Nine new lichen species and 64 new records from Sri Lanka

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Abstract
The lichen diversity of ten forest sites representing different geographical regions in Sri Lanka was investigated. In total, c. 1500 specimens of c. 400 species were recorded of the evaluated groups (all except the Graphidaceae and a few foliose groups). The following new species are described: Astrothelium conjugatum, Heterodermia fragmentata, Lecanactis minutissima, Megalotremis cylindrica, Porina microtriseptata, Porina monilisidiata, Psoroglaena spinosa, Pyrenula multicolarata, and Schistophoron muriforme. A further 64 species are reported for the first time from Sri Lanka, including 30 new records for the Indian subcontinent and eight new to Asia.

Key words: Astrothelium, Heterodermia, Lecanactis, Megalotremis, Porina, Psoroglaena, Pyrenula, Schistophoron

Introduction
The island of Sri Lanka harbours a diverse flora and fauna, including species that are absent from India (J. & J. de Vlas 2008; Jayasinghe 2015; Wickramasinghe 2014, Harrison & Worfolk 2011; Meegaskubura et al. 2010). This is also true with regard to its lichen biota, the study of which has only recently begun systematically (Weerakoon 2013 & 2015; Weerakoon et al. 2012a, b & c; Weerakoon & Aptroot 2013 & 2014; Weerakoon et al. 2014; Weerakoon 2015; Weerakoon et al. 2015). At present, almost 1200 lichen species are known from Sri Lanka (Weerakoon et al. in prep.), of which almost half are represented by the family Graphidaceae (Weerakoon et al. in prep.). However, given the poor state of knowledge of many Sri Lankan lichen groups, it is likely that this number will increase considerably with further investigation. Many of the lichens are found in remote pristine forest areas, areas which we predict will still yield a high number of undiscovered lichen species (Lücking et al. 2014; Weerakoon et al. in prep.). However, many tropical forests are being severely degraded in Sri Lanka due to a range of human activities (De Silva 2014), leaving few areas of pristine forest remaining. There is an urgent need to investigate these areas for lichens while their habitat still exists.

Lichens were collected from pristine forest, wildlife reserves and secondary vegetation in wet and dry lowlands, submontane and montane areas, and well as two main Botanical Gardens of Sri Lanka. Crustose lichens are dominant in all habitats, and squamulose to microfoliose species are generally more frequent than macrolichens in the country. Fruticose and foliose lichens are mostly confined to submontane and montane habitats on the island. For this paper, in total c. 1500 specimens of c. 400 species were recorded of the evaluated groups (all except the Graphidaceae and a few foliose groups).

This paper documents and illustrates nine new species and is based on collections made during a lichen expedition in the first months of 2015, funded by the National Geographic Society and Dilmah Conservation. The nine new species described here have distinctive morphological characters and differ from all the known species in their respective genera.

Study Sites
For this study, lichens were collected from dry deciduous thorny forest of Wilpattu National Park; Morningside and Pitadeniya areas in the Sinharaja tropical rain forest; montane forest of Horton Plains National Park; submontane and
montane forest in Kikiliyamana, Pidurutalagala mountain and Gallways land in Nuwaraeliya; Makandawa in the tropical forest area of Kitulgala; a few locations in Knuckles representing montane, submontane, and lower elevation wet and dry forests; selected sites in Adam’s Peak; selected sites in Kanneliya tropical rain forest; Namunukula submontane and montane forests; Maragala montane forest and dry thorny forests of Lahugala in Monaragala and dry areas of Dambakolapatuna and Nagadeepa in Jaffna. Also some collections were made in isolated and degraded submontane and montane forest patches in the Navalapitiya area that belong to Dilmah tea company. During our stays in Hakgala and Peradeniya Botanical Gardens we also collected in these gardens.

Material and methods

Identification and descriptive work was carried out in Soest using an Olympus SZX7 stereomicroscope and an Olympus BX50 compound microscope with interference contrast, connected to a Nikon Coolpix digital camera. Sections were mounted in tap water, in which also all measurements were taken. The specimens from this study are all preserved in the National Herbarium of Sri Lanka (PD), with duplicates in the Field Museum in Chicago (F). The chemistry of the type specimen was investigated by thin layer chromatography (TLC) using solvent A (Orange et al. 2001). Collecting numbers contain of an abbreviation of the collecting locality plus a running number. Abbreviation of collecting localities: AD—Adam’s peak, Im—Imbulpitiya, Hg—Hakgala Botanical Garden, Ho—Horton Plains, JF—Jaffna, Ka—Kanneliya, Kn—Knuckles, Mn—Monaragala, Mo—Morningside, Ne—Nuwaraeliya, PD—Peradeniya Botanical Garden, Ri—Rilhena, Si—Sinharaja, WL—Wilpattu.

