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LECANORA SEMIPALLIDA, THE CORRECT NAME FOR *L. XANTHOSTOMA*, AND A REAPPRAISAL OF *L. FLOTOVIANA* (LECANORACEAE, ASCOMYCOTINA)

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Abstract. The identity of two species of *Lecanora* is discussed in accordance with a taxonomic revision of the *L. dispersa* group in North America. Original material of *L. flotoviana* Spreng., recently discovered at GOET, differs in morphology and chemical content from the entity currently known by that name, and does not belong to the *L. dispersa* group but is a little-understood species. Consequently, *L. flotoviana* is excluded from the group, and *L. semipallida* H. Magn. is shown to be the correct name for the common, widespread member of the *L. dispersa* group hitherto known as *L. flotoviana* (auct. non Spreng.). *Lecanora xanthostoma* Cl. Roux is considered to be conspecific with *L. semipallida* and is therefore reduced to synonymy.

Key words: *Lecanora dispersa* group*, L. flotoviana, L. semipallida, L. xanthostoma,* lectotypification, nomenclature, synonymy

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INTRODUCTION

The *Lecanora dispersa* group is characterized by an endolithic or endophloeic, rarely superficial thallus, small apothecia with mostly white thalline margins, and either with xanthones or else lacking any secondary metabolites. The first attempt towards a modern taxonomy of the group was that of Poelt *et al.* (1995) who treated the species of the eastern Alps. These authors recognized a number of species based on combinations of anatomical and chemical characters. Fröberg (1997) studied the species of south Sweden and recently Laundon (2003) dealt with a single species of the group: *L. zosterae* (Ach.) Nyl. Our understanding of the complex remains incomplete, particularly outside Europe.

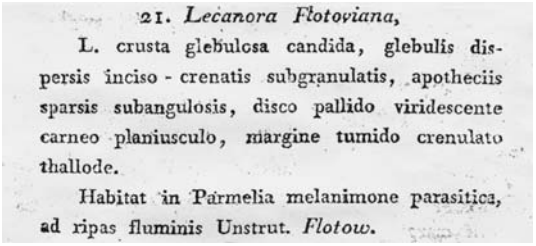
In 2001–2002, research by the author was conducted on North American collections of the group in an effort to identify the taxa of these lichens on that continent. During the course of this study, it became clear that a thorough examination of the taxonomy and nomenclature of all representatives was necessary. Since the majority of available names within the group are based on European collections, it was necessary, in most cases, for material from both continents to be compared. Particular effort was made to trace available original collections, with the result that many interesting discoveries were made. The most significant was a reappraisal of the taxonomic status of two important but so far poorly understood members of the *L. dispersa* group: those known as *L. flotoviana* and *L. xanthostoma*. As a consequence, the following taxonomic and nomenclatural changes are proposed.

THE IDENTITY OF *L. FLOTOVIANA*

Lecanora flotoviana was described by Sprengel in 1820 based on a Flotow collection reported in the original text as occurring on the bank of the Unstrut river (Germany). Subsequently, it was reported from other parts of Europe by, for example, Körber (1855), Arnold (1868), Lojka (1869), Rehman (1879), and Jatta (1882). It then remained

neglected for several decades until the taxon was resurrected by Poelt *et al.* (1995) and assigned to the *L. dispersa* group. This approach was followed by Fröberg (1997), and subsequently *L. flotoviana* became recognized by other lichenologists and was again included in local floras and checklists, for example, John (1996), Diederich and Sérusiaux (2000), Hafellner and Türk (2001), Llimona and Hladun (2001), Øvstedal and Smith (2001), Coppins (2002), Bielczyk (2003), Nimis and Martellos (2003), Clerc (2004), Aptroot *et al.* (2004), Santesson *et al.* (2004), Lisická (2005). However, both Poelt *et al.* (1995) and Fröberg (1997) pointed out some problems with the taxonomy of *L. flotoviana*, and these, along with an unclear species delimitation as well as certain divergences in the species concept between the two treatments, caused some further confusion. Consequently, despite the progress made with the understanding of the taxon called *L. flotoviana*, the usage of the name remained ambiguous.

