1938: 415). Stevens (1990) examined a specimen named *U. contorta* from Madagascar and concluded that it belongs to *U. himantodes*. However, no type material of *U. contorta* was available, hence the synonymy could not be established.

**dasyogoides* Nyl. ex Cromb., J. Bot. 14: 263 (1876). Type: Rodrigues, on the trunks and branches of trees, 1874, Balfour 521, 524, 2323 (syntypes: G 00294017; H 9505016, 9505017, 9505018; E 00456467) (Crombie 1876a, b). A specimen named *U. dasyogoides*, collected by Rodrigues in Mauritius in 1892, is kept in BR (5030062526632).

distensa Stirt. Reported from Mauritius (FH, sub *U. plicata*) by Dodge (1957: 65).

eburnea Motyka. Reported from Mauritius by Dodge (1956: 391).

exasperata (Müll. Arg.) Mot. This name refers to an assemblage of several African species for which no taxonomic and phylogenetic revision is available yet. Specimens inhabited by the new *Biatoropsis millanesiana*, provisionally called *U. exasperata* s. l. (see above), need further study.

florida (L.) Weber ex F. H. Wigg. [≡ *Lichen floridus* L.]. Reported from Mauritius by Flörke (1809) and from Rodrigues, on branches of trees, 1874, Balfour 2355 (Crombie 1876b).

**fuscorubens* Motyka

Lich. Gen. *Usnea* Stud. Monogr. 2: 546 (1938). Type: Mauritius, Simony (W Krypto 1896-0009211, holotype) (fide Dodge 1957: 34).

Also reported from Pouce (W) by Motyka (1938: 547). This species has been accepted, described and illustrated by Ohmura (2001, 2012).

gracilis Ach. Reported from Mauritius (FH, sub *U. plicata*) by Dodge (1957: 21).

himantodes Stirt.

Reported from Savanne, Plaine Champagne, near viewpoint WNW of Mt Cocotte, 1991, Krog & Timdal (O-L-22003) by Lücking & Timdal (2016: 194). Further unpublished specimens from Piton de la Petite Rivière Noire, Mt Corps de Garde, Macchabee Forest, Le Pouce, Pétrin heath, Bassin Blanc and Tamarin Falls, collected by Krog & Timdal in 1991, are kept in O.

hirta (L.) Weber ex F. H. Wigg. [≡ *Usnea barbata* var. *hirta* (L.) Fr.]. Reported from Mauritius by Daruty (1873) and ‘an Rinde’ by Lindau (1908).

implicata (Stirt.) Zahlbr. = *Usnea baileyi*

longissima Ach. Reported from Mauritius by Hue (1892: 63).

luteola Motyka. Reported from Mauritius, Reduit, corticole, Orian 3 (K) by Dodge (1957: 40).

nidifica Taylor

*= *Usnea straminea* Müll. Arg., Flora 42: 162 (1879). Type: Mauritius, Robillard (FH 00302078, G 00066397, G 00294016, G 00294019, G 00294020, G 00294021, TUR V490) (Dodge 1957).

Following Stevens (1991, 1999: 69), *U. straminea* is most probably a synonym of *U. nidifica*, as it shares the same chemistry (TLC: salazinic, norstictic and protocetraric

[trace], identified by Krog in the FH specimen, see https://kiki.huh.harvard.edu/databases/specimen_search.php?mode=details&id=220974) and a very similar morphology. It was also reported from Rodrigues, 1874 ('1872'), Balfour (G) by Motyka (1938: 467).

promontorii Motyka. Reported from Mauritius, Sieber 43 (FH, sub *U. plicata*) by Dodge (1957: 66).

pulvinata Fr. Reported from Mauritius, Robillard (FH, sub *U. florida* var. *strigosa*) by Dodge (1957: 52).

rubicunda Stirt.

Plaines Wilhems: Curepipe Botanic Gardens, on bark, 2019, Diederich 19458.

Also reported from Mauritius by Crittenden et al. (1995, as *Usnea rubicunda* gr.), and from Mt des Créoles and Plaine Champagne, near viewpoint WNW of Mt Cocotte, 1991, Krog & Timdal (O) by Lücking & Timdal (2016: 194, 198). Further unpublished specimens from Tamarin Falls, Le Pouce, Pétrin heath and Macchabee Forest, collected by Krog & Timdal in 1991, are kept in O.

straminea Müll. Arg. = *Usnea nidifica*

trichodea Ach. Reported from Mauritius by Hue (1892: 64).

trichodeoides Vain. ex Motyka

Occurs in Mauritius, following Stevens (1991: 60, distribution map).

