

Melaspilea bagliettoana new to Fennoscandia

JOHN BJARNE JORDAL, HÅKON HOLIEN and BJÖRN NORDÉN

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Melaspilea bagliettoana Zahlbr. is reported as new to Fennoscandia, based on eight collections from six localities in Norway. The species was found on the bark of living trunks of old *Populus tremula* trees in humid, coastal forests. Notes on the distribution of the species outside Norway are given.

John Bjarne Jordal, Biolog J.B. Jordal, Skråovegen 21, NO-6610 Øksendal, Norway. Email: john.bjarne.jordal@gmail.com (corresponding author).

Håkon Holien, Faculty of Biosciences and Aquaculture, Nord University, P.O.Box 2501, N-7729 Steinkjer, Norway and Department of Natural History, NTNU University Museum, Norwegian University of Science and Technology, NO-7491 Trondheim, Norway. Email: hakon.holien@nord.no.

Björn Nordén, Norwegian Institute for Nature Research, Sognsveien 68, NO-0855 Oslo, Norway. Email: bjorn.norden@nina.no.

Introduction

During fieldwork in Western Norway in 2018–2021, we have come across an inconspicuous corticolous species on the bark of *Populus tremula* which was identified as *Melaspilea bagliettoana* Zahlbr. We here report this species as new to Norway and Fennoscandia, and present data on the distribution and ecology known so far.

Material and Methods

Field work was partly conducted as part of the project ‘*Bitunicate ascomycetes (Dothideomycetes and Chaetothyriomycetidae) on bark and wood of selected hosts in Norway*’ funded by the Norwegian Biodiversity Information Centre (Artsdatabanken). One of the studied substrates was *Populus tremula*, and we searched for our target species on the bark of old aspen trees in different parts of Norway. Other non-lichenized Ascomycota, lichens and bryophytes were also noted or collected. Later, two additional collections have appeared. For determination of *Melaspilea* species we have used Sanderson et al. (2009). The material was examined using standard microscope techniques, using a binocular microscope (Carton DSZT44), and anatomical characters were studied using a Motic BA310 microscope. Macrophotos and microphotos were taken through the eyepiece using an Olympus TG-4 compact camera. Spores and other microscopic structures were studied in water and 5–10% KOH. Duplicates of two collections were sent to Damien Ertz, Botanic Garden Meise, Belgium which will be deposited in herbarium BR. All further material is deposited in herbarium TRH. The nomenclature follows Artsdatabanken (2021).

The Species

Melaspilea bagliettoana Zahlbr.

Fig. 1

Synonym: *Melaspilea opegraphoides* Bagl. non Nyl.

Description of Norwegian material: Thallus invisible and probably absent. Ascomata (Fig. 1A) lirelliform hysterothecia, straight or curved, $0.2\text{--}0.6 \times 0.1\text{--}0.2$ mm (n=10); margin sometimes irregularly wavy, sometimes weakly branched; disc slit-like, finally exposed, brownish. True exciple lateral, blackish, K–. Epihymenium medium to pale brown, K–. Hymenium colourless, I+ blue. Paraphyses thread-like, simple or sparingly branched in upper part. Periphyses not observed. Asci $25\text{--}36 \times 13\text{--}16$ μm , 8-spored, broadly clavate, K/I–. Ascospores (Fig. 1B) hyaline to pale brown, smooth, 1-septate, sometimes with one cell larger than the other, $12.0\text{--}15.0 \times 5.0\text{--}6.5$ μm (n=15), some of them with one polar flagella (seen in fresh material in the collections TRH-L-33015, 33016 and 33017).

Note: Among *Melaspilea* species with elongate ascomata growing on bark, and with spores mainly <15 μm long, *M. bagliettoana* and *M. atroides* are the only alternatives according to Sanderson et al. (2009). The latter can be excluded based on the spores, which measure 8.5–11 μm in length.

