
New or otherwise interesting lichens. VIII. Eight new species, mainly from the family Graphidaceae, and two new records

Klaus Kalb

Lichenologisches Institut Neumarkt
Im Tal 12, D-92318 Neumarkt/Opf., Germany
and Institute of Plant Sciences, Ecology and Conservation Biology
University of Regensburg, Universitätsstraße 31
D-93053 Regensburg, Germany.
email: klaus.kalb@arcor.de

Abstract

Eight new lichen species are described from South America, Malaysia and Thailand, viz. *Chapsa canaimae* from Venezuela, which differs from *C. alborosella* in having distinctly smaller ascospores with less septa, *Dirinaria hypoleuca* from Thailand, which differs from the isidiate *D. papillulifera* in having a whitish lower surface, *Myriotrema robertianum* from Brazil, which differs from *M. viride* in having an interspersed hymenium, *Myriotrema subzollingeri* from Brazil, which differs from *M. glauculum* in having brown ascospores, *Ocellularia jutaratiae* from Brazil, which differs from *O. crocea* in having ascomata with a fissured margin, *Ocellularia subnatashae* from Brazil, which differs from *O. natashae* in lacking hirtifructic and conhirtifructic acids and in having smaller and less septate ascospores, *Redingeria uniseptata* from Brazil, which differs from *R. vulcani* in having smaller and 1-septate ascospores, *Thallooloma intermedium* from Brazil, which differs from *T. anguiniforme* in having smaller ascospores. *Chapsa pulchella* from Malaysia is a new record for Borneo and the first finding after its description, and *Redonographa parvispora* from Brasil is a new addition to the lichen biota of this country.

All species mentioned are described and illustrated with close-up photographs.

Introduction

Recently, I had the possibility to go back to old herbarium material, most of it even still in collecting bags and not yet curated and provided with labels. Among these lichens were some interesting findings mainly of Graphidaceae which are reported here in the eighth contribution to this series.

At the time of collection of the material, it was difficult or impossible to identify some of the taxa, because modern identification keys for Graphidaceae became available only recently (e. g. Hale 1978, 1981, Staiger & Kalb 1999, Staiger 2002, Frisch 2006, Frisch & Kalb 2006, Lücking *et al.* 2009, Mangold *et al.* 2009, Rivas Plata *et al.* 2010, Sipman *et al.* 2012, Lücking *et al.* 2016, Joshi *et al.* 2018, Kalb *et al.* 2018). In one case, even the genus (*Redonographa*) was established only a few years ago (Lücking *et al.* 2013, Miranda-González 2020).

New Species

Chapsa canaimae Kalb sp. nov.

Fig. 1

Mycobank MB 836926

Differing from *Chapsa alborosella* (Nyl.) Frisch in having a silver-grey to whitish grey thallus and distinctly smaller ascospores with less septa.

Type: VENEZUELA. Bolivar: Gran Sabana; just S of the southern limits of Parque Nacional Canaima, S of river Kukenan, 4°42'46" N, 61°03'35" W, corticolous in a gallery forest, 800 m, 27 July 2010, leg. K. Kalb 38761 & J. Hernandez (VEN, holotype).

Etymology: The epithet refers to the locality where the lichen was collected.

Description: Thallus silver-grey to whitish, smooth, up to 30 µm thick, without a cortex, endo-epidermal; photobiont layer and medulla with very few clusters of calcium oxalate crystals. Apothecia immersed to erumpent, chroodiscoid, rounded to elongate or irregular, 0.3–1.0 mm diam.; disc exposed, pale flesh-coloured, thinly white pruinose; margin with strongly recurved lobules, fused, pale brown, white-pruinose. Excipulum paraplectenchymatous, colorless; periphysoids present, ca. 20 µm long. Hymenium 50–70 µm high, clear; paraphyses apically capitate, endcell sometimes with granular coating. Ascospores 8/ascus, 3–5-septate, 10–17 × 3–4 µm, with thin septa and rectangular lumina, colorless, I– (non-amyloid).

Chemistry: no secondary substances detected by TLC.



Fig. 1: *Chapsa canaimae* (holotype), thallus and ascomata, bar 0.7 mm.

Remarks: *Chapsa canaimae* is similar to *C. alborosella*, but the latter differs in having a greenish grey thallus, larger ascospores, 17–22 × 4–5 µm, 5–8-septate. *Chapsa halei* Mangold, described from Australia, has ascospores of the same size and septation as *C. canaimae*, but this species

differs in having fissurinoid ascomata when young, while they are chroodiscoid from the beginning in *C. canaimae*.