New species

**Astrothelium conjugatum** Weerakoon & Aptroot, *sp. nov.* (Fig. 1A–B)

Mycobank No.: MB 817608

*Astrothelium with ascomata pyriform, arranged astrothelioid with 2–8 chambers joined with eccentric, fused ostioles; 3–10 fused ascomata grouped within one pseudostroma; pseudostromata c. 1–5 mm diam., erumpent to prominent, with irregularly lobate to linear outline, completely covered by a thallus layer that is thick and opaque at the sides, and can be similar on top or thinner and translucent; ascospores 3-septate, 20–25 × 6.5–7.5 µm.*

Type:—SRI LANKA. Rilhena, on bark of tree, 9 February 2015, G. Weerakoon & P. Wolseley Ri01F (holotype PD, isotypes ABL & F).

*Thallus* corticate, pale yellowish brown, rather smooth, covering an area of up to 7 cm diam., without prothallus.

*Ascomata* c. 0.5–0.7 mm diam., pyriform, astrothelioid, 2–8 chambers joined with eccentric, fused ostioles; 3–10 fused ascomata grouped within one pseudostroma; pseudostromata c. 1–5 mm diam., erumpent to prominent, with irregularly lobate to linear outline, completely covered by a thallus layer that is thick and opaque at the sides, and can be similar on top or thinner and translucent, in which case the black ascoma wall is visible through it; with tiny brown ostioles.

*Hamathecium* clearly but sparsely inspersed with hyaline oil droplets.

*Ascospores* 8/ascus, hyaline, 3-septate, fusiform-ellipsoid, 20–25 × 6.5–7.5 µm, hyaline, IKI–, lumina diamond-shaped when mature.

*Pycnidia* not observed.

*Chemistry.* Thallus and pseudostroma UV–, K–. TLC: No substances detected.

*Distribution and habitat:*—On tree in wet lowland tropical rain forest. Only known from Sri Lanka.

*Discussion:*—This species is close to *Astrothelium straminicolor* (Nyl.) Aptroot & Lücking (2016, in press), which is known from India, Malaysia and Sarawak and differs by the absence of thallus on top of the pseudostromata.

**Heterodermia fragmentata** Weerakoon & Aptroot, *sp. nov.* (Fig. 1C–E)

Mycobank No.: MB 817609

*Heterodermia with thallus foliose, forming tufts up to 7 cm diam., divided into linear, grey lobes up to 1 cm long and 0.7–2.2 mm wide, at tips tapering, slightly recurved; tips often spotted with white pruina; margins often with a thin dark grey line; lower surface without cortex or rhizines, arachnoid, white, often blackening towards the centre of the thallus; cilia black, shiny, marginal, mostly simple, 0.1 mm thick and up to 3 mm long; soredia, isidia and lobules absent, but the whole non-peripheral part of the thallus becomes dissected into small lobes that originate as marginal, often upright, lobules of up to c. 1.2 mm long, with similar cilia; atranorin in the cortex, zeorin in the medulla.*
Type:—SRI LANKA. Nuwaraeliya, on bark of tree, 8 March 2015, G.Weerakoon & A.Aptroot Ne293 (holotype PD, isotypes ABL & F).