Origin of the species epithet: The species was originally described from Italy in 1871 as *Melaspilea opegraphoides* Bagl. As there already existed another species described in 1863: *Melaspilea opegraphoides* Nyl., the Italian species' name was illegitimate and the species in need of a new name. The current name *M. bagliettoana* was suggested by Zahlbruckner (1904: 413) in honour of the Italian physician and botanist Francesco Baglietto who first described our species.

Ecology (Fig. 2): *Melaspilea bagliettoana* was found on rough bark surfaces of living, old aspen trees (*Populus tremula*). Trunk diameter of the trees ranged from 45 to 83 cm, and the deepest bark crevice of each tree was 15 to 30 mm. Most collections were made in old deciduous forests with a variable amount of other deciduous trees such as *Betula pubescens*, *Salix caprea* and *Sorbus aucuparia*, and sometimes also *Pinus sylvestris*. The sites had a field layer of either *Vaccinium* spp., herbs and grasses, or ferns. Accompanying lichen species on the trees were for example *Biatoridium delitescens*, *Collema subflaccidum*, *Leptogium saturninum*, *Lobaria pulmonaria*, *Megalaria grossa*, *Pannaria rubiginosa*, *Pectenia plumbea*, *Phlyctis argena* and *Scytinium teretiusculum*. Other, non-lichenized Ascomycota on the same trunks were, e.g., *Amphisphaerella dispersella*, *Sclerococcum parasiticum* and *Lasiobolium corticale*, in addition to some rare species such as *Antealophiotrema populicola* and *Atrocalyx nordicus*, both recently described by Andreasen et al. (2021). Also the rare *Populus* specialists *Caliciopsis calicioides* and *Caesiodiscus populicola* were found at some of the localities, but not on the same trees. Important bryophytes on the trees were *Frullania tamarisci*, *Isothecium myosuroides*, *Leucodon sciuroides*, *Pterigynandrum filiforme* and *Radula complanata*.

Distribution: The sites were located in coastal areas from Øystese in Hardanger east of Bergen in the south to Hamarøy in Nordland, northern Norway. All localities are in the markedly oceanic vegetation section O2 according to Moen (1999). Its altitudinal distribution ranges from about sea level to 225 m in Molde.

Specimens examined: **Norway.** *Hordaland:* Øystese, Ørredalsfossen, 60.39994°N, 6.17673°E, alt. 205 m, 2019-05-15, on rough bark of old *Populus tremula* in deciduous forest, J.B. Jordal JB19-P21 (TRH-L-33018); *Møre og Romsdal:* Sunndal, Grova, 62.75971°N, 8.35310°E, alt. 60 m, 2018-08-25, on rough bark of *Populus tremula* in old deciduous forest, J.B. Jordal JB18GraP4-2, conf. A. Aptroot and D. Ertz (TRH-L-33016);

