

Additional Lichen Records from the Andaman and Nicobar Islands–5

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ABSTRACT

Ten species of lichens: *Badimia cateilea* (Vain.) Lücking, Lumbsch & Elix, *Byssoloma catarinense* L.I. Ferraro and Lücking, *B. vanderystii* Sérus., *Coenogonium barbatum* Lücking, Aptroot and Umaña, *Fellhanera punctata* Lücking, *Gyalideopsis minutissima* Lücking, *Porina foliicola* (Vězda) Lücking and Vězda, *Sporopodium pilocarpoides* (Zahlbr.) Lücking and Kalb, *Tapellaria leonora* Cáceres and Lücking and *Trichothelium pallescens* (Müll. Arg.) F. Schill. are reported as new records for India. Ten more species also are added as new records for the Andaman and Nicobar Islands.

INTRODUCTION

The Andaman and Nicobar Islands is rich in its lichen biota. More recently several species were added as additional records (Jagadeesh Ram 2015a, b; Jagadeesh Ram and G.P. Sinha 2017, 2018). Further studies on the foliicolous taxa revealed the occurrence of several new records. In the present paper, 20 species including 10 new records for India are reported as additional records for the Andaman and Nicobar Islands. Brief descriptions, distribution, and habit images of the new records are provided.

MATERIALS AND METHODS

Specimens collected from the Andaman and Nicobar Islands deposited in PBL were investigated. External morphological features were observed with a Nikon SMZ1500 stereomicroscope. Thin hand-cut sections of thalli and ascomata were mounted in water, 10% KOH and Lugol's iodine and examined with a Nikon Eclipse 50i light transmission microscope.

THE SPECIES

1. *Arthonia palmulacea* (Müll. Arg.) R. Sant., Symb. Bot. Upsal. 12(1): 87. 1952. *Arthoniopsis palmulacea* Müll. Arg., J. Linn. Soc. Bot. 29: 328. 1892 (Arthoniaceae).

Thallus foliicolous dispersed into rounded, confluent patches, smooth, pale greenish grey. *Ascomata* rounded to irregular, blackish brown to black, 0.3–1 mm diam. *Asci*

obovate to globose, 6–8-spored. *Ascospores* colorless, clavate, 3–5-septate, with enlarged distal cell, 16–20 × 4–6 µm.

Distribution: India (Arunachal Pradesh, Manipur, Meghalaya and Mizoram) and tropical regions of the world.

Specimen examined: Nicobar Islands, Great Nicobar Island, Afra Bay forest, 7°10'96.3" N, 93°44'29.7" E, alt. 20 m, 10.12.2014, Jagadeesh Ram 4433.

2. *Aspidothelium scutellcarpum* Lücking, Willdenovia 29: 305. 1999 (Aspidotheliaceae).

Thallus foliicolous, dispersed into rounded to irregular patches, smooth, pale greenish grey to white. *Perithecia* sessile, wart-shaped, 0.3–0.6 mm diam., white to pinkish or sometimes grey, apically with a disc-shaped expansion with entire or minutely dentate margin, the disc up to 0.9 mm diam. *Asci* clavate, (2–)6–8-spored. *Ascospores* colorless, fusiform, 14–20-septate, without or with very slight constrictions at septa, (50–)60–85 × 12–18 µm.

Distribution: India (Arunachal Pradesh and Meghalaya), eastern paleotropical and neotropical regions of the world.

Specimens examined: Nicobar Islands: Little Nicobar Island, Pulopattia forest, 7°19'36.9" N, 93°43'51.1" E, alt. 5 m, 9.12.2014, Jagadeesh Ram 4384. Great Nicobar Island, Afra Bay forest, 7°10'96.3" N, 93°44'29.7" E, alt. 20 m, 10.12.2014, Jagadeesh Ram 4430B.

3. *Badimia cateilea* (Vain.) Lücking, Lumbsch & Elix, Bot. Acta 107(6): 400. 1994. *Pilocarpon cateileum* Vain., University of Calif. Publ. Bot. 12 (1): 11. 1924 (Pilocarpaceae). (Fig. 1).

