

# *Marchantiana asserigena*, a genus and species new to Norway

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*Marchantiana asserigena* is reported new to Norway from the south-west (counties Rogaland, Hordaland, Sogn og Fjordane, and Møre og Romsdal) at altitudes from near sea level to 393 m. It occurs on branches of trees and shrubs and has been found on 33 species of phorophytes (including two hybridogenous ones). *Larix decidua* was the phorophyte with most collections. Based on the present material *M. asserigena* seems to be widespread in urban and suburban areas and in the cultural landscape. It is likely that *M. asserigena* is more widely distributed in Norway than the presented material indicates. Due to the inconspicuous thallus, the diminutive apothecia, and its unusual ecology it is easily overlooked.

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## Introduction

In 2013 and 2015 *Marchantiana asserigena* was found on the outermost, south-west coast of Norway from Turøyna (Hordaland) in the south to Runde (Møre og Romsdal) in the north (Palice & Tønberg, unpublished). The specimens were found on *Juniperus*, *Pinus* and *Picea*. The species inhabited the branches only, which agrees with Söchting & Fröberg (2003), Söchting & Arup (2018) who stated that *M. asserigena* is a species of branches and twigs. Due to strong gusts of wind in late 2020 and early 2021 in the city of Bergen and surroundings, numerous *Larix decidua* branches were blown to the ground (Fig. 1). Many of these branches proved to support *M. asserigena*. This easy access to the species without having to cut down (live) branches, triggered us to search for the species elsewhere in western South Norway, and to extend the search to other phorophytes as well. Below we present our results based on the material collected during the previous and the recent fieldwork.

There are many studies on the lichenflora on tree branches and twigs in Norway. Some of the most comprehensive ones are those of Degelius (1964, 1978). Degelius (1964) treats the epiphytic vegetation on twigs of *Fraxinus excelsior* in Denmark, south Sweden, and along the southern and southeastern coasts of Norway, whereas Degelius (1978) is a study of the lichen vegetation on twigs of 12 broad-leaved trees based on field-work from Austria in the south to southern Norway and Sweden in the north. Ahlner (1938, 1948) treats foliose and fruticose lichens on conifers in Fennoscandia; some of the species were mainly occurring on twigs of *Picea abies*. In more recent years, based on fieldwork in Trøndelag and southern part of Nordland, the area for the boreal



**Figure 1.** Fallen twigs of *Larix decidua*. The twig to the left supported 6 *Marchantiana asserigena* thalli. Photo Tor Tønsberg, 2021-04-05.

rainforest in Norway (Holien & Tønsberg 1996), many papers dealing (at least partly) with the lichen flora of branches of *Picea abies* have been published, e.g., Tønsberg (1988, 1992), Holien (1997, 2000), Holien & Tønsberg (2002), Hilmo et al. (2013), and Holien & Tønsberg (2017). Holien (1997) and Hilmo et al. (2013) collected and studied 400 and 160 branches of *Picea abies*, respectively.

As far as we know, *Marchantiana asserigena* has not been published from Norway; it is not mentioned in the papers cited above or in any other paper known to us. Nor is it listed for Norway in the recently published checklist of Fennoscandia (Westberg et al. 2021).

## Material and Methods

*Fieldwork:* Fieldwork was carried out in western South Norway, in the counties Rogaland (Sauda, Suldal and Vindafjord municipalities), Hordaland (Bergen, Austevoll, Bømlo, Fjell, and Ullensvang), Sogn og Fjordane (Selje), and Møre og Romsdal (Herøy). Our attention was concentrated to branches and twigs. These were collected directly from the trees and from the ground beneath the trees. Most branches (including those collected from the trees) were dry (dead).

*Methods:* In the field we used  $\times 10$  and  $\times 14$  Lichen candelaris hand lenses. In many cases branches were just collected (without any examination in the field) and brought to the lab for scrutiny. Positions were based on field GPS data (datum WGS84); except for two specimens (TT 49058 and 49077) which were based on Kartverket (2021). Elevational data given for the collection localities are derived from Kartverket (2021) based on the field GPS data.

*Herbarium material:* All specimens in BG of the common *Calluna* inhabiting species *Cliostomum griffithii* (Sm.) Coppins, *Lecidella subviridis* Tønsberg, and *Micarea coppinsii* Tønsberg were scanned for possible occurrences of *Marchantiana asserigena*.