**Thallus** foliose, forming tufts up to 7 cm diam.; lobes linear, grey, up to 1 cm long and 0.7–2.2 mm wide, mostly dichotomously branched every c. 2 mm; tips tapering, slightly recurved; upper surface smooth, not shiny, flat; tips often spotted with white pruina; margins often with a thin dark grey line; lower surface without cortex or rhizines, arachnoid, white, often blackening towards the centre of the thallus. Cilia black, shiny, marginal, mostly simple, 0.1 mm thick and up to 3 mm long; soredia, isidia and lobules absent, but the whole non-peripheral part of the thallus becomes dissected into small lobes that originate as marginal, often upright, lobules of up to c. 1.2 mm long, with similar cilia. **Apothecia** rare, 1–4 mm diam., stipitate, laminal on the upper surface of the thallus lobes, developing tapering lobes around their margins, similar to the normal thallus lobes in morphology; these lobes up to 1 mm wide and up to 2 mm long, much incised, grey, disc 1–3 mm diam., brown with pale brown pruina; lower surface of the apothecia corticate and yellowish brown. **Hymenium** c. 120–160 μm high, not inspersed; epihymenium fuscous brown, granular; hypothecium hyaline, c. 30 μm high. **Ascospores** 8 per ascus, brown, 1-septate, constricted at the septum, with 0–3 sporoblastidia at each apex, 30–35 × 15–17.5 μm. **Pycnidia** not seen. **Chemistry:** cortex K+ yellow, medulla K+ faintly yellow; TLC: atranorin in the cortex, zeorin in the medulla.

Distribution and habitat:—On trees and shrubs, mostly in submontane forest, especially abundant on thin twigs of low scrubs in open mountainous areas. Only known from Sri Lanka, but widespread and locally abundant.

Discussion:—This species was striking in the field as a dissected species somewhat resembling H. leucomelos (L.) Poelt (1965: 31) and H. leucomela (Ach.) Trevisan. This species has recently been reclassified in a different segregate genus as Leucodermia leucomelos (L.) Kalb in Mongkolsuk et al. (2015: 35). The lobules are relatively large, and resemble malformed lobes. Specimens were common everywhere all over Sri Lanka, but not reported outside Sri Lanka. Sri Lanka is relatively rich in Heterodermia species; together with the species reported here, 34 Heterodermia species are now known from Sri Lanka, including three endemics (Weerakoon & Aptroot 2013, 2014 & 2016).

Additional specimens seen:—SRI LANKA. Imbulpitiya, Im 137, Im140, Im101, Im96; Gallwaysland, Ga59, Ga56A, Ga50, Ga60A; Monaragala, Mn03; Horton Plains, Ho59, Ho2-3A; Nuwaraeliya, Ne03, Ne490, Ne145, Ne357, Ne351, Ne337, Ne215, Ne107; all 2015, G. Weerakoon (PD & F).

Lecanactis minutissima Weerakoon & Aptroot, sp. nov. (Fig. 1F–G)
Mycobank No.: MB 817610

Lecanactis with pale ochraceous thallus, apothecia sessile, disc dark brown, c. 0.2–0.5 mm wide, with thick white granular pruina through which the disc can be seen, proper margin flush with disc, densely pruinose, ascospores hyaline, consistently 3-septate, curved, somewhat clavate, 13–18 × 2–3 μm.

Type:—SRI LANKA. Morningside, on bark of dead Syzygium tree, 25 April 2015, G. Weerakoon Mo21A (holotype PD, isotypes ABL & F).

Thallus crustose, continuous, not corticate, dull, pale ochraceous, epiperidermal, not surrounded by a prothallus. Algae Trentepohlioid. Apothecia sessile, round or to somewhat angular or ellipsoidal, disc dark brown, c. 0.2–0.5 mm wide, with thick white granular pruina through which the disc can be seen; proper margin flush, concolourous and equally pruinose, c. 0.1 mm wide. Epiphymenium with thick layer of relatively large crystals. Hypothecium and excipulum black, except for a hyaline thick layer of relatively large crystals at the outside of the excipulum. Hamathecium not inspersed, weakly amyloid, paraphysoids 1–1.5 μm wide, anastomosing and often somewhat curled. Asci cylindrical, 30–37 × 9–11.5 μm, Abietina-type sensu Egea & Torrente (1994). Ascospores 8/ascus, hyaline, consistently 3-septate, curved, somewhat clavate, 13–18 × 2–3 μm, ends rounded, without gelatinous sheath. Pycnidia not observed. Chemistry: Thallus UV–, C–, K–, KC–, Pd–. TLC: No substances detected.

Distribution and habitat:—On stringy bark of dead tree in wet tropical mountain forest. Only known from Sri Lanka.

Discussion:—This species is most similar to the neotropical Lecanactis dubia Merrill in Millspaugh & Nuttall (1923: 364), which differs by the longer and especially wider ascospores of 16–23 × 3–4 μm and the absence of pruina. Also somewhat similar ito Lecanographa illecebrosula (Müll.Arg.) Egea & Torrente (1994: 141), which differs by the Pd+ yellow reaction, the gelatinous sheath around the ascospores and the non-pruinose apothecium margins.