***Dirinaria hypoleuca* Kalb sp. nov.**

Fig. 2

Mycobank MB 836927

Differing from *Dirinaria papillulifera* (Nyl.) Awasthi in having a whitish lower surface.

Type: THAILAND. Chiang Mai: Mueang district; tambon Su Thep, surroundings of Huay Keaw Waterfall, ca. 6 km E of Chiang Mai, 18°48' 41" N, 98°56'39" E, corticolous in a light Dipterocarp forest, 420 m, 14 December 2016, leg. J. & K. Kalb 42072 (RAMK, holotype).

Etymology: The epithet refers to the white lower surface.

Description: Thallus up to 8 cm wide, ± closely adpressed to the substrate, subdichotomously to subpinnately lobate. Lobes radiating, contiguous, longitudinally plicated and rugose, plane to convex, 1–2 mm wide, distinctly flabellate at the apices, contiguous at the periphery. Upper surface grey, finely pruinose; isidia present, starting as ± globose bubbles, 0.1–0.15 mm diam. and located mostly along the ridges (Fig. 2), later spreading on the thallus surface and elongating up to 0.5 mm. Medulla white; lower surface white to pale yellow. Apothecia and pycnidia not seen.

Chemistry: Cortex K⁺ yellow, C⁻, KC⁻, P⁺ yellow; medulla K⁻, C⁻, KC⁻, P⁻; containing atranorin (minor), divaricatic acid (major), 3β-acetoxyhopane-1β,22-diol (minor), diacetylgraciliformin (minor).



Fig. 2: *Dirinaria hypoleuca* (holotype), thallus, bar 1 mm; note the young isidia growing along the top of the ridges.

Remarks: Only one strictly isidiate species is known in the genus, viz. *Dirinaria papillulifera* (Nyl.) D. D. Awasthi. It is easily distinguished in having a black lower surface which is composed of longitudinal compact brown-black hyphae. Two other species with a whitish lower cortex are

Dirinaria melanocarpa (Müll. Arg.) Dodge from the Neotropics and *D. complicata* D. D. Awasthi from Africa and Madagascar (Awasthi 1975), but these lack isidia.

***Myriotrema robertianum* Kalb sp. nov.**

Fig. 3

Mycobank MB 836928

Similar to *Myriotrema viride* Nagarkar & Hale, but differs in having an inspersed hymenium, an annulate pore and larger, more septate ascospores, ($15\text{--}25 \times 6\text{--}10 \mu\text{m}$, $4\text{--}6 \times 0\text{--}1$ -septate in *M. viride*).

Type: BRAZIL. São Paulo: Serra do Mar; Serra de Boissocanga above Maresias, ca. 30 km W of São Sebastião, $23^{\circ}45' \text{ S}$, $45^{\circ}40' \text{ W}$, corticolous in a dark, primary coastal rainforest (Mata Atlantica), 330 m, 18 February 1980, leg. K. Kalb (39464) & G. Plöbst (CGMS, holotype; B, isotype).

Etymology: The specific epithet honors my friend and colleague Dr. habil. Robert Lücking (Berlin) in recognition of his perpetual and generous help with my many lichenological problems.

Description: Thallus corticolous, lead grey, smooth to uneven; cortex in section $10\text{--}20 \mu\text{m}$ thick, \pm loose, photobiont layer $25\text{--}35 \mu\text{m}$ thick, medulla $50\text{--}75 \mu\text{m}$ thick, not distinctly separated from the photobiont layer, both filled with clusters of calcium oxalate crystals; ascomata immersed in the medulla to slightly erumpent, $0.15\text{--}0.2 \text{ mm}$ diam., exciple light brown, fused, pore round, $20\text{--}40 \mu\text{m}$ diam, whitish annulate. Ascospores $6\text{--}8$ /ascus, muriform, $28\text{--}37 \times 11\text{--}15 \mu\text{m}$, $7\text{--}(8) \times 0\text{--}2\text{--}(3)$ -septate, I+ violet-blue.

Chemistry: Protocetraric acid (major), virensic acid (minor).