The collected material of *Marchantiana asserigena* (73 specimens) and associated specimens, are deposited in BG and/or PRA, with duplicates of Tønsberg 49121 in C, FH, H, LD, NY, O, PRA, TNS, TRH, TROM, and UPS, and of Tønsberg 49271 in O, TRH, and TROM. Herbarium material used for comparison was from BG and O.

*Lichen chemistry:* Thin-layer chromatography (TLC) was carried out in solvent systems A, B' and C according to Culberson and Kristinsson (1970), Culberson (1972), Culberson & Johnson (1982), and Elix (2014), with glass plates in solvent C allowing for the detection of fatty acids.

*DNA:* One specimen (BG L-105220) was sequenced for the DNA barcode marker (nrITS) at the Canadian Centre for DNA Barcoding (CCDB; <http://www.ccdb.ca>), using the primer pair ITS1/ITS4.

## Results and Discussion

### *Marchantiana asserigena* (J. Lahm) Søchting & Arup

*Caloplaca asserigena* (J. Lahm) Dalla Torre & Sarnth. Lectotype (Søchting & Arup 2018): Deutschland. Nordrhein-Westphalen: An Bretterzäunen zu Welbergen. August 1862. Lahm (M-0289846; not seen).

*Nomenclatural note:* The intriguing nomenclatural history of the species was elucidated by Søchting & Frøberg (2003) who helped to stabilize the correct usage of the species epithet and correct authorship. These authors also highlighted the unique chemosyndrome of the species deviating from the majority of Teloschistaceae. A new generic name *Marchantiana* was recently suggested for the species (Søchting & Arup 2018), based on the similarity to the taxon *Marchantiana michelagoensis* (Elix, S.Y. Kondr. & Kärnefelt) S.Y. Kondr., Kärnefelt, A. Thell, Elix, Jung Kim, A.S. Kondr. & Hur (Kondratyuk et al. 2014) which is the species where the substance neochloroemodin was described by J. Elix (in Kondratyuk et al. 2009). This species subsequently became the type species of the genus *Streimanniella* (Kondratyuk et al. 2015). However molecular data by Kondratyuk and coauthors, supporting the generic circumscriptions of *Marchantiana* and *Streimanniella*, as well as other taxa of the newly described subfamily Brownlielloideae (Kondratyuk et al. 2015) were doubted as they were revealed to be largely based on chimeric extraneous DNA, and the so-called subfamily Brownlielloideae appears to be an artifactual taxon (Wilk et al. 2021). Nonetheless, the recent phylogenetic study by Bungartz et al. (2020), based on new molecular data, has shown that the type



**Figure 2.** *Marchantiana asserigena* thallus on *Larix decidua* twig (BG L-105220).  
Scale bar = 1 mm. Photo Einar Timdal.



**Figure 3.** *Marchantiana asserigena* thallus on short-shoot of *Larix decidua* twig (BG L-105273).  
Scale bar = 1 mm. Photo Einar Timdal.

species of *Marchantiana* and *Streimanniella* are congeneric and form a monophyletic group. The generic name *Marchantiana* is older than *Streimanniella* and has precedence.

**Morphology** (Figs: 2–3): Thallus crustose, indistinct to distinct, usually to 3 (–7) mm in diameter, in one specimen up to 2 cm (due to fusing of 2 or more thalli?), mostly pale grey, sometimes brown or brownish black, continuous or somewhat cracked, sometimes tuberculate. Apothecia up to 0.5 mm; disc usually flat, sometimes slightly convex, ferruginous, brown or brownish black to black; rim usually level, rarely raised above disc, to 0.04 mm wide, whitish grey, sometimes blackish. Hymenium 50–60 (–70)  $\mu\text{m}$ ; epihymenium with orange crystals. Paraphyses unbranched below epihymenium, 1.5–2.5  $\mu\text{m}$  wide; apices mostly branched, colourless to pale greyish brown; apical cells 3–4.5  $\mu\text{m}$  wide. Asci 40–60  $\times$  11–14  $\mu\text{m}$ . Spores polarilocular, 9–14  $\times$  5–6.5 (–7.5)  $\mu\text{m}$ ; septa 1–6  $\mu\text{m}$ . Photobiont trebouxoid, unicellular; cells globose, 4–20  $\mu\text{m}$ .