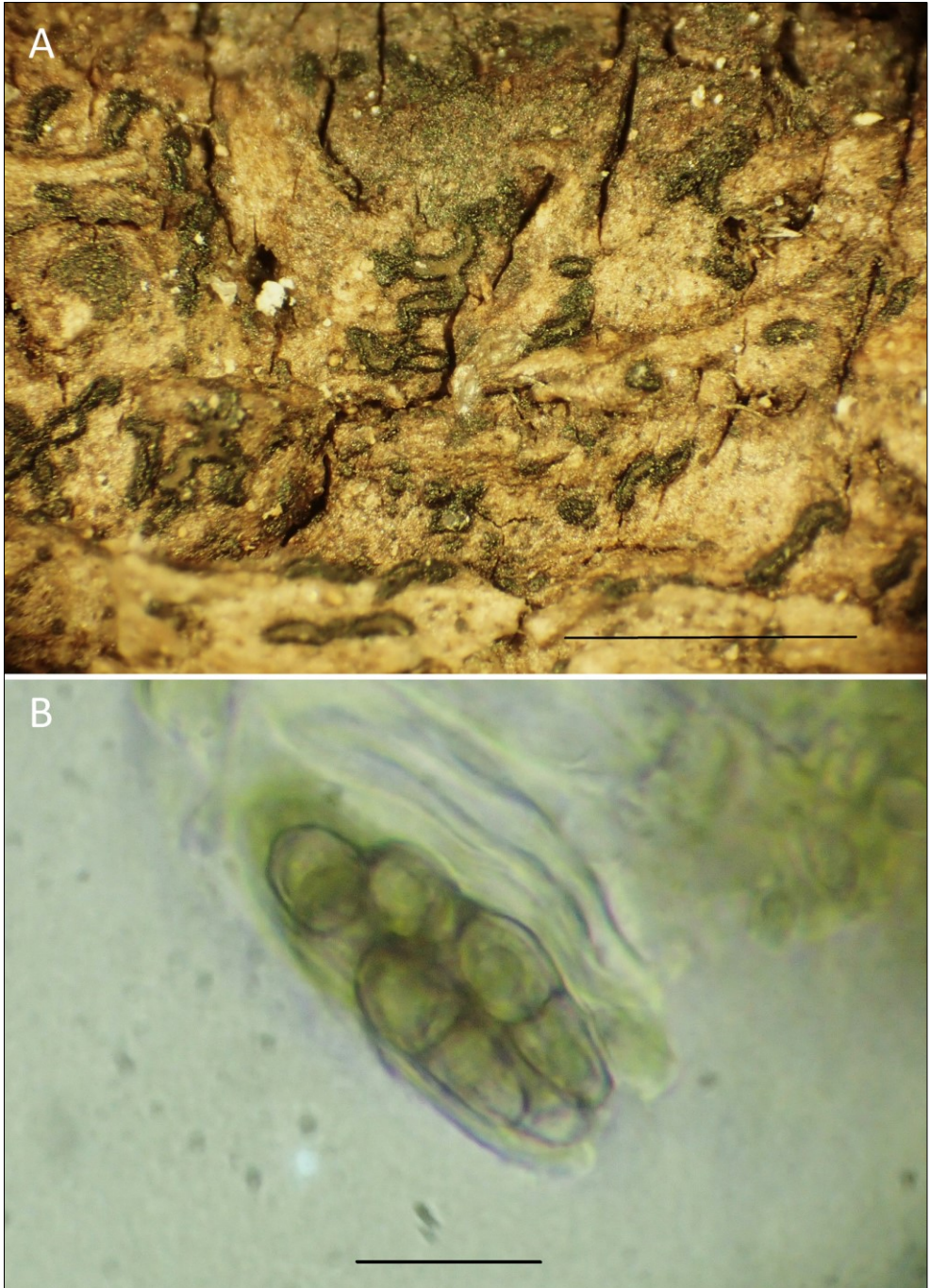


Figure 1. *Melaspilea bagliettoana*. **A.** Ascomata on the bark of an old *Populus tremula* (Møre og Romsdal, Sunndal, Grova, TRH-L-33012). Bar=1mm. **B.** Ascospores. Bar=10 μ m. Photos: J.B. Jordal.

Sunndal, Grova, 62.75998°N, 8.35300°E, alt. 35 m, 2018-08-25, on rough bark of *Populus tremula*, J.B. Jordal JB18GraP1-2 (TRH-L-33012); Molde, Rislia, 62.72427°N, 7.53704°E, alt. 225 m, 2018-09-03, on rough bark of *Populus tremula* in old deciduous forest, J.B. Jordal JB18RisP9-1, conf. D. Ertz (TRH-L-33015); Molde, Rislia, 62.72415°N, 7.53692°E, alt. 225 m, 2018-09-03, on rough bark of *Populus tremula* in old deciduous forest, J.B. Jordal JB18RisP10-2 (TRH-L-33017); Molde, Høystakklåsen, 62.82080°N, 7.70439°E, alt. 200 m, 2020-10-12, on rough bark of *Populus tremula* in old deciduous forest, J.B. Jordal JB20-P72 (TRH-L-33014); Nord-Trøndelag: Flatanger, Varpvika, 64.54866°N, 10.95941°E, on rough bark of *Populus tremula* in mixed forest with *Pinus sylvestris* and deciduous trees, alt. 10 m, 2021-09-23, Holien 286-21 b (TRH-L-19977); Nordland: Hamarøy, Heggbakken, 67.8545°N, 15.8889°E, alt. 140 m, 2020-08-04, on rough bark of *Populus tremula* in old *Populus* dominated tall herb forest, M. Lorentzen, det. J.B. Jordal (TRH-L-33013).