Fig. 3: *Myriotrema robertianum* (holotype), thallus and ascomata, bar 0.25 mm

Remarks: On a world level, only three *Myriotrema* species are known with an inspersed hymenium (Lücking *et al.* 2016), viz. *Myriotrema foliicola* (Hale) Hale which is distinguished by

transversely septate, grey-brown ascospores (3–5-septate, $20\text{--}30 \times 10\text{--}12 \mu\text{m}$) and psoromic acid, *M. inspersum* M. Cáceres, Aptroot & Lücking, which is distinguished by transversely septate ascospores (5–7-septate, $15\text{--}20 \times 5\text{--}6 \mu\text{m}$) and psoromic acid, and *M. muluense* Homchantara & Coppins, which is distinguished by lacking secondary metabolites and transversely septate, ascospores (3–5-septate, $11\text{--}17 \times 4\text{--}6 \mu\text{m}$). A species with protocetraric acid and hyaline, muriform ascospores is *M. viride*, but this species differs in having smaller and less septate ascospores, a non-annulate pore and a clear hymenium.

***Myriotrema subzollingeri* Kalb sp. nov.**

Fig. 4

Mycobank MB 836929

Similar to *Myriotrema glauculum*, which differs in having hyaline ascospores.

Type: BRAZIL. Rio de Janeiro: Serra da Mantiqueira; Itatiaia, between Registro do Picú and Agulhas Negras, $22^{\circ}22' \text{S}$, $44^{\circ}45' \text{W}$, on a deciduous tree along the road at the edge of a montane rainforest (Mata Atlantica), 1650 m, 23 July 1979, leg. K. Kalb 36479 & G. Plöbst (CGMS, holotype; B, isotype).

Etymology: The specific epithet refers to the similarity with *Myriotrema zollingeri* (Mont. & Bosch) Lücking.



Fig. 4: *Myriotrema subzollingeri* (holotype), thallus and ascomata, bar 5.5 mm.

Description: Thallus corticolous, lead grey to whitish grey, smooth to uneven; loosely corticate or cortex partly absent, up to $15 \mu\text{m}$ thick, photobiont layer $35\text{--}50 \mu\text{m}$ thick, medulla up to $350 \mu\text{m}$ thick, well separated from the photobiont layer, without calcium oxalate crystals; ascomata immersed in the medulla to slightly erumpent, $0.2\text{--}0.6 \text{mm}$ diam., exciple hyaline, fused or partly free (double margin), pore round to elongate or irregular, up to 0.1mm diam, occasionally whitish

annulate. Ascospores 6–8/ascus, brown, distoseptate with three lentiform septa, 12–16 × 6–8 μm, I+ violet-blue.

Chemistry: Hypoprotocetraric acid (major), lichexanthone (major).

Remarks: On a world basis, there are three *Myriotrema* species containing hypoprotocetraric acid together with lichexanthone, viz. *M. neofrondosum* Sipman, *M. glauculum* (Nyl.) Hale and *M. viridialbum*. The first is distinguished from *M. subzollingeri* in having schizidia on the thallus, and the latter in having submuriform ascospores. All three species have hyaline ascospores. This character separates *M. glauculum*, which is otherwise habitually and also morphologically very close to *M. subzollingeri* (compare Fig. 17 E in Sipman *et al.* 2012). Habitually very similar is also *M. zollingeri* in having brown ascospores, a very rare character in the genus, and hypoprotocetraric acid. But this species differs in having submuriform ascospores and in lacking lichexanthone.

***Ocellularia jutaratiae* Kalb sp. nov.**

Figs. 5, 6

Mycobank MB 836930

Differing from *Ocellularia crocea* (Kremp.) Overeem & D. Overeem in having ascomata with a fissured margin.

Type: BRAZIL. São Paulo: Ilha Comprida opposite Cananéia, 25°00' S, 47°50' W, 3 m, corticolous in a dense and very humid coastal forest not subject to flooding (restinga), 15 July 1979, leg. K. Kalb 31827 (CGMS, holotype).



Fig. 5: *Ocellularia jutaratiae* (holotype), thallus and ascomata, bar 0.5 mm.

Etymology: The new species is dedicated to my wife Jutarat Kalb for her companionship and assistance during many collecting trips throughout Thailand and help in the lab.