**Note:** A description of the species, based on material from Denmark and Sweden, is given by Söchting & Fröberg (2003). Our descriptions agree mostly well. Differences are mainly in the size of the thallus, i.e. up to 7 mm in diameter in our material (in one specimen up to 2 cm), versus 1–2 mm) and in the length of the septa (1–6  $\mu\text{m}$ , versus 3–5  $\mu\text{m}$ ). We regard the large thallus in one of the Norwegian specimens to be within the variation range for the species or to be due to a fusion of two or more thalli. In specimens with spores with short septa, there were usually some spores with longer septa. The larger number of specimens in the Norwegian material may count for the wider ranges in the sizes of anatomical and morphological elements.

The lichen is variable, probably depending on age and environmental conditions such as illumination. Younger apothecia tend to be flatter, with a more distinct margin and in being more intensively ferruginous. With age or on more exposed sites, ascomata may become much darker and somewhat convex. In cases with blackish apothecia, specimens may superficially be mistaken for being lecideoid. By closer examination, some apothecia will usually be found to have a slightly rusty disk. Fortunately, an inspection of the anatomy and chemistry (e.g., the reaction with K) will be conclusive for the identification.

**Chemistry:** Epihymenium (episamma; Fig. 4) orange due to the presence of crystals (POL+) of the anthraquinone neochloroemodin (as 4-chloroemodin in Elix 2014); see, e.g., Söchting & Arup (2018). In K the crystals dissolve into a reddish-purple solution that spreads to most of the hymenium (Fig. 5). By TLC we found one major substance, apparently neochloroemodin, at Rf-classes A6, B'5, C5(–6).

**DNA:** A BLAST search of the obtained ITS sequence (OK346333) against GenBank on 2021-09-15 gave a 99.80% match (1 mismatch, 0 gaps, 512 bp alignment length) with *M. asserigena* sequence MT967407 from Scotland published by Bungartz et al. (2020).

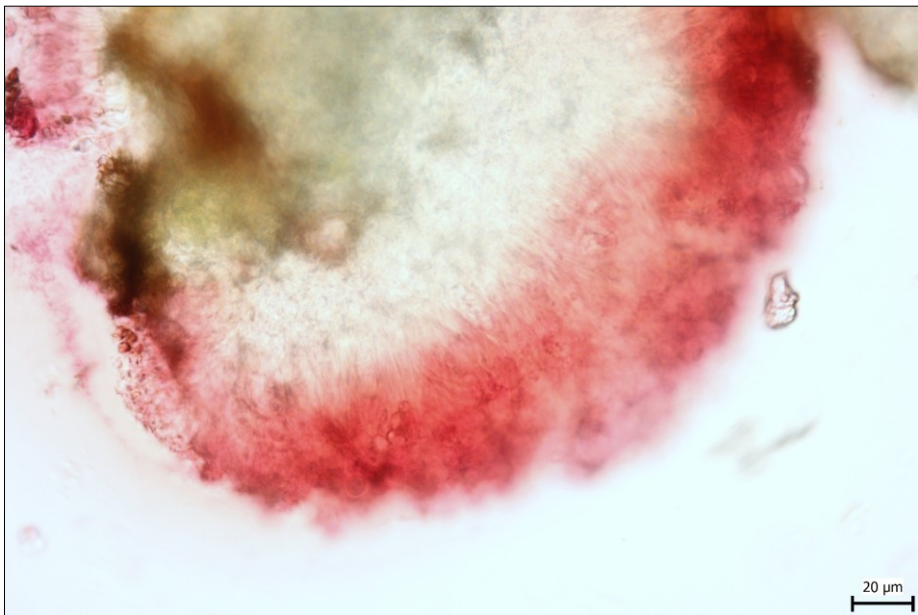
**Ecology:** *Marchantiana asserigena* was found on 33 species of phorophytes. It was most frequently collected on branches and twigs of *Larix decidua*; on this phorophyte it also occurred on short-shoots, and, very rarely, on old, attached cones. For other phorophytes, see Table 1. No specimens were found in the search for the species on *Calluna* in the herbarium BG. *Marchantiana asserigena* may be an early colonizer having been found on twigs of *Larix* down to 2 mm in diameter (TT 48754). The thickest branch that supported it was of *Fraxinus excelsior* with a diameter of 2.5 cm at the *M. asserigena* thallus (TT 49110).