Megalotremis cylindrica Weerakoon & Aptroot, sp. nov. (Fig. 1H–I)
Mycobank No.: MB 817611

Megalotremis with olive grey thallus; ascomata not observed; pycnidia abundant, cylindrical with a widened base, pointed, curved to one side, c. 0.1 mm thick, c. 0.2–0.4 mm high, base covered by thallus, remainder pale citrine yellow; conidia hyaline, ellipsoid, 5.5–7 × 3–3.5 μm, with rather pointed ends.

Type:—SRI LANKA. Sinharaja, on bark of tree, 14 February 2015, G. Weerakoon & P. Wolseley Si114 (holotype PD, isotype F).

Thallus corticate, smooth to granular, dull, continuous, thin, olive grey, not surrounded by prothallus. Algae Trentepohlioid. Ascomata not observed. Pycnidia abundant, cylindrical with a widened base, pointed, curved to one side, c. 0.1 mm thick, c. 0.2–0.4 mm high, base covered by thallus, remainder pale citrine yellow. Conidia hyaline, ellipsoid, 5.5–7 × 3–3.5 μm, with rather pointed ends. Chemistry: Thallus UV–, C–, K–, KC–, Pd–. TLC: No substances detected.

Distribution and habitat:—On tree in wet lowland tropical rain forest. Only known from Sri Lanka.

Discussion:—This species is only known from its pycnidia, but these are so characteristic that it can be described as a new species and assigned to the genus Megalotremis, from which a few more species are known without ascomata.
It is closest to the neotropical *M. flavovulcanus* (Komposch) Aptroot in Aptroot et al. (2008: 69), which has a similar colour of the pycnidium ostiole, but the pycnidia are conical rather than cylindrical.

**Porina microtriseptata** Weerakoon & Aptroot, *sp. nov.* (Fig. 2A–B)
Mycobank No.: MB 817612

Porina with shiny, olive green thallus; ascomata hemispherical, c. 0.2 mm diam., fully covered by thallus except for a brown c. 0.1 mm wide ostiole; ascospores consistently 3-septate, hyaline, fusiform, pointed, 25–27.5 × 2.5–3.5 μm, in two bundles in the ascus.

**Type:**—SRI LANKA. Sinharaja, on bark of tree, 17 February 2015, G. Weerakoon & P. Wolseley Si 129 (holotype PD, isotype F).


**Thallus** corticate, smooth, shiny, continuous, covering areas of up to 2 cm diam., thin, olive green, surrounded and partly dissected by a thin black prothallus. Isidia absent. Algae trentepohlioid. **Ascomata** hemispherical, c. 0.2 mm diam., fully covered by thallus except for a brown c. 0.1 mm wide ostiole. **Ascospores** consistently 3-septate, hyaline, fusiform, pointed, 25–27.5 × 2.5–3.5 μm, in two bundles in the ascus, surrounded by a c. 1.5 μm wide gelatinous sheath. **Pycnidia** not observed. **Chemistry.** Thallus UV–, C–, K–, KC–, Pb–. TLC: No substances detected.
**Distribution and habitat:**—On tree in wet lowland tropical rain forest. Only known from Sri Lanka.

**Discussion:**—This species belongs to Porina s.str.. In this group, few species have 3-septate ascospores. The new species is closest to the Australian Porina bacillifera Müll. Arg. (Müller 1882: 517; McCarthy 2001: ), but it is smaller in all dimensions except the ascospores. It differs from P. melanops Malme (1929: 25) by the paler ostiole (black in P. melanops) and the ascospores that are in two bundles (irregularly distichous in P. melanops).

Porina monilisidiata Weerakoon & Aptroot, sp. nov. (Fig. 2C–D)

Mycobank No.: MB 817613

Porina with shiny, olive green thallus, isidia numerous, corticate, mostly simple, but some branched, wavy to moniliform, cylindrical, c. 0.005 mm diam. and c. 0.3–0.8 mm high; ascomata low conical, c. 0.7–1.2 mm diam., fully covered by a thin layer of thallus through which the dark ascoma appear grey-brown, with a black, 0.1–0.3 mm wide ostiole; ascospores consistently 9-septate, 65–75 × 10–13 μm.