Thallus foliicolous, usually rounded, 15–25 mm diam., different individuals sometimes confluent, continuous, smooth, sometimes farinose, greenish grey, densely verrucose-sorediate, 15–30 µm thick; soralia convex to almost globose, 0.3–0.8 mm diam., grey to white or greenish grey, sometimes confluent. *Apothecia* rounded to somewhat irregular in outline, constricted at the base, 0.3–0.7 mm diam.; disc plane, orange-brown to dark reddish brown, non-pruinose; margin prominent, white, sometimes slightly crenulate, surface matt, not sorediate. *Excipulum* evenly and very strongly encrusted with colorless, granular crystals, 40–90 µm thick. *Epithecium* pale yellowish, with granular crystals, 5–10 µm thick. *Hymenium* colorless, 45–65 µm high, I+ blue. *Hypothecium* pale brown, 30–40 µm thick. *Paraphyses* unbranched, 1.5 µm wide, not thickened apically. *Asci* clavate, 8-spored, 40–60 × 10–13 µm. *Ascospores* colorless, biserial, ellipsoid-oblong, 3-septate, 1-septate when young, 10–13 × 2.5–4 µm.

Remarks: *Badimia cateilea* is distinct from all the other species of the genus by the sorediate thallus (Santesson 1952).

Distribution: Samoa Islands and the Philippines. It is a new record for India.

Specimens examined: Nicobar Islands, Katchal Island, E-wall forest, 7°59'70.5" N, 93°23'63.4" E, alt. 15 m, 13.6.2014, Jagadeesh Ram 3739, 3740.

4. *Bapalmuia palmularis* (Müll. Arg.) Sérus., Nordic J. Bot. 13: 451. 1993. *Patellaria palmularis* Müll. Arg., Lich. Epiph. Novi: 10. 1890 (Pilocarpaceae).

Thallus foliicolous, continuous, smooth, pale greenish grey to green. *Apothecia* rounded, 0.4–0.8 mm diam.; disc orange to reddish brown, in old apothecia dark reddish to blackish brown; margin thin, white to pale brown, in young apothecia basally forming root-like mycelium. *Asci* clavate, 8-spored. *Ascospores* colorless, filiform, 25–35-septate, without constrictions at septa, 70–110 × 1.5–3 µm.

Distribution: India (Arunachal Pradesh, Tamil Nadu, and West Bengal), Central and South America.

Specimens examined: Nicobar Islands: Great Nicobar Island, Afra Bay forest, 7°10'73.6" N, 93°44'29.4" E, alt. 30 m, 10.12.2014, Jagadeesh Ram 4454. Murray Point forest, 7°13'62.2" N, 93°48'74.3" E, alt. 10 m, 11.12.2014, Jagadeesh Ram 4488; GNBR, Nature Trail forest, 7°00'15.7" N, 93°52'54.6" E, alt. 35 m, Jagadeesh Ram 4565.

5. *Bysssolecania deplanata* (Müll. Arg.) R. Sant., Symb. Bot. Upsal. 12(1): 555. 1952. *Patellaria deplanata* Müll. Arg., Lich. Epiphylli Novi: 8. 1890 (Pilocarpaceae).

Thallus foliicolous, continuous, pale greenish grey to yellowish green, smooth to farinose, 10–30 µm thick. *Apothecia* very weakly raised above thallus level, rounded, 0.5–1.1 mm diam.; disc plane to slightly convex, brown to dark brown with the indistinct, paler marginal zone. *Asci* clavate, (4–)8-spored. *Ascospores* colorless, oblong-fusiform, 5–7-septate, 16–24 × 2.5–3.5 µm.

Distribution: India (Arunachal Pradesh and Meghalaya), Central and South America.

Specimens examined: Nicobar Islands: Little Nicobar Island, Pulo Pattia forest, 7°19'36.9" N, 93°43'51.1" E, alt. 5 m, 9.12.2014, Jagadeesh Ram 4383. Great Nicobar Island, Afra Bay forest, 7°11'00.5" N, 93°44'25.9" E, alt. 30 m, 10.12.2014, Jagadeesh Ram 4440B; 7°10'73.6" N, 93°44'29.4" E, alt. 30 m, 10.12.2014, Jagadeesh Ram 4455; GNBR, Nature Trail forest, 7°00'01.4" N, 93°52'66.2" E, alt. 40 m, Jagadeesh Ram 4575.

6. *Bysssolecania fumosonigrans* (Müll. Arg.) R. Sant., Symb. Bot. Upsal. 12(1): 553. 1952. *Patellaria fumosonigrans* Müll. Arg., Lich. Epiphylli Novi: 7. 1890 (Pilocarpaceae).