VARICELLARIA Nyl.

velata (Turn.) Schmitt & Lumbsch [= *Pertusaria velata* (Turn.) Nyl.]. Reported from Mauritius by (Daruty 1873), and from Rodrigues, on branches of trees, 1874, Balfour 2215, by Crombie (1876b).

VERRUCARIA Schrad.

**atacta* Bél., Voyage aux Indes-orientales, pendant les années 1825–1829: 141 (1834). Type: 'Sur l'écorce des arbres de la montagne du Pouce, à l'île de France' (Bélanger 1834) (PC 0019216).

chlorotica Ach. = *Porina chlorotica*

denudata Nyl. = *Anthracotheceium denudatum*

gemmata (Ach.) Ach. = *Acrocordia gemmata*

macrozoma Fée = *Astrothelium phlyctaena*

mamillana Ach. = *Pyrenula mamillana*

marginata (Hook. f.) Hepp = *Pyrenula mamillana*

nitida (Weigel.) Schrad. = *Pyrenula nitida*

planorbis Ach. = *Constrictolumina planorbis*

quinqueseptatula Nyl. ex Cromb. = *Arthopyrenia quinqueseptatula*

thelena Ach. = *Bogoriella thelena*

tropica Ach. = *Nigrovothelium tropicum*

VIRIDOTHELIUM Lücking, M. P. Nelsen & Aptroot

tricolor Lücking, M. P. Nelsen & N. Salazar

Plaines Wilhems: Le Pétrin, between Pétrin Information Centre and first viewpoint along trail to the west, on bark, 2016, Diederich 18351.

The specimen is in poor condition, with almost all perithecia overmature. A single mature perithecium has been examined microscopically. Ascospores are 125–188 × 34–52 µm, slightly larger than in the original description (120–150 × 30–40 µm). The black perithecia surrounded by a white area contrasting with the pale brown thallus (cf. epithet '*tricolor*') are characteristic for the species. Previously known from Panama and Venezuela (Lücking et al. 2016). New for Africa and for the Paleotropics.

XANTHOPARMELIA (Vain.) Hale

conspersa (Ehrh. ex Ach.) Hale [= *Parmelia conspersa* (Ehrh. ex Ach.) Ach.]. Reported from Mauritius by Daruty (1873) and (Lindau 1908), 'Sur les rochers, à l'île Maurice' by Bélanger (1834) (PC 0018308), and from Round Island, rocks on hillside, 450 ft, by Johnston (1894: 263).

phaeophana (Stirt.) Hale

* = *Parmelia subfuscescens* Nyl., *Parmeliae exoticae novae*, Flora 68: 613 (1885). Type: Mauritius (H-NYL, lectotype) (Dodge 1959: 80; Hale 1990: 171).

* = *Parmelia wightii* Dodge, Ann. Missouri Bot. Gard. 46: 69 (1959). Type: Mauritius, saxicole?, R. Wight (FH-Taylor, holotype) (Dodge 1959: 56, 69–70; Hale 1990: 173).

Rivière Noire: La Preneuse (between Tamarin and Grande Rivière Noire), cemetery (SE part with old graves), on old tombstones from c. 1850, 2016, Diederich 18390 (det. Masson; TLC: usnic, succinprotocetraric, fumarprotocetraric, physodalic).

Also reported from Pouce range, saxicole, Ayres (K) (Dodge 1959: 70), and from Round Island, 290 m, saxicole, Johnston 27, 29 (K) (Dodge 1959: 70). Further unpublished specimens from Morne Brabant, Mt Signal and Tamarin, collected by Krog & Timdal in 1991, are kept in O.

subconspersa (Nyl.) Hale [= *Parmelia subconspersa* Nyl.]. Reported from Rodrigues, on rocks, 1874, Balfour 2220, by Crombie (1876b).

subfuscescens (Nyl.) Hale [= *Parmelia subfuscescens* Nyl.]. Reported from Mauritius by Daruty (1873), Hue (1898: 76) and Dodge (1959: 80).

subramigera (Gyeln.) Hale

= *Parmelia subhypochlysta* Dodge

Reported from Mauritius (K-Hooker) by Dodge (1959: 64). Further unpublished specimens from Mt Corps de Garde, Le Pouce and Mt Signal, collected by Krog & Timdal in 1991, are kept in O.

Parmelia zeyheri Dodge. Reported from Mauritius, Pouce Range, on stones and trunks of trees, Ayres (K), by Dodge (1959: 132). Belongs to *Xanthoparmelia* but has never been combined there.

ZWACKHIA Körb.

bonplandii (Fée) Ertz [= *Opegrapha bonplandii* Fée]. Reported from Mauritius by Daruty (1873, as *O. 'bomplandii'*).

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