**Type:**—SRI LANKA. Sinharaja, on bark of tree, 17 February 2015, G. Weerakoon & P. Wolseley Si73B (holotype PD, isotype F).

Thallus corticate, smooth or slightly rugulose, covering areas up to 10 cm diam., shiny, continuous, thin, olive green, surrounded by a thin black prothallus. Isidia numerous, corticate, concolorous with thallus, mostly simple, but some branched, wavy to a bit moniliform, cylindrical, c. 0.05 mm diam. and c. 0.3–0.8 mm high. Algae trentepohlioid. Ascomata low conical, c. 0.7–1.2 mm diam., fully covered by a thin layer of thallus through which the dark ascoma appear grey-brown, with a black, 0.1–0.3 mm wide ostiole. Ascospores consistently 9-septate, 65–75 × 10–13 μm. Pycnidia not observed. **Chemistry.** Thallus UV–, C–, K–, KC–, Pd–. TLC: No substances detected.

**Distribution and habitat:**—On tree in wet lowland tropical rain forest. Only known from Sri Lanka.

**Discussion:**—This species is characterized by the combination of 9-septate ascospores, low perithecium warts of a colour that is markedly different from the thallus, and coralloid isidia. Isidia occur in about a dozen other species of Porina, if the genus is taken in a wide sense. Harris (1995) and Cáceres et al. (2013) give a comparison of several tropical isidioid species. In most species isidia are regarded as a constant character by most authors, although McCarthy (1993) accepts one species, viz. P. tetracerae (Afz. in Ach). Müll. Arg. (Müller 1885: 401), which has only “occasionally isidioid outgrowths”. Such material was previously described as Clathroporina isidiifera R.C. Harris (1995: 171). The new species differs by much longer ascospores that are 9-septate, and by much longer isidia than any of the isidiate species described in Porina s.lat.

Psoroglaena spinosa Weerakoon & Aptroot, sp. nov. (Fig. 2E–G)

Mycobank No.: MB 817614

Psoroglaena with microfruticose thallus, corticate, smooth, dull, rather bright green, covering areas of up to 1 mm only, consisting of tiny squamules that are dissected into branched, somewhat moniliform threads that are almost equally wide along their whole length, without prothallus; threads c. 20–25 μm wide, for the major part in one plane, partly emerging in other directions; cortex hyaline, papillose, papillae dense and high, c. 1 μm wide and c. 2 μm high.

**Type:**—SRI LANKA. Sinharaja, 15 February 2015, G. Weerakoon & P. Wolseley Si4 (holotype PD, isotype F).

Thallus microfruticose, corticate, smooth, dull, rather bright green, covering areas of up to 1 mm only, consisting of tiny squamules that are dissected into branched, somewhat moniliform threads that are almost equally wide along their whole length, without prothallus. Threads c. 20–25 μm wide, for the major part in one plane, partly emerging in other directions. Branching dichotomous anisotomic. Cortex hyaline, papillose, papillae dense and high, c. 1 μm wide and c. 2 μm high. Algae chlorococcoid, c. 4–6 μm diam., 2–3-seriate, but unordered. Ascomata and pycnidia not observed. **Chemistry.** Not evaluated.

**Distribution and habitat:**—On tree in wet lowland tropical rain forest. Only known from Sri Lanka.

**Discussion:**—This species has the densest and by far the longest cortical papillae of any Psoroglaena. It is close to the foliicolous neotropical P. ornata Herrera-Campos & Lücking in Herrera-Campos et al. (2004: 179; Lücking 2008) in general aspect, but differs by the longer papillae, the absence of a prothallus and the unordered algal cells that are also more numerous.
Pyrenula multicolorata Weerakoon & Aptroot, sp. nov. (Fig. 2H–J)

Mycobank No.: MB 817615

Pyrenula with ascomata almost superficial, low conical, 0.5–0.7 mm in diam.; hamathecium inspersed with many orange, KOH-negative crystals that are colouring the hamathecium red close to the wall and yellow in the centre; ascospores 3-septate, 12–13.5 × 4.5–5.5 μm.

Type:—SRI LANKA. Kitulgala-Makandawa, on bark of tree, 29 March 2015, G. Weerakoon Ki05 (holotype PD, isotypes ABL & F).