Interestingly the species has been found on several non-indigenous phorophytes in Norway (e.g., *Abies alba*, *Larix decidua*, *Picea sitchensis*, hybridogenous *Pinus mugo*, *Tsuga heterophylla*,





**Figure 4.** *Marchantiana asserigena*. Section of apothecium. Orange crystals of neochloroemodin as an epithecium layer shown prior to K application. ZP 18713\_018. Photo Jiří Machač.



**Figure 5.** *Marchantiana asserigena*. Section of apothecium showing purplish solution after adding a drop of K. ZP 20287\_007. Photo Jiří Machač.

**Table 1.** The phorophyte species supporting *Marchantiana asserigena* in the present study and the number of *M. asserigena* collections made.

Phorophyte species	Number
<i>Abies alba</i>	1
<i>Acer platanoides</i>	1
<i>Aesculus hippocastanum</i>	1
<i>Alnus glutinosa</i>	1
<i>Betula pubescens</i>	1
<i>Castanea sativa</i>	1
<i>Chamaecyparis lawsoniana</i>	1
<i>Cotoneaster dielsianus</i>	1
<i>Crataegus</i> sp.	1
<i>Davidia involucrata</i>	1
<i>Fagus sylvatica</i>	1
<i>Fraxinus excelsior</i>	2
<i>Ilex aquifolium</i>	1
<i>Juniperus communis</i>	1
<i>Larix decidua</i>	33
<i>L. kaempferi</i>	1
<i>Magnolia sieboldii</i>	1
<i>Picea abies</i>	1
<i>P. sitchensis</i>	1
<i>Pinus sylvestris</i>	1
<i>P. ×sylvestris/mugo</i>	2
<i>Prunus domestica</i>	1
<i>P. padus</i>	1
<i>P. serrulata</i>	4
<i>Quercus</i> sp(p).	3
<i>Rhododendron oreodoxa</i>	1
<i>Salix caprea</i>	1
<i>Sorbus aucuparia</i>	1
<i>Taxus baccata</i>	1
<i>Tilia ×europaea</i>	2
<i>Tsuga heterophylla</i>	1
<i>Ulmus glabra</i>	1
<i>Xanthocyparis nootkatensis</i>	1

and *Xanthocypris nootkatensis*). It is apparently an easily spreading pioneer species frequently found in suburban and urban habitats, such as city centers, parks, avenues, and gardens. It may prove to be common also in cultural landscapes such as forested areas with introduced species.

Associated species were numerous comprising both foliose, fruticose and crustose ones. *Larix decidua* was especially rich in associates. Common species were *Halecania viridescens* Coppins & P. James, *Lecanora* spp. in the *L. subfusca*, *L. saligna* and *L. symmicta* groups, *Scoliciosporum sarothamni* (Vain.) Vězda, and genera such as *Lecidella* and *Rinodina*.

*Distribution*: The species has been found along the outermost western coast, from island Bømlo (Hordaland) in the south and as far north as island Runde (Møre og Romsdal) in the north. The most eastern and southern localities were Røldal in Ullensvang (Hordaland) and Suldal (Rogaland), respectively. The altitudes were within the range 11–180 m, except for one specimen which was found at 393 m (Røldal). We regard the species to be at least locally common in Norway. It has been overlooked in the past; apparently partly due to the diminutive size of its apothecia, partly because the lichen flora of branches and twigs of deciduous phorophytes such as, e.g., *Larix*, has generally not been much studied compared with that of trunks (see NLD2 2021).

In the Nordic countries this species is also known from Denmark and Sweden. The species was published new to Denmark from Vestjylland, Sjælland, and reported to be common on *Calluna* in a reserve near Strandkær on Mols by Christiansen (1946). Later it was considered to have disappeared due to air pollution (Søchting & Frøberg 2003, Søchting & Arup 2018). However, according to Søchting & Arup (2018) it is now regarded to be widespread on thin dwarf shrub twigs in Danish heathlands. The only known specimen from Sweden was collected on *Helianthemum oelandicum* in 1999 on the island of Öland (Søchting & Frøberg 2003). This record is the only known published occurrence of the species in Fennoscandia (see Westberg et al. 2021). In the British Isles *M. asserigena* was regarded a local species growing on twigs of *Calluna* and *Salix* on the W coast (Fletcher & Laundon 2009). Now it is known as a much more widespread species there reaching also E England as documented by more than 100 records during the last two decades (NBN Atlas 2021). It was declared as a species on the increase by Chambers (2015) who exceptionally reported a saxicolous specimen from Wales. In other parts of Europe *M. asserigena* shows similar ecology, usually as an inhabitant of thin branches and twigs, rarely smooth bark, and wood, of various phorophytes. In Germany it has been reported from lowland areas in the north (e.g., in Nordrhein-Westfalen with the type locality) and montane areas in the south (i.e., the Bavarian Alps). It occurs in France (Pyrenees, Vosgues; Roux et al. 2017), the Alps in Austria (Søchting & Frøberg 2003), Switzerland (Clerc 2004), and Italy (Nimis et al. 2018), as well as in the Balkan countries of Croatia and Bulgaria (Mayrhofer et al. 2018, 2020). The lichen is also known from humid forests in the Caucasus (e.g., Vondrák et al. 2017, Urbanavichus et al. 2020) and in Macaronesia (van den Boom & Clerc 2017).