As part of the research conducted on the *L. dispersa* complex in North America in the years 2001–2002, I attempted to examine all original collections available. The earliest collected material of *L. flotoviana* that I was able to trace at that time were in exsiccata by Rabenhorst (1865) – *Lichenes Europaei*, No. 747, *L. flotowiana*, and Körber (1868) – *Lich. Select. German.*, No. 338, *L. flotoviana*. Despite having an inconspicuous thallus, the morphology of apothecial margins of the specimens corresponded very well with the description included in the protologue '*margine tumido crenulato thallode.*' (Fig. 1). The presence of a xanthone (vinetorin) detected in the exsiccatae by T.L.C. was assumed to be a reasonable explanation for the colour of the species noted in the protologue '*disco pallido viridescente.*' The above observations of the specimens seemed to conform with Sprengel's concept of the taxon, and I accepted them for further reference. The *L. flotoviana* exsiccata of Rabenhorst and Körber vary in the species habitat; Rabenhorst's material is calcicolous, whereas Körber's specimens are corticolous. Since *L. flotoviana* was originally described as a saxicolous lichen (Sprengel 1820), I chose the Rabenhorst collection as a candidate



21. *Lecanora Flotoviana,*

L. crusta glebulosa candida, glebulis dispersis inciso - crenatis subgranulatis, apotheciis sparsis subangulosis, disco pallido viridescente carneo planiusculo, margine tumido crenulato thallode.

Habitat in Parmelia melanimone parasitica, ad ripas fluminis Unstrut. *Flotow.*

Fig. 1. Original description of *Lecanora flotoviana* (Sprengel 1820: 221).

for neotypification of the name. Specifications of the unpublished neotype selected in 2002 are Rabenhorst, *Lich. Eur.*, No. 747, *L. flotowiana* (FH) with duplicates in M and WIS. On the basis of the above species concept, *L. flotoviana* was reported in the two papers by Palka and Śliwa (2004) and Ryan *et al.* (2004). However, on account of the most recent discoveries presented below, the name *L. flotoviana* is reassigned to a different taxon.

Before making an official typification of *L. flotoviana* in 2004, I made one more effort to trace the original material, concentrating on herbaria supposedly holding Sprengel and/or Flotow collections: that is, B, BP, G, GOET, H, HAL, L and M. Thanks to that some very interesting specimens of *L. flotoviana* were recovered. The GOET collection of the species was most promising since, according to *Index Collectorum* (http://www.sysbot.uni-goettingen.de/index_coll/Search_F.htm), the herbarium was supposed to house Flotow's lichens. One of the herbarium specimens is marked 'Exemplar von Sprengel' and has been annotated '*Lecanora flotoviana* rev. Sprengel'. The material is scanty but the fact that it is parasitic on *Phaeophyscia sciastra* (Ach.) Moberg is significant since the protologue gives as locality indication: '*Habitat in Parmelia melanimone parasitica*', and '*Parmelia melanimone*' coincides with *Phaeophyscia sciastra* fairly well. Additionally, the specimen is annotated, perhaps by Arnold, as 'Original Mat. *Lecan. flot.*'. On the fragmented annotation label there is also the remark 'adest: *melanimon* Spr.' and reference 'Beitr.: Flot. flora, 1828: 728' (Fig. 2). The mounted label indicated that the locality was given as 'Halle' (noted in lower right corner of the label as is the case of other historical labels of GOET).

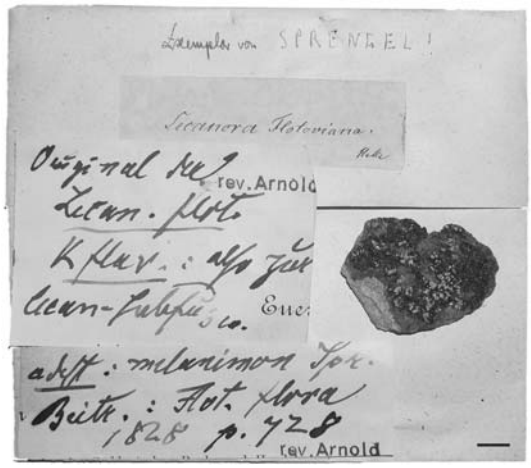


Fig. 2. The original collection of *Lecanora flotoviana* Spreng. from GOET herbarium. Scale bar = 1 cm.

This seems to contradict the locality directions in the protologue: '*ad ripas fluminis Unstrut*' (the river Unstrut does not flow through the city of Halle and does not approach it closer than about 30 km) but also does not disqualify the specimen as original material, since Halle may be a generalized description of the locality specified in the protologue (general term for an area that includes 'the bank of the Unstrut river'). This particular specimen is most likely Flotow's original collection and therefore I have chosen it as lectotype of the name (Fig. 3).