Thallus oily, olive green, quite thick, without pseudocyphellae, covering an area up to 5 cm diam., surrounded by a thin black hypothallus line. Ascomata almost superficial, low conical, simple or occasionally a few fused sideways, black, not covered by thallus, 0.5–0.7 mm in diam. Ostiole apical, brown to black. Hamathecium inspersed with many orange, KOH-negative crystals that are colouring the hamathecium red close to the wall and yellow in the centre. Ascospores 8/ascus, pale brown (dark brown only when postmature), irregularly biseriate, 3-septate, 12–13.5 × 4.5–5.5 μm, lumina becoming diamond-shaped, wall relatively thick, with a thick layer of endospore in the spore tips. Pycnidia not observed.

Chemistry: Thallus UV−, K−. Hamathecium with orange to red or yellow (depending on dilution), KOH-negative substance. TLC: No substances detected.

Distribution and habitat:—On tree in wet lowland tropical rain forest. Only known from Sri Lanka.

Discussion:—This species is well characterized by the tiny orange crystals in the hamathecium that colours the hamathecium red where they are highly concentrated and yellow where they are diluted. Pyrenula species with coloured hamathecium were unknown until recently three neotropical species were described, *P. rubroinspersa* Aptroot & Sipman (Aptroot et al. 2013: 188) with red, *P. flavoinspersa* Aptroot & Sipman (Aptroot et al. 2013: 172) with yellow and *P. aurantioinspersa* Aptroot & Sipman (Aptroot et al. 2013: 172) with orange hamathecium. However, all these species have larger (the orange inspersed one over 60 μm long) ascospores and the colour is in oil, not in crystals. Moreover, in two of these three species, the oil turns green in KOH.

Schistophoron muriforme Weerakoon & Aptroot, sp. nov. (Fig. 2K–N)

Mycobank No.: MB 817616

Schistophoron with thallus pale yellowish white, surrounded by a usually diffuse brown prothallus; Ascomata sessile, lirelliform or ellipsoidal or branched, c. 0.3–0.5 mm wide, c. 0.3–0.4 mm high, c. 0.7–1.5 mm long, area above hamathecium completely filled with mazaedium, ascospores brown, muriform, 3–7 × 2–4-septate, globose to ellipsoid, 15–30 × 15–18 μm.

Type:—SRI LANKA. Morningside, on bark of tree, 24 April 2015, G. Weerakoon Mo12A (holotype PD, isotype F).

Thallus crustose, continuous, not corticate, dull, pale yellowish white, surrounded by a usually diffuse brown prothallus. Algae trentepohlioid. Ascomata sessile, lirelliform or ellipsoidal or branched, c. 0.3–0.5 mm wide, c. 0.3–0.4 mm high, c. 0.7–1.5 mm long, margin white, c. 0.2 mm wide. Excipulum pale brown. Hypothecium hyaline. Hamathecium not inspersed, hyaline, paraphysoids 2–2.5 μm wide, area above hamathecium completely filled with mazaedium. Ascospores brown, muriform, 3–7 × 2–4-septate, globose to ellipsoid, 15–30 × 15–18 μm, lumina rounded. Pycnidia not observed. Chemistry. Thallus UV−, C−, K−, KC−, Pd+ yellow. TLC: Psoromic acid.

Distribution and habitat:—On tree in wet tropical mountain forest. Only known from Sri Lanka.

Discussion:—Only three other species are known in the genus *Schistophoron* (Tibell 1996, Aptroot & Sipman 2007), and none have muriform ascospores, although *S. tenue* Stirton (1876: 165) has submuriform, 2–3 × 0–1-septate, ascospores.

New records

Although in the past few years many new records have already been published for Sri Lanka (Weerakoon & Aptroot 2013, 2014 & 2016), the present set of specimens contains yet another 64 species that have never been reported from Sri Lanka. They are listed below, including 30 that were never reported from the Indian subcontinent and 8 that are new to Asia.