Discussion

Our collections fit well with the description of *Melaspilea bagliettoana* in Sanderson et al. (2009). In *M. bagliettoana* and *M. proximella*, polar flagellae can be seen on young spores (Sanderson et al. 2009), as we also found in some of our specimens. Flagellae are not described in other species of the genus *Melaspilea* (Sanderson et al. 2009). *M. proximella* was combined in *Melaspileella* by Ertz & Diederich (2015). *Melaspilea bagliettoana* may also be referable to *Melaspileella* based on the flagellate ascospores (Ertz & Diederich 2015), a proposal which still awaits a final conclusion.

The demarcation of what is a lichenized fungus and what is not can be rather arbitrary in some cases. Usually, *Melaspilea bagliettoana* has been treated among lichen species (e.g., by Coppins 2002 and Sanderson et al. 2009). The latter described it as follows: “Thallus inconspicuous, probably not obligately lichenized.” Woods & Coppins (2012) describe it as “a species that is probably non-lichenized, but which has several morphological or ecological characteristics of a lichen, and which has been traditionally treated as a lichen”. And Nimis (2016) describes it as “thallus crustose, inconspicuous, doubtfully lichenized”. We were not able to find any real thallus in our specimens.

In Norway, we have so far found this species only on rough bark of old, living *Populus tremula*. In the UK it has been found on *Fraxinus excelsior*, on ‘bare’ bark in oceanic woodlands (Sanderson et al. 2009, National Biodiversity Network 2021), and in Italy on *Fraxinus ornus* in a humid-temperate climate (Nimis 2016). The Norwegian sites are also located in rather oceanic areas. It can be noted that we have investigated many hundreds of old *Fraxinus* trees all over southern Norway northwards to Trøndelag without finding this species (Nordén et al. 2015). The distribution resembles that of other species found on old *Populus tremula*, such as *Caliciopsis calicioides* and *Caesiodiscus populicola* (Jordal et al. 2014, Holien & Suija 2021).

Melaspilea bagliettoana seems to be a rare or overlooked species in Europe. Only 100 occurrences were listed in GBIF (2021), from western, coastal parts of the UK (Wales, England, Scotland) and coastal parts of eastern Spain (Valencia–Barcelona). The species was originally described from Italy, where more collections are available (Nimis 2016), and it is also reported from Algeria (Faurel et al. 1953), Austria (Berger & Priemetzhofer 2014), Croatia (Redinger 1938, Mayrhofer et al. 2018), Luxembourg (Diederich et al. 2012), Morocco (Sanderson et al. 2009) and Ukraine (Kondratyuk et al. 2014). *M. bagliettoana* is considered near threatened (NT) and nationally rare in Great Britain by Woods & Coppins (2012), and is included in the Italian red list of epiphytic lichens as “Data Deficient” (Nimis 2016). It is included in the Nature Conservation Act 2004 among species identified as being of principal importance for biodiversity in Scotland (Woods & Coppins 2012). In Norway, it could possibly be threatened by forestry and by red deer browsing on *Populus tremula*. Well developed, old *Populus* stands are scarce and probably declining (Holien & Suija 2021), although more information is needed on the substrate preferences of our species.



Figure 2. Habitat of *Melaspilea bagliettoana* (Møre og Romsdal, Sunndal, Grova). Photo: J.B. Jordal.

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