The richest historical collection of *L. flotoviana* is, however, located in Berlin, where Sprengel's lichens are held. Although the pre-1943 lichen herbarium of B is known to have been destroyed by fire, it appears that a few specimens survived. Among these are a considerable number of *Lecanora*, including seven specimens named '*L. Flotoviana* Spr.'. The only further indication of locality on the specimens is 'Nebra'. However, the river Unstrut passes through the town of Nebra, which suggests that the *L. flotoviana* specimens in B were collected at the *locus classicus*, perhaps by Sprengel. The B collection is recommended as excellent reference material as it contains more abundant material than the GOET specimen and there are duplicates available for comparison (Fig. 4). An additional specimen collected from Nebra was located at L, but this is by an unknown collector.

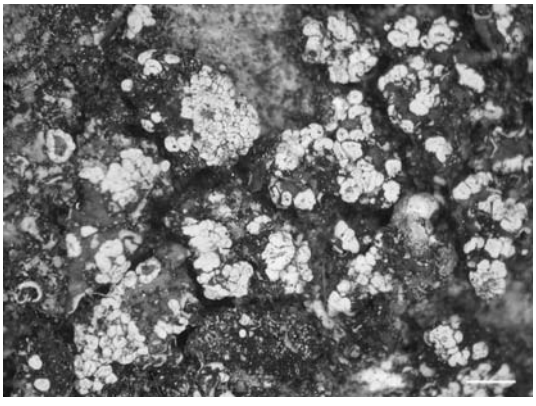


Fig. 3. The lectotype of *Lecanora flotoviana* Spreng. (GOET). Scale bar = 1 mm.

A comparison of the collections of *L. flotoviana* located at B, GOET and L with the species description by Sprengel (1820) showed they resemble the description fairly well, in particular regarding the thallus structure described in the protologue: '*L. crusta glebulosa candida, glebulis dispersis inciso – crenatis subgranulatis*.' In fact, the thallus is not typical of the *dispersa* group and suggests quite a different placement for the species. Furthermore, the results of my chemical analysis of the lichen thalli and apothecia were very surprising as the material produces usnic and ±psoromic acids. The occurrence of such lichen compounds in *L. flotoviana* leads to the conclusion that it should be excluded from the *L. dispersa* group. A detailed description of *L. flotoviana* in view of its newly defined relationship is presented below. The correct application of the name to currently known *Lecanora* species is a matter for future debate and investigations since such research is beyond the scope of this study.

Lecanora flotoviana Spreng.

Neue Entd. **1**: 221. 1820. – LECTOTYPE (designated here): [Germany] 'Halle' [on sandstone, parasitic on *Phaeophyscia sciastra*] (GOET!)

REMARKS. '*Flotoviana*' is the original spelling and it is to be preserved according to Art. 60.7 of the *International Code of Botanical Nomenclature*,

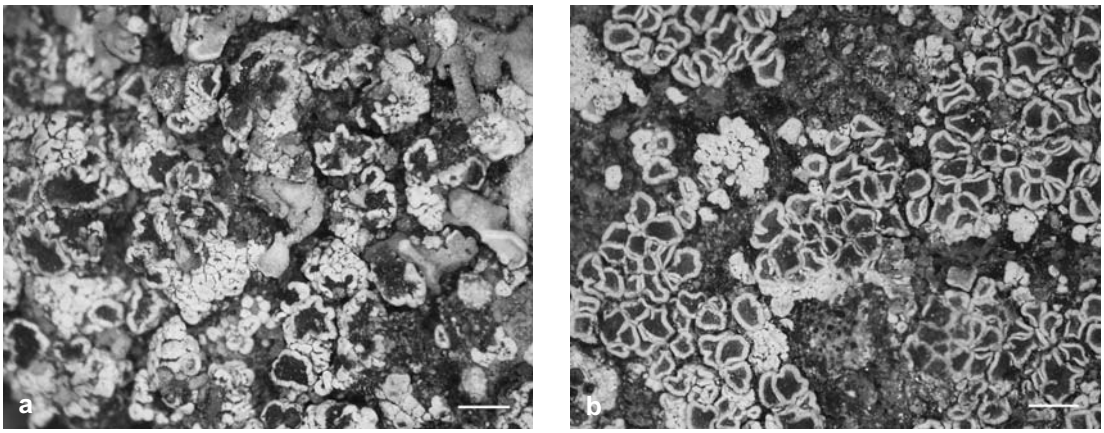


Fig. 4. The collection of *Lecanora flotoviana* Spreng. from B herbarium: a – B 60 0025699; b – B 60 0025705. Scale bars = 1 mm.

which applies in this particular case. In fact, such Latinization of the Flotow name in the species epithet was deliberately chosen: in the protologue the author used the name '*Lecanora Flotoviana*', while further in the same text is the writing '*ad ripas fluminis Unstrut. Flotow*.' (Fig. 1; see also Laundon 2003; Ryan *et al.* 2004).