Description: Thallus corticolous, up to 5 cm diam., surface smooth to uneven, grey-yellow-brown,

with a dense prosoplectenchymatic cortex, *ca.* 10 μm thick, photobiont layer and white medulla not distinctly separated, *ca.* 50 μm thick with clusters of calcium oxalate crystals. Ascomata rounded to irregular in outline, prominent to sessile, with complete thalline margin, 0.3–0.5 mm diam., 0.2–0.3 mm high; disc covered by narrow, 0.1–0.2 mm wide pore, invisible; margin fissured, distinctly layered, incrustated by purple pigment granula, K⁺ greenish. Columella absent or present, 100–130 μm high, 30–50 μm broad, completely or at least apically carbonized. Excipulum entire, carbonized, 50–80 μm wide; laterally covered by thick algiferous, corticate thallus containing orange-yellow medulla and brown periderm layers. Hymenium 80–120 μm high, hyaline, clear; epithecium indistinct, 5–8 μm high, hyaline. Paraphyses unbranched, apically smooth; periphysoids absent. Ascospores 8 per ascus, ellipsoid, (3–)5(–7)-septate, 20–26 \times 7–8 μm , distoseptate with lens-shaped lumina, I⁺ violet-blue.

Chemistry: Orange-yellow medulla of ascomata K⁺ violet, P⁺ blood-red; cinchonaric acid (major), orange pigment (minor) with R_F-values 35/34/22.

Remarks: *Ocellularia jutaratae* is very close to *O. crocea*, but it differs in having a \pm smooth thallus and many ascomata without a columella. More collections from different localities are necessary to decide whether the purplish pruina of the exciple is characteristic for this species or not. Judging from the description, it is possible, that the report of *O. crocea* from Panama (Hale 1978) refers to *O. jutaratae*.

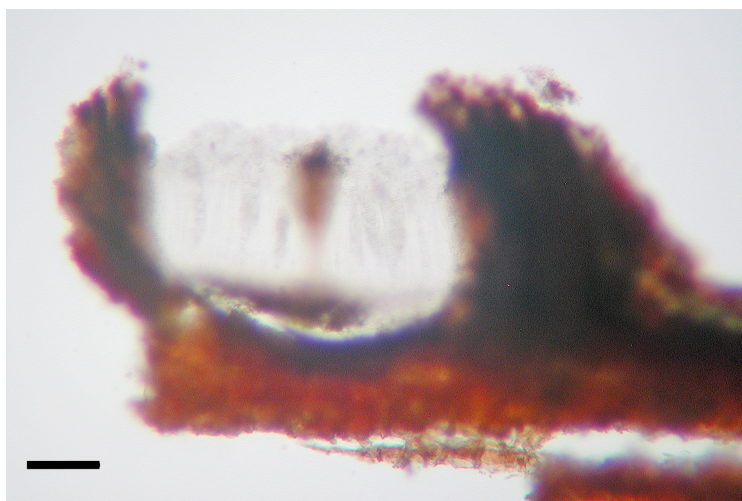


Fig. 6: *Ocellularia jutaratae* (holotype), section through ascoma, bar 50 μm ; note the fissured and distinctly layered margin and the apically carbonized columella.

***Ocellularia subnatashae* Kalb sp. nov.**

Fig. 7

Mycobank MB 836931

Differing from *O. natashae* Rivas Plata & Lücking in lacking hirtifructic and conhirtifructic acids and in having smaller and less septate ascospores.

Type: BRAZIL. Mato Grosso: between São Vicente and Aquas Quentes, *ca.* 90 km ESE of Cuiaba, 15°50' S, 55°20' W, corticolous in a cerradão, 750 m, 2 July 1980, leg. K. Kalb 31671 (CGMS, holotype).

Etymology: The species name refers to the similarity with *Ocellularia natashae*.

Description: Thallus corticolous, up to 6 cm diam., light olive-green, surface smooth to uneven, slightly warty, with dense, prosoplectenchymatic cortex, ca. 10 μm high; medulla white; photobiont layer and medulla not distinctly separated, with a few clusters of calcium oxalate crystals, ca. 35 μm high.

Ascomata rounded to irregular in outline, immersed to erumpent, 0.3–0.6 mm diam., 0.2–0.3 mm high; disc covered by narrow 0.08–0.1 mm wide pore, invisible; margin entire, with complete thalline margin. Columella present, finger-like, usually fully carbonized, rarely only upper half carbonized, 135–170 μm high, basally ca. 80 μm wide, at the tip 50–80 μm wide. Exciple prosoplectenchymatic, upper half carbonized. Hymenium 80–120 μm high, strongly inspersed. Ascospores 8/ascus, 3–7-septate, 15–30 \times 5–10 μm , ellipsoid, distoseptate with lens-shaped lumina, hyaline, I+ violet-blue.

Chemistry: Medulla P+red, K–; cinchonaric acid (major), concinchonaric acid (minor).