Explanation: collecting numbers contain an abbreviation of the collecting locality plus a running number. See Material and methods for abbreviations of the collecting localities.
<table>
<thead>
<tr>
<th>Species Name</th>
<th>Reference</th>
<th>Location Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Amandinea efflorescens</em> (Müll. Arg.) Marbach</td>
<td>JF25 p.p.</td>
<td>new to Indian subcontinent</td>
</tr>
<tr>
<td><em>Anisomeridium anisolobum</em> (Müll. Arg.) Aptroot</td>
<td>Mn124A(1)</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Arthonia antillarum</em> (Fée) Nyl.</td>
<td>JF25 p.p.</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Arthonia elegans</em> (Ach.) Almq.</td>
<td>Ne498</td>
<td>new to Asia</td>
</tr>
<tr>
<td><em>Astrotheilum cinnamomeum</em> (Eschw.) Müll. Arg.</td>
<td>Hg33</td>
<td>new to Indian subcontinent</td>
</tr>
<tr>
<td><em>Bulbothrix bulbochaeta</em> (Hale) Hale</td>
<td>Kn164</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Canoparmelia carneopruinata</em> (Zahlbr.) Elix &amp; Hale</td>
<td>Hg83</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Cetrelia olivetorum</em> (Nyl.) W.L. Culb. &amp; C.F. Culb.</td>
<td>Ho35</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Cladonia subradiata</em> (Vain.) Sandst.</td>
<td>Ne469, Ne378</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Cladonia subsquamosa</em> Kremp.</td>
<td>Mo152 p.p.</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Coenogonium nepalense</em> (G. Thor &amp; Vězda) Lücking, Aptroot &amp; Sipman</td>
<td>Mo41D</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Coenogonium roumeguerianum</em> (Müll. Arg.) Kalb</td>
<td>Mo12j</td>
<td>new to Asia</td>
</tr>
<tr>
<td><em>Collema actinoptychum</em> Nyl.</td>
<td>Mn104</td>
<td>new to Sri Lanka</td>
</tr>
<tr>
<td><em>Cryptolechia caudata</em> Kalb</td>
<td>Mo12i</td>
<td>new to Asia</td>
</tr>
<tr>
<td><em>Cryptolechia plurilocularis</em> (Vain.) D. Hawksw. &amp; Dibben</td>
<td>Kn181</td>
<td>new to Indian subcontinent</td>
</tr>
<tr>
<td><em>Cryptothecia punctosorediata</em> Sparrius</td>
<td>PD21</td>
<td>new to Indian subcontinent</td>
</tr>
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<td><em>Dichosporidium boschianum</em> (Mont.) G. Thor</td>
<td>AD73</td>
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<td><em>Endocarpon pallidulum</em> (Nyl.) Nyl.</td>
<td>Ne510 p.p.</td>
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<td><em>Enterographa tropica</em> Sparrius</td>
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<td><em>Eschatogonia marivelensis</em> (Vain.) Kalb</td>
<td>Ri08A</td>
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<td><em>Flavopunctelia flaventior</em> (Stirt.) Hale</td>
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<td><em>Herpothallon granulare</em> (Sipman) Aptroot &amp; Lücking</td>
<td>Hg11, Ne128, WL108A</td>
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<td><em>Herpothallon roseocinctum</em> Fr.) Aptroot, Lücking &amp; G. Thor</td>
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<td><em>Heterodermia antillarum</em> (Vain.) Swinscow &amp; Krog</td>
<td>PD23</td>
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<td><em>Heterodermia formula</em> (Linds.) Trevis.</td>
<td>Kn154</td>
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<td><em>Heterodermia galactophylla</em> (Tuck.) W.L. Culb.</td>
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<tr>
<td><em>Heterodermia incana</em> (Stirt.) D.D. Awasthi</td>
<td>Ga24, AD111, Im139, Im157</td>
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<tr>
<td><em>Heterodermia reagens</em> (Kurok.) Elix</td>
<td>Mo32c</td>
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<tr>
<td><em>Heteroderma violostraeta</em> Elix</td>
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<td><em>Hyperphyscia adglutinata</em> (Flörke) Mayrhofer &amp; Poelt</td>
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<td><em>Hypotrachyna rigidula</em> (Kurok.) Hale</td>
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<td><em>Lecanora flavoviridis</em> Kremp.</td>
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<td><em>Lecanora novaehollandiae</em> Lumbsch</td>
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<td><em>Lecanora subimmersa</em> (Fée) Vain.</td>
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<td><em>Leptogium hibernicum</em> M.E. Mitch. ex P.M. Jørg.</td>
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<td><em>Mycoporum sparsellum</em> Nyl.</td>
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*Continued on next page*
### Acknowledgements

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