*Specimens examined (selected)*: (If not otherwise stated, the specimens are corticolous.) **Norway**. *Rogaland*: Suldal, S of Suldalslågen, between Herabakka and Lamøy, just S of Suldalsvegen, 59.45396°N 6.40091°E, alt. 74 m, on fallen branch of *Larix*, 2021-05-01, T. Tønsberg 49070 (BG L-105692). Sauda, along and uphill from Saudavegen just N of the Suldal border, SE of Hustveit, 59.56820°N 6.27554°E, alt. 182 m, on branches of *Larix decidua*, 2021-04-01, T. Tønsberg 48974 (BG L-105677) & 48975 (BG L-105678); *ibid.*, Solbrekk, NE of Solbrekk Chapel, 59.65776°N 6.36171°E, alt. 39 m, on dry twigs of *Prunus serrulata*, 2021-08-21, T. Tønsberg 49235 (BG L-105717); *ibid.*, Saudasjøen, Storflot, 59.63428°N 6.29347°E, alt. 81 m, on fallen branches/twigs of *Acer platanoides*, 2021-04-03, T. Tønsberg 48984 (BG L-105679); *ibid.*, alt. 82 m, corticolous on top branch of fallen *Fraxinus excelsior*, 2021-02-05, T. Tønsberg 49075 (BG L-105693); *ibid.*, Sandvikdalen 9, 59.63377°N 6.29608°E, alt. 95 m, corticolous on branch (attached) of *Quercus* sp. in a garden, 2021-05-03, T. Tønsberg 49077 (BG L-105694). Vindafjord, E of Tysvær municipality border, N of