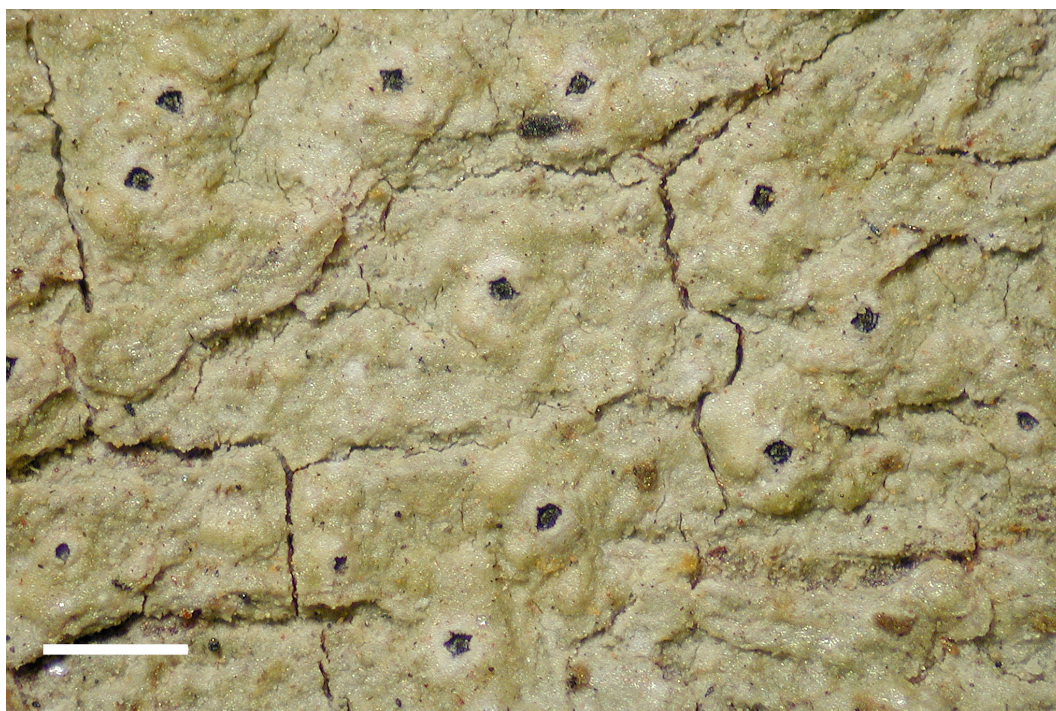


Fig. 7: *Ocellularia subnatashae* (holotype), thallus and ascomata, bar 0.4 mm.

Remarks: *Ocellularia subnatashae* is characterized by a strongly inspersed hymenium in combination with cinchonaric acid as major metabolite. On a world level, only two other species are known with these characters, viz. *Ocellularia natashae* from Peru (Rivas Plata & Lücking 2012) and *O. xantholeuca* Müll. Arg., first described from Australia. Additionally to cinchonaric acid, both species have hirtifructic and conhirtifructic acids which were not found in the new species, *O. subnatashae*. Furthermore, in the latter the ascospores are smaller and with less septa (30–50 \times 8–10 μm and 11–15-septate in *O. natashae*; 25–40 \times 8–9 μm and 5–9-septate in *O. xantholeuca*). *Ocellularia xantholeuca* has a pale yellow-orange medulary pigment which is absent in *O. natashae* and *O. subnatashae*.

Redingeria uniseptata Kalb sp. nov.

Fig. 8

Mycobank MB 836932

Differing from *Redingeria vulcani* (Hale) Lücking in having smaller ascospores with one septum only and in containing psoromic and 2'-*O*-demethylpsoromic acids.

Type: BRAZIL. Mato Grosso: Chapada dos Guimarães; surroundings of Buriti, 15°30' S, 55°40' W, corticolous in a ± humid cerrado, 850 m, 27 August 1993, leg. K. & A. Kalb 27982 (B, holotype).

Etymology: The epithet refers to the one-septate ascospores.

Description: Thallus lead grey, smooth to partly warty, warts 0.1–0.25 mm diam., whitish at the apex, occasionally apically bursting (by abrasion?); cortex dense, prosoplectenchymatous; photobiont layer and medulla with clusters of calcium oxalate crystals. Ascromata erumpent to sessile, rounded, 0.7–1 mm diam. disc partly covered by 0.1–0.3 mm wide pore, flesh coloured and whitish pruinose, partly filled by white pruinose pseudocolumella; margin entire, becoming annulate, laterally covered by thalline layer. Exciple prosoplectenchymatous, pale to dark brown, not carbonized. Hymenium 70–90 µm high, clear. Ascospores 4–8/ascus, uniseriate, 7–10 × 7–8 µm, ellipsoid to almost round, with lens-shaped lumina, brown, surface with distinct ridges, I– (non-amyloid).