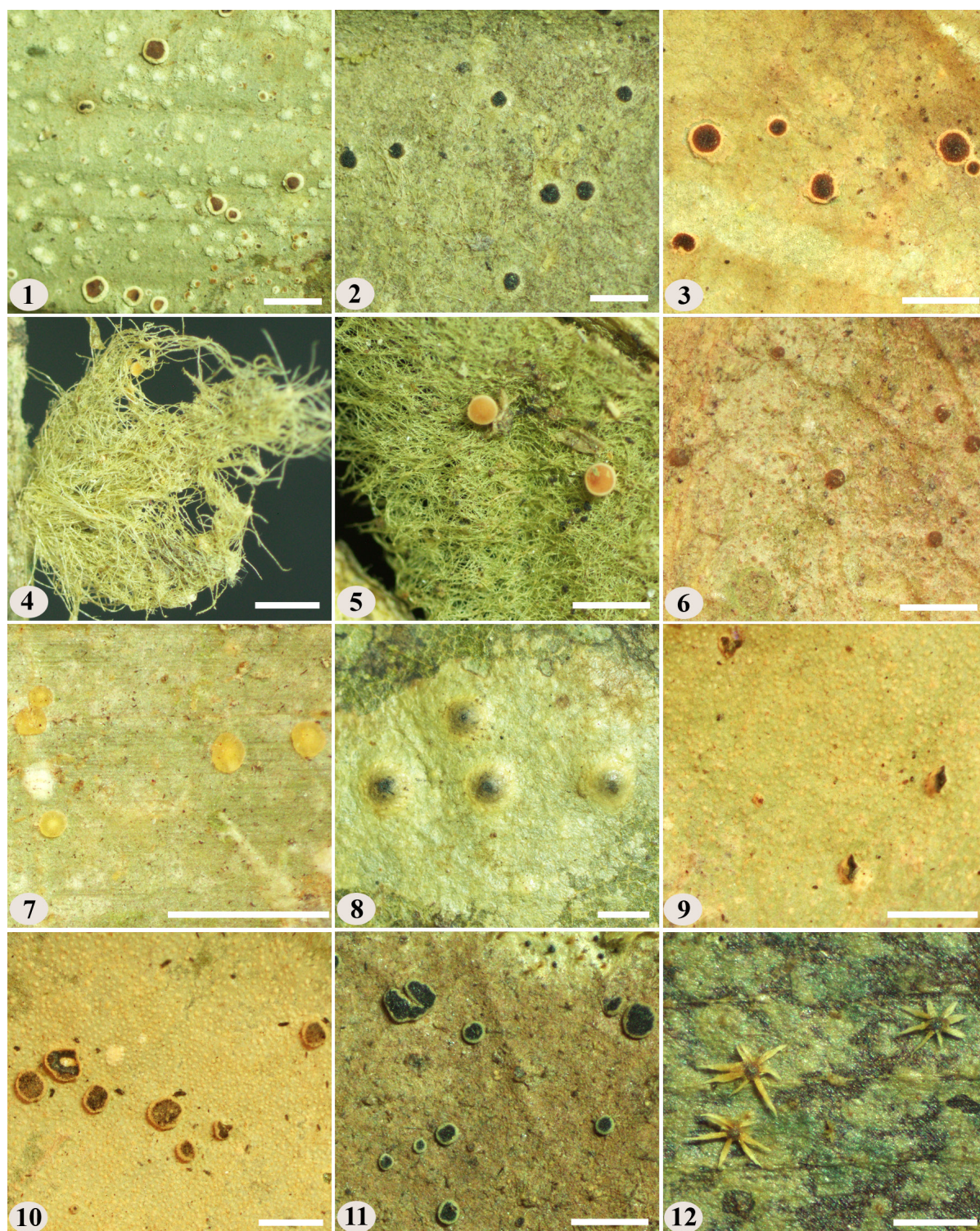
Thallus foliicolous, continuous, brownish to greenish grey, smooth to minutely farinose. *Apothecia* very weakly raised above thallus level, rounded, 0.5–0.8 mm diam.; disc plane to slightly convex, dark greyish brown to greyish black with the indistinct, paler marginal zone. *Asci* clavate, (6–)8-spored. *Ascospores* colorless, oblong, 3-septate, 14–20 × 2.5–4 µm.