Haukelivegen, E of Gråberga, 59.45713°N 005.50312°E, alt. 52 m, on fallen branch of *Larix decidua* in SE-facing slope, 2021-03-16, T. Tønsberg 48888 (BG L-105675). Hordaland: Ullensvang, Røldal, E of Røldalsvatnet, S of Odland, 59.78041°N 6.79016°E, alt. 393 m, on fallen twig of *Larix*, 2021-04-30, T. Tønsberg 49058 (BG L-105691). Kvinnherad, Hatlestrand, between Hamnavågen and Gjermundshamn ferry pier, 60.06139°N 5.92140°E, alt. 4 m, on branch of solitary *Crataegus* sp., 2021-04-30, T. Tønsberg 49057 (BG L-105690). Bømlø, E of Bømlavegen, N of road to Husa, at base of N-facing slope, 59.66409°N 5.17615°E, alt. 48 m, on cone on fallen branch of *Larix decidua*, 2021-03-16, T. Tønsberg 48912 (BG L- 105702); *ibid.*, on twigs on *Larix decidua*, 2021-03-16, T. Tønsberg 48950 (BG L- 105676). Austevoll, Selbjørn, Bekkjærvi, 60.00590°N 5.20318°E, alt. 17 m, corticolous on branch of *Xanthocyparis nootkatensis*, 2021-08-25, T. Tønsberg 49250 (BG L-105719). Bergen, Byparken, W bank of lakelet Smålungeren, 60.39032°N 5.32658°E, alt. 1–2 m, on fallen branches of mature *Prunus serrulata* in a park, 2021-04-24, T. Tønsberg 49031 (BG L-105406); *ibid.* Nygårdsparken, near and SW of Bjørn Trumpys hus (University of Bergen), the gravel road, 60.38364°N 5.32974°E, alt. 23 m, on fallen twigs of *Larix decidua*, 2020-11-13, T. Tønsberg 48730 (BG L-105217); 2020-11-19, T. Tønsberg 48740 (BG L-105220) [ITS: OK346333]; 2020-11-21, T. Tønsberg 48744 (BG L-105223); 2020-11-21, 48745 (BG L-105224); *ibid.* Nygårdsparken SW, 60.38237°N 5.33030°E, alt. 3 m, corticolous on dry, attached branches of *Castanea sativa* in a park, 2021-09-26, T. Tønsberg 49312 (BG L-105730); *ibid.*, Nygårdsparken SE, 60.38271°N 5.33072°E, alt. 5 m, corticolous on branch of *Ulmus glabra*, 2021-10-03, T. Tønsberg 49356 (BG L-105738); *ibid.*, Nygårdsparken N, 60.38525°N 5.32621°E, alt. 31 m, corticolous on *Ilex aquifolium*, 2021-09-30, TT 49340 (BG-L-105735); *ibid.*, Nygårdsparken N, 60.38530°N 5.32601°E, alt. 31 m, corticolous on *Magnolia sieboldii*, 2021-09-30, TT 49336 (BG-L-105733), 49337 (BG-L-105734); *ibid.*, Nygårdsparken N, between the pond and road Parkveien, 60.38616°N 5.32534°E, alt. 28 m, corticolous on *Chamaecyparis lawsoniana*, 2021-09-30, TT 49324 (fallen branch; BG-L-105731), 49328 (attached; BG-L-105732); *ibid.*, Nygårdshøyden, The Museum Garden [Muséhagen], 60.38757°N 5.32284°E, alt. 21 m, corticolous on fallen, dry branch of *Davidia involucrata*, 2021-10-02, T. Tønsberg 49348 (BG-L-105736); *ibid.*, Nygårdsparken N, 60.38562°N 5.32555°E, alt. 30 m, on fallen branch of *Aesculus hippocastanum*, 2021-04-06, T. Tønsberg 48996 (BG L-105680); *ibid.* Nygårdsparken NE, 60.38532°N 5.32596°E, alt. 30 m, corticolous on dry, attached twigs of *Cotoneaster dielsianus* in a park, 2021-09-22, T. Tønsberg 49306 (BG L-105729); *ibid.*, University of Bergen campus, the NW corner of the park SE of the Geophysical Institute building, 60.38338°N 5.33184°E, alt. 17 m, on dry branches of *Rhododendron oreodoxa*, 2021-05-17, T. Tønsberg 49120 (BG L-105700); 49121 (BG L-105701); University of Bergen campus, at the SE corner of the Science building (Realfagbygget), 60.38451°N 5.32983°E, alt. 24 m, corticolous on dry twigs of *Tsuga heterophylla*, 2021-08-23, T. Tønsberg 49237 (BG L-105718); *ibid.* University of Bergen campus, at S end of Fosswinckels gate, 60.38454°N 5.33050°E, alt. 20 m, corticolous on branches of *Prunus serrulata* in a park, 2021-09-11, T. Tønsberg 49271 (BG L-105728); *ibid.*, Kalfaret, Kalfarveien 31, 60.38766°N 5.34137°E, alt. 17 m, on fallen branch of ornamental, solitary *Quercus* sp., 2021-04-19, T. Tønsberg 49026 (BG L-105683); *ibid.*, Kalfarveien, between nos 31 and 37, 60.38797°N 5.34280, alt. 25 m, fallen branch of *Tilia* sp., 2021-04-21, T. Tønsberg, 49028 (BG L-105684); *ibid.*, just S of Kalfartoppen, Kalfarveien 53, 60.38653°N 5.34673°E, alt. 36 m, on fallen branches of *Fagus sylvatica* in a garden, 2021-04-11, T. Tønsberg 49002 (BG L-105681); *ibid.*, Kalfaret, Nubbekakken, 60.38405°N 5.35311°E, alt. 23 m, on fallen, dry branch of *Fraxinus excelsior*, 2021-05-13, T. Tønsberg 49110 (BG L-105699); *ibid.* Nubbekakken 7 F, 60.38310°N 5.35458°E, alt. 24 m, corticolous on dry branch of *Prunus domestica* in a garden, 2021-07-23, T. Tønsberg 49167 (BG L-105710), *ibid.*, Haukeland University Hospital, in park above the S part of Haukelandstunnelen, 60.37263°N 5.35927°E, alt. 53 m, fallen twigs of *Larix decidua*, 2020-12-17, T. Tønsberg 48762 (BG L-105674); *ibid.*, Milde, the Botanical Garden, the N bank of Vågeelva, 60.24795°N 5.26381°E, alt. 1 m, on fallen twigs of *Alnus glutinosa* on riverbank, 2021-04-25, T. Tønsberg 49040 (BG L-105685); *ibid.*, the Botanical Garden, 60.24791°N 5.26171°E, alt. 1 m, on fallen twigs of *Larix kaempferi*, 2021-04-25, T. Tønsberg 49043 (BG L-105686); *ibid.*, on fallen twig of *Pinus sylvestris*, 2021-04-25, T. Tønsberg 49044 (BG L-105687); *ibid.*, N of E end of Svartediket, uphill from Utløbotnen, along Tarlebøveien, 60.39383°N 5.38563°E, alt. 132 m, on fallen branch of *Acer platanoides*, 2021-04-27, T. Tønsberg 49015 (BG L-105682); *ibid.*, NE of Svartediket, W of Utløbotnen, NNW of the top of the Tarlebøveien, along and downhill from road, 60.39368°N 5.38388°E, alt. 130 m, on twigs of *Prunus padus*, 2021-04-21, T. Tønsberg 49055 (BG L-105688); N of Svartediket, along Tarlebøveien, 60.39396°N 5.37680°E, alt. 107 m, on twigs of *Betula pubescens*, 2021-04-21, T. Tønsberg 49056 (BG L-