Chemistry: Psoromic acid (major), 2'-*O*-demethylpsoromic acid (minor).



Fig. 8: *Redingeria uniseptata* (holotype), thallus and ascromata, bar 0.5 mm; note the whitish pruinose pseudocolumella in two of the ascromata.

Remarks: The new species is the first in the genus containing psoromic acid, a common metabolite in the morphologically similar genus *Stegobolus*. In the key provided by Frisch & Kalb (2006), *Stegobolus* is separated from *Redingeria* by numerous remnants of old ascospores present in the proper exciple of the latter. And this character is also seen in *Redingeria uniseptata*. *Redingeria*

vulcani is similar, but can be distinguished in having erumpent ascomata, ascospores 1–2-septate, $10\text{--}16 \times 4\text{--}6 \mu\text{m}$ and in lacking secondary substances.

Additional specimen studied: BRAZIL. Mato Grosso: Serra dos Coroados; between Cuiaba and Buriti, $15^{\circ}20' \text{ S}$, $56^{\circ}00' \text{ W}$, corticolous in a dense cerrado, 500 m, 6 July 1980, leg. K. Kalb 31085 & M. Marcelli (CGMS, paratype).

***Thalloloma intermedium* Kalb sp. nov.**

Fig. 9

Mycobank MB 836933

Differing from *Thalloloma anguiniforme* (Vain.) Staiger in having smaller and from *T. anguinum* (Mont.) Trevis. in having larger ascospores.

Type: BRAZIL. Mato Grosso: Serra dos Coroados, ca. 20 km NE of Chapada dos Guimarães, $15^{\circ}30' \text{ S}$, $55^{\circ}40' \text{ W}$, corticolous in a gallery forest, 670 m, 9 July 1980, leg. K. Kalb 31071 (CGMS, holotype).

Etymology: The epithet refers to the intermediate size of the ascospores between *T. anguiniforme* and *T. anguinum*.



Fig. 9: *Thalloloma intermedium* (holotype), thallus and ascomata, bar 0.4 mm.

Description: Thallus corticolous, epiperidermal, up to 7 cm diam., continuous; surface smooth, white, shiny. Thallus in section $50\text{--}70 \mu\text{m}$ thick, with very thin, prosoplectenchymatous cortex, $5\text{--}10 \mu\text{m}$ thick, photobiont layer $20\text{--}30 \mu\text{m}$ thick, medulla, $50\text{--}70 \mu\text{m}$ thick, strongly encrusted with clusters of calcium oxalate crystals. Ascomata lirellate, simple to irregularly branched, immersed, up to 1.5 mm long, 0.1–0.4 mm broad, 0.1 mm high; disc widely open, brown, sometimes whitish pruinose; proper margin indistinct, forming a very thin, greyish rim along the disc; thalline margin distinct, prominent, same colour as the thallus. Excipulum yellowish $5\text{--}10 \mu\text{m}$ wide, prosoplectenchymatous; hymenium $70\text{--}90 \mu\text{m}$ high, hyaline, clear; epithecium brown granular, up

to 10 μm high. Ascospores 1–3 per ascus, irregularly arranged, ellipsoid, richly muriform, 45–60 \times 20–25 μm , hyaline, \pm rounded lumina, I+ blue-violet.

Chemistry: no lichen substances detected by TLC.

Remarks: Most asci of *T. intermedium* are 2-spored, but some were found with only 1 and a few with 3 ascospores. Even the spores in 1-spored asci did not surpass 60 μm in length. In *T. anguiniforme*, the spores are 1–2/ascus, 50–97 \times 25–30 μm while in *T. anguinum*, they are 6–8/ascus, 30–40 \times 10–15 μm .

New reports

Chapsa pulchella Wijeyaratne, Lücking & Lumbsch

Fig. 10

MALAYSIA. Borneo: Sabah; Kota Kinabalu, Manukan Island (Pulau Manukan), 05°58'31" N, 116°00'16" E, corticolous in a coastal rainforest, 50–80 m, 8 August 2014, leg. K. Kalb 40360 & A. Mertens.

Without any doubt, the specimen cited above, is conspecific with the type. But as some characters slightly differ from those given in the protologue (Wijeyaratne *et al.* 2012), a full description of the Malaysian material is provided.