Distribution: India (Arunachal Pradesh, Nagaland, and Tamil Nadu), Central and South America.

Specimens examined: Nicobar Islands: Little Nicobar Island, Akupa forest, 7°22'67.6" N, 93°39'81.0" E, alt. 5 m, 7.12.2014, Jagadeesh Ram 4234. Great Nicobar Island, Murray Point forest, 7°13'59.2" N, 93°48'77.1" E, alt. 30 m, 11.12.2014, Jagadeesh Ram 4484. GNBR, Nature Trail forest, 7°00'01.4" N, 93°52'66.2" E, alt. 40 m, Jagadeesh Ram 4571.

7. *Byssoloma catarinense* L.I. Ferraro & Lücking, Fl. Neotrop., Monogr. 103: 699. 2008 (Pilocarpaceae). (Fig. 2)

Thallus foliicolous, continuous, 10–25 mm across, minutely farinose, pale greenish grey to brownish grey, 10–15 µm thick. *Apothecia* rounded or slightly irregular in outline, 0.25–0.4 mm diam.; disc plane to slightly convex, dark brown to blackish brown; margin white, thin but distinct, persistent but not spreading laterally over thallus



Figs 1 to 12: Habit. 1. *Badimia cateilea* (J 3739), 2. *Byssoloma catarinense* (J 4482B), 3. *B. vanderystii* (J 4428B), 4 & 5. *Coenogonium barbatum* (J 4432), 6. *Fellhanera punctata* (J 4482A), 7. *Gyalideopsis minutissima* (J 4452B), 8. *Porina foliicola* (J 4450), 9 & 10. *Sporopodium pilocarpoides* (Campylidia and Apothecia) (J 4569), 11. *Tapellaria leonora* (J 4447), 12. *Trichothelium pallescens* (J 3323). Scales = 1 mm

surface. *Excipulum* grey, rather well-developed, made of loosely woven hyphae, 10–15 µm thick. *Epithecium* indistinct. *Hymenium* colorless, 45–55 µm high, I+ blue. *Hypothecium* dark brown, 15–25 µm high, K+ slightly purplish. *Apothecial base* greyish brown, K–. *Asci* clavate, 8-spored, 40–50 × 10–14 µm. *Ascospores* colorless, oblong to narrowly fusiform, 7-septate, with slight constrictions at septa, 18–25 × 3–4 µm.

Distribution: Argentina and Brazil. It is a new record for India.

Remarks: *Byssoloma catarinense* is very close to *B. fadenii* Vězda, but the latter species differs in having thin apothecial margin, K–hypothecium and 5-septate rather small ascospores (Lücking 2008).

Specimen examined: Nicobar Islands: Great Nicobar Island, Murray Point forest, 7°13'59.2" N, 93°48'77.1" E, alt. 30 m, 11.12.2014, Jagadeesh Ram 4482A.

8. *Byssoloma vanderystii* Sérus., Lichenologist 11: 181. 1979 (Pilocarpaceae) (Fig. 3).

Thallus foliicolous, continuous, 10–40 mm across, smooth to minutely farinose, greenish grey to dark greenish grey, 15–25 µm thick. *Apothecia* sessile to adnate, rounded, 0.2–0.6 mm diam.; disc slightly to strongly convex, reddish brown to reddish black and often with a paler, reddish brown, marginal zone; margin well-developed and densely byssoid, persistent and spreading laterally over thallus surface, chamois-colored. *Excipulum* colorless, well developed, made of loosely woven hyphae, 50–150 µm thick. *Epithecium* indistinct. *Hymenium* colorless, 80–100 µm high, I+ blue. *Hypothecium* brown to dark brown, K–, 50–70 µm high. *Apothecial base* dark brown, K–. *Asci* clavate, 8-spored, 70–90 × 12–15 µm. *Ascospores* colorless, cylindrical, 7-septate, without or with slight constrictions at septa, 24–30 × 2.5–4 µm.

Distribution: Brazil, Congo, Costa Rica and French Guiana. It is a new record for India.

Remarks: *Byssoloma vanderystii* is very close to *B. usambarense* Vězda, but the latter species has a compact apothecial margin. *Byssoloma vezdanum* is another similar species which has slightly larger, plane apothecia and predominantly 5-septate ascospores (Lücking 2008).

Specimen examined: Nicobar Islands, Great Nicobar Island, Afra Bay forest, 7°10'96.3" N, 93°44'29.7" E, alt. 20 m, 10.12.2014, Jagadeesh Ram 4428B.