105689); along Tarlebøveien, 60.39482°N 5.37878°E, alt. 114 m, on terminal twigs of fallen, mature branch of *Salix caprea*, 2021-05-05, T. Tønsberg 49088 (BG L-105695); NE of Svartediket, along trail uphill from Tarlebøveien, 60.39470°N 5.38366°E, alt. 156 m, on branches of *Abies alba*, 2021-05-05, T. Tønsberg 49091 (BG L-105696); along trail uphill from Tarlebøveien, 60.39548°N 5.38424°E, alt. 180 m, on branch of *Sorbus aucuparia*, 2021-05-05, T. Tønsberg 49096 (BG L-105697); N of E end of Svartediket, along and E of Tarlebøveien, 60.39481°N 5.38582°E, alt. 162 m, on branch of *Picea abies* at edge of forest, 2021-05-08, T. Tønsberg 49099 (BG L-105698). Øygarden, Turøyna, along roadside, SE of cove Trosavika, 60.4460278°N, 4.9118611°E, alt. 11 m, on twigs of *Pinus ×sylvestris/mugo*, 2013-06-08, Z. Palice 16776, E. Timdal & T. Tønsberg (PRA); *ibid.*, along and N of road Kalderasvegen SW of road Trosavika jct, 60.44595°N 4.91174°E, alt. 11 m, on twigs of *Pinus ×sylvestris/mugo*, 2013-10-21, T. Tønsberg 43325 (BG L-95950); 60.44605°N 4.91183°E, alt. 12 m, on twigs of *Pinus ×sylvestris/mugo*, T. Tønsberg 43335 (BG L-95951). *Sogn og Fjordane*: Stad, SW coast of Vanylvsfjorden, downhill from road 620, along Storevika bay, 62.04864°N 5.47256°E, alt. 11 m, on dry twig of *Picea sitchensis*, 2015-09-12, Z. Palice 20287 & T. Tønsberg (PRA). *Møre og Romsdal*: Herøy, island of Runde, SE-facing foothill of Mt Søre Handfangen, 62.38672°N 5.61311°E, alt. 33 m, on *Juniperus communis* in a bouldery slope, 2015-09-10, Z. Palice 21863 & T. Tønsberg (PRA).

*Herbarium specimens of Marchantia asserigena examined for comparison: Austria. Tirol*: Innsbruck, Hungerburgboden, (*Alnus incana*), 16.8.1912, A. Zahlbruckner (BG L-69435); Krypt. Exs. 1255 (O L-199202); *Salzburg*: Hohe Tauern, Bucheben, Hüttwinkl valley, a small alder wood among pastures at W-facing slope, 47.12481°N, 12.98644°E, alt. 1210 m, on bark of *Alnus incana*, 2014-07-25, F. Bouda, Z. Palice 18713 & O. Peksa (PRA). **Germany**. Arnold, Lich. Monac. 295 (O L-199203), 467 (O L-199204).

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