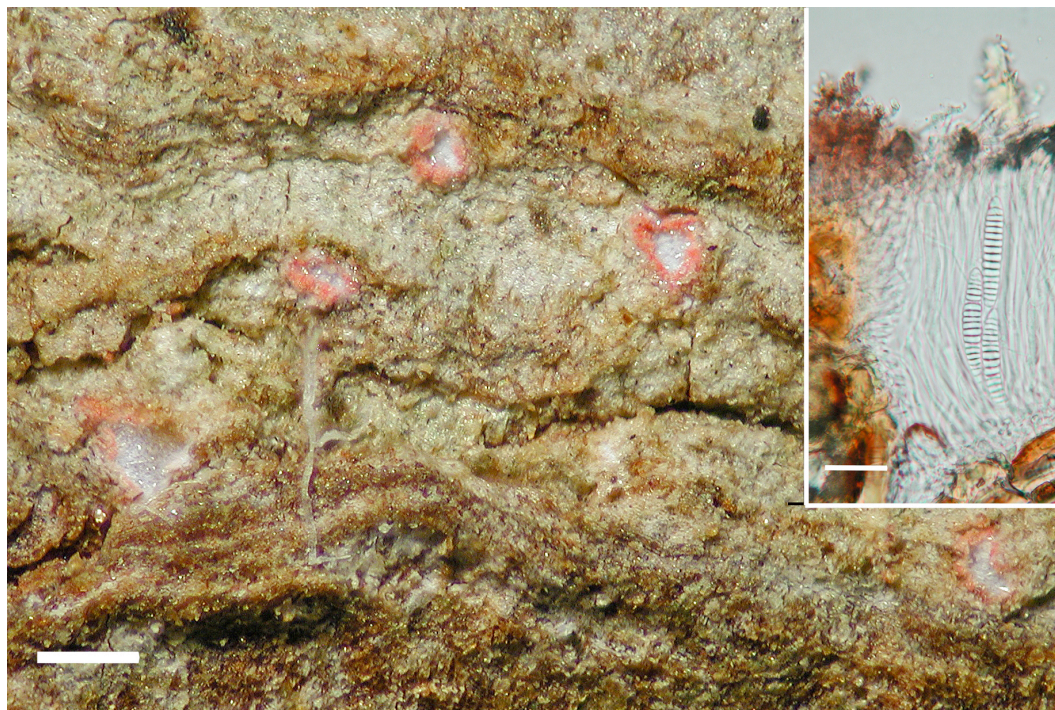


Fig. 10: *Chapsa pulchella* (K.K. 40360), thallus and ascomata, bar. 0.25 mm; inset: section through ascoma, bar 30 μm ; note ascus with 3 ascospores, periphysoids and red coloured upper part of exciple.

Description: Thallus whitish to grey, smooth to uneven, without a distinct cortex, epi- to endoperidermal, often invisible; photobiont layer and medulla with clusters of calcium oxalate crystals. Apothecia erumpent, angular-rounded, 0.2–0.3 mm diam.; disc exposed, pale, covered with a thick white pruina; margin lobulate to recurved, covered by a rose-red pruina, exciple fused, upper part covered by a red pruina. Excipulum paraplectenchymatous, colorless; periphysoids present,

10–30 μm long. Hymenium 65–70 μm high, clear; paraphyses unbranched, thick, apically moniliform, end cell with a granular coating, epihymenium granular, \pm hyaline. Asci initially with eight spores, soon several spores aborting, at maturity mostly 1–4/ascus; ascospores 11–20-septate, 27–43 \times 6–8 μm , thin-walled with rectangular lumina, colorless, I– (non-amyloid).

Chemistry: a rose-red pruina covering the recurved marginal lobes of the ascomata and the upper part of the exciple, K⁺ intensifying, otherwise no substances detected by TLC.

Remarks: *Chapsa pulchella* is characterized by chroodiscoid ascomata, a white pruinose apothecial disc, a red pruina on the recurved marginal lobes (easily breaking off) and on the upper part of the exciple. Actually no other *Chapsa* species sensu stricto is known with these characters. Other species with a reddish pigment and hyaline, transversely septate ascospores include *Chapsa rubropruinosa* Messuti & Codesal, *C. magnifica* (Berk. & Broome) Rivas Plata & Mangold and *C. waasii* (Hale) Sipman & Lücking. The first is easily separated by distoseptate ascospores, reddish brown pruinose discs and stictic acid aggr. and could eventually transferred to *Asteristion*. *Chapsa magnifica* and *C. waasii* were already recently transferred to the genus *Astrochapsa* (Parmen *et al.* 2012). Furthermore, the former has bright orange discs and larger, 15–27-septate ascospores, 70–120 \times 10–12 μm , while *C. waasii* has purple discs (anthraquinone, reacting KOH⁺ dark purple), smaller ascospores (15–18 \times 5 μm long) and lacks depsidones (Hale 1981).