9. *Coenogonium barbatum* Lücking, Aptroot and Umaña, Fungal Diversity 23: 273. 2006 (Coenogoniaceae) (Figs 4 and 5).

Thallus foliicolous, filamentous, projecting horizontally from the substrate (leaves), caespitose, beard-shaped, composed of several tufts of filaments connected at the base, with a single point of attachment, yellowish green, up to 15 mm long and broad, ecorticate; prothallus absent. *Photobiont Trentepohlia*, cells cylindrical, in distinct filaments, 40–60 × 15–20 µm. *Apothecia* substipitate, rounded, 0.3–0.6 mm diam.; disc plane to convex, pale yellow to yellow-orange; margin thin, smooth, whitish yellow. *Excipulum* colorless, paraplectenchymatous with radiating cell rows, 30–60 µm thick, I+ yellow-green; cells isodiametric and thin walled, 3–7 µm diam. *Epithecium* indistinct. *Hymenium* colorless, 60–70 µm high, I+ blue quickly turns green then reddish brown. *Hypothecium* colorless, 10–20 µm thick. *Asci* clavate, 8-spored, 45–65 × 7–10 µm. *Ascospores* colorless, ellipsoid-oblong, 7–10 × 2–3 µm.

Distribution: Costa Rica. It is a new record for India.

Remarks: *Coenogonium barbatum* is distinct from others by the filamentous, horizontally projecting, caespitose, beard-shaped thallus composed of several tufts of filaments connected at the base, with a single point of attachment. *Coenogonium linkii* Ehrenb. and *C. congense* C.W. Dodges are the other closely related species, both produce shelf-like and semi-circular thalli (Rivas Plata et al. 2006, Lücking 2008).

Specimens examined: Nicobar Islands, Great Nicobar Island: Afra Bay forest, 7°10'96.3" N, 93°44'29.7" E, alt. 20 m, 10.12.2014, Jagadeesh Ram 4432; GNBR, Nature Trail forest, 7°00' 15.7" N, 93°52'54.6" E, alt. 35 m, Jagadeesh Ram 4566.

10. *Fellhanera punctata* Lücking, Fl. Neotrop., Monogr. 103: 644. 2008 (Pilocarpaceae) (Fig. 6).

Thallus foliicolous, continuous, 8–15 mm across, smooth but with dense verrucae, greenish to yellowish grey, 10–15 µm thick. *Apothecia* sessile, rounded, 0.2–0.4 mm diam.; disc plane to convex, pale greyish brown to dark brown and often with white to pale yellow pruina; margin indistinct. *Excipulum* yellowish brown, paraplectenchymatous, 20–40 µm thick. *Epithecium* indistinct. *Hymenium* colorless, 40–50 µm high, I+ blue. *Hypothecium* dark yellowish brown to blackish brown, 20–50 µm thick, K–. *Apothecial base* dark brown, K–. *Asci* clavate, 8-spored, 40–45 × 8–12 µm. *Ascospores* 8 per ascus, acicular and tapering towards the proximal end, 7-septate, without constrictions at septa, 25–35 × 2–2.5 µm.

Distribution: Brazil and Columbia. It is a new record for India.

Remarks: *Fellhanera punctata* is close to *F verrucifera* Lücking but the latter species differs clearly in rather broad ascospores ($18\text{--}30 \times 3\text{--}4\text{ }\mu\text{m}$) and the aeruginous to black apothecial base (Lücking 2008).

Specimen examined: Nicobar Islands, Great Nicobar Island, Murray Point forest, $7^{\circ}13'59.2''\text{ N}$, $93^{\circ}48'77.1''\text{ E}$, alt. 30 m, 11.12.2014, Jagadeesh Ram 4482A.

11. *Fellhanera rhapsidophylli* (Rehm) Vězda, Folia Geobot Phytotax. 21: 214. 1986. *Bilimbia rhapsidophylli* Rehm, Leaflet. Philipp. Bot. 6: 2237. 1914 (Pilocarpaceae).

Thallus foliicolous, continuous, pale greenish grey, farinose. *Apothecia* rounded, 0.15–0.25 mm diam.; disc plane to slightly convex, reddish brown to dark greyish brown; margin thin but persistent, pale grey. *Asci* clavate, 8-spored. *Ascospores* colorless, oblong-ellipsoid, 3-septate, $12\text{--}15 \times 2.5\text{--}3.5\text{ }\mu\text{m}$.