Thallus superficial, clearly visible, thick, ± compact (forming a continuous crust) or loose; areoles 0.3–1.7 mm wide, granular-like or forming flattened rosettes with crenulated margins; white or cream-colored; surface slightly rough to granular. Apothecia usually on the areoles of thallus, rarely directly on the rock surface, occurring singly or clustered in groups, sessile, flat when mature or flexuose, 0.6–1.3 mm wide; disc pale brown to brown or blackish (often with parasitic fungus), epruinose, or slightly to considerably pruinose, smooth; thalline exciple prominent, rough, uniform, pruinose, even or crenulate, the same colour as thallus and paler than the disc, without a parathecial ring. Amphithecium 120–190 µm thick, corticate, with gelatinous hyphae and algae filling the area below the cortex; cortex usually not distinctly delimited, uniform, or slightly thicker at the base than at the sides, 20–30 µm thick laterally and 30–40 µm thick at base, gelatinous, obscured by granules interfering into algae layer (bright in polarized light, insoluble in K, ± soluble in N); parathecium indistinct; epithecium brown, granular (bright in polarized light), granules mostly superficial, coarse, mostly soluble in K and insoluble in N, usually with an epipsamma (insoluble in K and soluble in N); hymenium hyaline, 50–80 µm high; subhymenium indistinct; hypothecium distinctly yellow, composed of prosoplectenchyma, clear, without granules, 100–120 µm thick. Paraphyses simple, slender, not expanded, or slightly expanded at top, not pigmented, free in K. Asci clavate, 8-spored; ascospores hyaline, simple, ellipsoid, 12.0–15.5(–17.0) × 5.0–7.5 µm. Pycnidia not observed.

CHEMISTRY. Thallus and apothecial margin K+ yellowish, C–, KC–, P+ yellow or P–; disc K–, C–, P–; apothecia UV–. Lichen products: usnic and ± psoromic acids and ± unknown pigment detected by TLC.

SUBSTRATE AND ECOLOGY. Directly on calcareous rocks (lime-rich sandstone, limestone) or overgrowing other lichens, for example *Physcia caesia* (Hoffm.) Fürnr. and *Phaeophyscia sciastra* (Ach.) Moberg.

GEOGRAPHICAL DISTRIBUTION. From the label information of the studied specimens, the species was perhaps scattered in Germany in the 19th century; further investigations are necessary to assess the current frequency and geographical range of the taxon.

SPECIMENS SEEN. GERMANY. Nebra, [on sandstone], *s.d.,* [*Sprengel*?] *s.n.* (B 60 0025699 – partly overgroving *Phaeophyscia sciastra* and *Physcia caesia* (Hoffm.) Fürnr., with parasitic fungus, B 60 0025700, B 60 0025701 – with parasitic fungus, B 60 0025702, B 60 0025703 – associated with *Protoparmeliopsis muralis* M. Choisy, B 60 0025704 – with parasitic fungus, B 60 0025705); Dietenhofen, 1855, *Rehm s.n.* (L 0367184); 'Gott' [Göttingen?], [on sandstone], *s.d.*, *s.coll. s.n.* (GOET); Nebra, [on sandstone, associated with *Protoparmeliopsis muralis*, with parasitic fungus], 1819, *s.coll. s.n.* (L 0367198). Additional specimens seen with no locality provided: [on limestone], 1846, *Philipp s.n.* (GOET); [on sandstone], *s.d., Schaerer s.n.* (GOET). Note: all specimens were originally labeled as *L. flotov(/w)iana*.

THE IDENTITY OF *L. SEMIPALLIDA*

The reassignment of the name *L. flotoviana* given above leaves one of the most distinctive and common representatives of the *L. dispersa* group, represented by the previously discussed exsiccata collection of *L. flotoviana* by Rabenhorst and Körber, without a name. The most appropriate choice seemed to be *L. xanthostoma* since its characteristics (Roux 1976; Poelt *et al.* 1995; Fröberg 1997) correspond very well with the species to which the above-mentioned specimens belong.