The collection is a new addition to the lichen biota of Malaysia.

Redonographa parvispora R. Miranda, Barcenos-Peña & Lücking

Fig. 11

BRAZIL. Bahia: Serra das Mangabeiras; ca. 8 km W of Seabra, in a cerradão, 1050 m, 12°45' S, 41°50' W, 17. VII. 1979, leg. K. Kalb & M. Marcelli (CGMS).

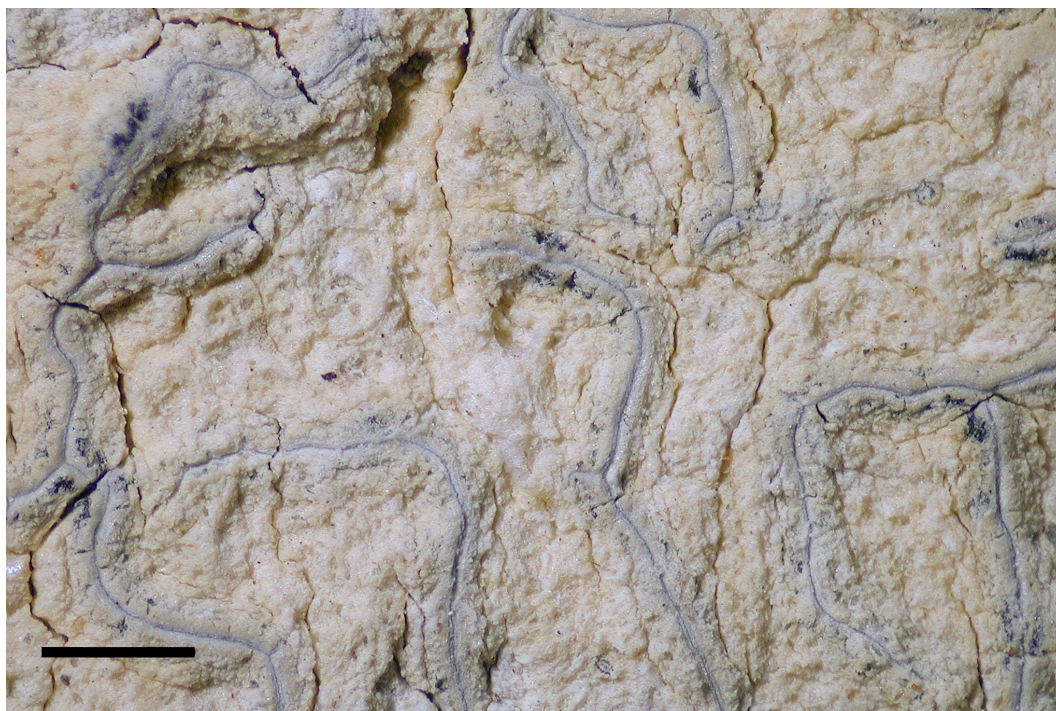


Fig. 11: *Redonographa parvispora* (K.K. 28829), thallus and ascomata, bar 0.5 mm

This species was only very recently described from a tropical dry forest in Mexico/Jalisco (Miranda-González *et al.* 2020). A description was already provided by Staiger & Kalb (1999:

131) referred as "KALB 28829 (systematic position unclear)", but at that time it could not be assigned to any known genus.

A restudy of this collection showed that it is conspecific with *Redonographa parvispora*. It is characterized by having warty periphysoids, small, 3-septate ascospores, young often with a rectangular perispore, and norstictic acid. For separation from the very similar genus *Carbacanthographis*, see Miranda-González *et al.* 2020.

This collection is a new addition to the Brazilian lichen biota.

Acknowledgements

All co-collectors and colleagues mentioned in the text are warmly thanked for organizing unforgettable collecting trips and help during my stays in Brazil, Venezuela, Thailand and Malaysia. Special thanks go to Robert Lücking, who spared much time to answer my many questions, provided liberally images of type specimens for comparison and for reviewing the manuscript and providing helpful discussions, and last but not least, Prof. Peter Poschod (Regensburg), Chair of Ecology and Conservation Biology, placed the TLC equipment at my disposal.

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