Distribution: India (Arunachal Pradesh, Nagaland, Tamil Nadu, and West Bengal - hills), North, Central and South America, and The Philippines.

Specimen examined: Nicobar Islands, Great Nicobar Island, Murray Point forest, $7^{\circ}13'59.2''\text{ N}$, $93^{\circ}48'77.1''\text{ E}$, alt. 30 m, 11.12.2014, Jagadeesh Ram 4483.

12. *Glyphis scyphulifera* (Ach.) Staiger, Biblioth. Lichenol. 85: 175. 2002. *Lecidea scyphulifera* Ach., Syn. Meth. Lich.: 27. 1814 (Graphidaceae).

Thallus corticolous, yellowish brown to dark brown, smooth, continuous. *Apothecia* rounded, 0.4–0.5 mm diam.; disc concave, dark brown to black. *Asci* clavate to cylindrical, 6–8-spored. *Ascospores* brown, ovoid to ellipsoid, oblong-ovoid, muriform, $8\text{--}11 \times 1\text{--}4$ locular, $30\text{--}45 \times 11\text{--}14\text{ }\mu\text{m}$, I+ blue-violet.

Distribution: India (West Bengal – Kolkata), China, Guinea, Indonesia, Malaysia, Sri Lanka, Vietnam, Australia, and South America.

Specimen examined: Nicobar Islands, Trinket Island, 8.12.2014, M.Y. Kamble 4630B.

13. *Gyalideopsis minutissima* Lücking, Biblioth. Lichenol. 65:70. 1997 (Gomphillaceae). (Fig. 7)

Thallus foliicolous, continuous, 5–15 mm across, minutely uneven, pale green, ecorticate, 10–15 μm thick. *Apothecia* sessile, biatorine, rounded, 0.05–0.12 mm diam.; disc plane, yellowish white, slightly translucent; margin thin, slightly prominent, smooth, of the same color as a disc. *Excipulum* colorless, prosoplectenchymatous to indistinctly paraplectenchymatous, 10–20 μm thick. *Epithecium* indistinct. *Hymenium* colorless, 50–60 μm high,

I–. *Hypothecium* colorless, 5–10 μm thick. *Asci* broadly clavate to ellipsoid, 8-spored. *Ascospores* oblong-ellipsoid, 3(–5)-septate, with constrictions at septa, $11\text{--}17 \times 4\text{--}6\text{ }\mu\text{m}$.

Distribution: Costa Rica and French Guiana. It is a new record for India.

Remarks: *Gyalideopsis minutissima* externally resembles *G. pallida* Lücking, but the latter species is distinguished by its submuriform ascospores (Lücking 2008).

Specimen examined: Nicobar Islands, Great Nicobar Island, Afra Bay forest, $7^{\circ}10'73.6''\text{ N}$, $93^{\circ}44'29.4''\text{ E}$, alt. 30 m, 10.12.2014, Jagadeesh Ram 4452A.

14. *Porina foliicola* (Vězda) Lücking & Vězda, Willdenowia 28: 204. 1998. *Clathroporina foliicola* Vězda, Acta Mus. Silesiae, Sér. A, 26: 25. 1977 (Porinaceae). (Fig. 8)

Thallus foliicolous, continuous, marginally dispersed, small to medium-sized, 15–20 mm across, rough, nitidous, pale greyish green, no visible prothallus, 15–25 μm thick. *Photobiont* a species of *Phycopeltis*, cells angular-rounded, irregularly arranged. *Perithecia* young lens-shaped, mature ones hemispherical, glabrous, surface smooth, of the same color as thallus, 0.5–0.9 mm diam., with a darker, broad spot around the ostiole. *Excipulum* colorless to pale yellow, 15–25 μm thick, K+ orange. *Involucrellum* yellow-orange, 25–40 μm thick, K+ brownish orange, externally covered by 15–30 μm thick crystallostratum and 10–20 μm thick algiferous thallus layer. *Asci* obclavate to subglobose, 6–8-spored, $140\text{--}200 \times 40\text{--}65\text{ }\mu\text{m}$. *Ascospores* colorless, muriform, fusiform-oblong, $90\text{--}115 \times 13\text{--}18\text{ }\mu\text{m}$, with 2–3 μm gelatinous sheath.

Remarks: *Porina foliicola* is very close to *P. nuculastrum* (Müll. Arg.) R.C. Harris, but the latter species differs in having submuriform and small ascospores ($50\text{--}90 \times 13\text{--}23\text{ }\mu\text{m}$) (Lücking 2008).

Distribution: Sri Lanka and Vietnam. It is a new record for India.

Specimens examined: Nicobar Islands, Great Nicobar Island, Afra Bay forest, $7^{\circ}10'97.7''\text{ N}$, $93^{\circ}44'27.9''\text{ E}$, alt. 30 m, 10.12.2014, Jagadeesh Ram 4450. GNBR, Nature Trail forest, $7^{\circ}00'31.0''\text{ N}$, $93^{\circ}52'76.7''\text{ E}$, alt. 25 m, Jagadeesh Ram 4572.

15. *Porina karnatakensis* Makhija, Adaw. & Patw., J. Econ. Tax. Bot. 18: 538. 1994 (Porinaceae).

Thallus foliicolous, continuous, marginally often dispersed, minutely uneven-verrucose, pale greyish yellow, slightly shiny, often with white-translucent prothallus.

Perithecia adnate, conical when young, becoming wart-shaped, 0.3–0.5 mm diam., glabrous, surface smooth, of the same color as thallus but with black, 0.05–0.1 mm broad dot around ostiole. *Asci* obclavate, 8-spored. *Ascospores* colorless, narrowly fusiform to oblong, 7-septate, (20–)25–35 × 3–5 µm.

Distribution: India (Arunachal Pradesh, Karnataka, Kerala and Tamil Nadu), Central and South America.

Specimen examined: Nicobar Islands, Katchal Island, E-wall forest, 7°59'69.6" N, 93°23'63.4" E, alt. 15 m, 13.6.2014, Jagadeesh Ram 3722.

16. *Sporopodium pilocarpoides* (Zahlbr.) Lücking & Kalb, Bot. J. Linn. Soc. 139: 178. 2002. *Lopadium pilocarpoides* Zahlbr., Denkschr. Math.-Nat. Kl. Akad. Wiss. Wien 83: 132. 1909 (Pilocarpaceae). (Fig. 9 & 10)

Thallus foliicolous, continuous to irregularly incised, 15–40 mm across, pale greenish grey, minutely pulveraceous and with scattered to dense verrucae, 10–20 µm thick; verrucae hemispherical, 0.07–0.15 mm diam., paler than thallus to white. *Apothecia* rounded to slightly irregular in outline, 0.3–1.0 mm diam.; disc plane to convex, dark brown and white pruinose; margin distinct but thin in old apothecia, white to brownish and usually white pruinose. *Excipulum* pale brown, 30–60 µm thick. *Epithecium* colorless to yellowish brown, indistinct to granulose. *Hymenium* colorless to yellowish, 95–130 µm high, I+ blue. *Hypothecium* dark brown to blackish brown, 20–50 µm thick. *Asci* clavate-oblong, 1-spored, 90–130 × 18–25 µm. *Ascospores* colorless, oblong, muriform, 90–120 × 15–20 µm.

Remarks: *Sporopodium pilocarpoides* is very close to *S. antonianum* Elix et al., but the latter species lacks pruinose apothecia and contains atranorin in the thallus (Lücking 2008).

Distribution: Brazil, Costa Rica, French Guiana, Indonesia, Mexico, and The Philippines. It is a new record for India.

Specimens examined: Nicobar Islands, Great Nicobar Island: Afra Bay forest, 7°16' 99.0" N, 93°45'46.2" E, alt. 25 m, 10.12.2014, Jagadeesh Ram 4467; GNBR, Nature Trail forest, 7°00' 15.7" N, 93°52' 54.6" E, alt. 35 m, Jagadeesh Ram 4569.

17. *Strigula concreta* (Fée) R. Sant., Symb. Bot. Upsal. 12(1): 177. 1952. 2003. *Craspedon concretum* Fée, Essai Crypt. Ecorc.: 94. 1824 (Strigulaceae).

Thallus foliicolous, subcuticular, dispersed into rounded to irregular, confluent patches, typically with crenulate or shortly lobulate margins, pale greyish green to

green. *Perithecia* hemispherical to wart-shaped or conical, 0.3–0.6 mm diam., black. *Asci* cylindrical, 8-spored. *Ascospores* uniseriate, colorless, ellipsoid, 1-septate, with distinct constriction at the septum and often broken into parts outside asci, 8–12 × 2.5–3 µm.

Distribution: India (Arunachal Pradesh and Meghalaya), Africa, Central and South America, and The Philippines.

Specimen examined: Andaman Islands, South Andaman, Rutland Island, Bada Kadi to Kumra Nala forest, 16.5.2012, Jagadeesh Ram 2184.

18. *Tapellaria leonorae* Cáceres & Lücking, Nova Hedwigia 70: 222. 2000 (Pilocarpaceae). (Fig. 11)

Thallus foliicolous, dispersed into rounded, confluent patches, 5–20 mm across, pale grey, smooth, ecorticate, 10–15 µm thick. *Apothecia* rounded to irregular in outline, 0.4–0.8 mm diam.; disc plane, black; margin thin, pale grey pruinose. *Excipulum* brown, 20–40 µm thick. *Epithecium* distinct, blackish brown, 5–10 µm thick. *Hymenium* colorless, 60–70 µm high, I+ blue. *Hypothecium* dark brown, 30–60 µm thick, K+ purplish. *Apothecial base* dark purplish brown. *Asci* clavate, 6–8-spored, 50–60 × 10–14 µm. *Ascospores* colorless, cylindrical to acicular, 7-septate, 25–38 × 2–3 µm.

Distribution: Brazil and Mexico. It is a new record for India.

Remarks: *Tapellaria leonorae* is externally similar to *T. bilimboides* R. Sant., but the latter species has 3-septate ascospores. Similar ascospores are found in *T. nigrata* (Müll. Arg.) R. Sant., but that species has regularly rounded, pure black apothecia (Lücking 2008).

Specimen examined: Nicobar Islands, Great Nicobar Island, Afra Bay forest, 7°10'97.7" N, 93°44' 27.9" E, alt. 30 m, 10.12.2014, Jagadeesh Ram 4446A.

19. *Tapellaria nigrata* (Müll. Arg.) R. Sant. Symb. Bot. Upsal. 12(1): 499. 1952. *Patellaria rufula* var. *nigrata* Müll. Arg., Flora 73: 189. 1890 (Pilocarpaceae).

Thallus foliicolous, dispersed into rounded, confluent patches, smooth, pale grey to white. *Apothecia* rounded to irregular, 0.3–0.4 mm diam.; disc plane, black; margin thin, black. *Asci* clavate, 8-spored. *Ascospores* colorless, cylindrical to acicular, 5–7-septate, 25–40 × 3–4 µm.

Distribution: India (Arunachal Pradesh), Central and South America.

Specimen examined: Nicobar Islands, Great Nicobar Island, Afra Bay forest, 7°11'03.4" N, 93°44'22.2" E, alt. 30 m, alt. 30 m, 10.12.2014, Jagadeesh Ram 4461B.

20. *Trichothelium pallescens* (Müll. Arg.) F. Schill., Hedwigia 67: 278. 1927. *Trichothelium epiphyllum* var. *pallescens* Müll. Arg., Flora 68: 344. 1885 (Pilocarpaceae). (Fig. 12)

Thallus foliicolous, dispersed into rounded, sometimes confluent patches, up to 15 mm across, smooth, pale greyish to brownish green. *Photobiont* cells rectangular, in regularly radiate rows. *Perithecia* subglobose, dark brown, 0.2–0.3 mm diam.; setae 4–6, forming a horizontal or slightly decurved crown, very regularly fin-shaped, rarely brush-shaped in old perithecia, entirely light brown, 0.25–0.5 mm long and 70–150 µm broad. *Involucrellum* brownish black, K–. *Excipulum* brown, K–. *Asci* obclavate, 8-spored, 80–100 × 12–15 µm. *Ascospores* colorless, oblong, 7-septate, without constrictions at septa, 35–45 × 4.5–5.5 µm.

Distribution: Central and South America. It is a new record for India.

Remarks: *Trichothelium pallescens* is very close to *Trichothelium epiphyllum* Müll. Arg., but the latter species has black perithecia and setae of pure black or with the white apical zone (Lücking 2008).

Specimen examined: Nicobar Islands, Great Nicobar Island, Nature Trail forest, 7°00'21.7" N, 93°52'78.7" E, alt. 10 m, 31.5.2014, Jagadeesh Ram 3323.

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