Lecanora xanthostoma was recognized and named by Weddell, and described by Roux (1976) who provided an unambiguous and precise circumscription of the species and a bilingual diagnosis (Latin and Esperanto). When describing the species, Roux (1976) referred to the Weddell collection in Paris: '*L. xanthostoma* Wedd. *nom. nudum* in *Herb.* WEDDEL (Muséum d'Histoire Naturelle de Paris)', and provided the locality 'Poitiers' in the text of the paper. Roux (1976: 24) validly published the name *L. xanthostoma* and is the correct author of the species epithet. It is worth mentioning there was no requirement until 1990 to include one of the words 'typus' or 'holotypus', or its abbreviation, or its equivalent in a modern language, or even to specify the single herbarium or collection or institution in which the type is preserved; it was only necessary to indicate a type and this requirement was executed by Roux (1976). Unfortunately the name *L. xanthostoma* was considered as invalidly published in the treatment of Poelt *et al.* (1995), and thus Fröberg (1997) unnecessarily provided a brief diagnosis and selected the holotype (Sweden, Gotland, Öja, 1845, *C. Stenhammar*, LD!). For that reason Fröberg (1997: 33) is commonly but incorrectly given as the author of the name.

Recently, *L. xanthostoma* has received more attention and is reported in several floras and checklists, for example Hafellner and Türk (2001), Llimona and Hladun (2001), Coppins (2002), Nimis and Martellos (2003), Aptroot *et al.* (2004), Santesson *et al.* (2004), Lisická (2005).

However, it seemed to me very unlikely that this distinctive and apparently frequent species was not previously described. Therefore, I checked a considerable number of *Lecanora* names of unknown taxonomic placement, studied their diagnosis for any indication they may belong to the *L. dispersa* group, and finally examined the type collections. This has revealed that *L. xanthostoma* is conspecific with *L. semipallida*, which was described by Magnusson from Asia in 1940, and thus has priority. Hitherto, *L. semipallida* was poorly known, being represented only by the type collection and reported only locally (Golubkova 1981; Baibulatova 1988).

The taxonomic conclusion is thus summarized as follows:

Lecanora semipallida H. Magn.

Lichens from Central Asia I, in S. Hedin (ed.), Reports Scientific Exped. North-west. provinces of China (the Sino-Swedish expedition). 13, XI. Botany, **1**. Aktiebolaget, Thule & Stockholm: 89. 1940. – HOLOTYPE: 'China occidentalis: prov. Kansu. Wai-chüan-ku, E of Yeh-ma-ta-chüan, *ca* 3000 m.s.m., 13.12.1931, *Birger Bohlin 42d*' (S!).

= *L. xanthostoma* Wedd. ex Cl. Roux, Bull. Mus. Hist. Nat. Marseille **36**: 24. 1976. – HOLOTYPE: [France] 'Poitiers' [parasitic on *Verrucaria nigrescens* Pers.], *Weddell* (PC).

= *L. xanthostoma* Cl. Roux ex Fröberg, Symb. Bot. Ups. **32**(1): 33. 1997; *nom. illeg.* (Art. 53.1).

= *L. flotoviana* auct. (non Spreng.). For an overview of the taxon see Ryan *et al.* 2004: 218. Widely distrib-

uted reference collection: Rabenhorst, *Lich. Eur.* 747, *L. flotowiana* (for saxicolous specimens) and Körber, *Lich. Select. German*. 338, *L. flotoviana* (for corticolous specimens).

Thallus within substrate, not visible, or crustose, indistinct to clearly visible, thin, margin indistinct, mostly continuous, ±smooth or rimose, pale gray, or yellowish gray to greenish gray, often with distinct bluish pigment. Apothecia occurring singly, or clustered in groups, sessile, or constricted at base to almost raised, flat when mature or flexuose, 0.4–1.3 mm wide; disc shades of yellow, pale greenish yellow, or yellow-orange to pale brown, epruinose, or slightly pruinose, smooth; thalline exciple prominent, smooth or rough, uniform, epruinose or pruinose, even or distinctly crenulate, paler than thallus and paler than disc, often with bluish pigment, without a parathecial ring. Amphithecium 70–170(–270) µm thick, corticate, with gelatinous hyphae and algae filling the area below the cortex; cortex usually distinctly delimited, rarely not distinctly delimited, uniform, or slightly thicker at base than at sides, 30–50 µm thick laterally and 50–70 µm thick at base, hyphal, obscured by granules occasionally interfering into algae layer (bright in polarized light, insoluble in K, soluble in N); parathecium usually distinct, prosoplectenchymatous, 10–30 µm wide; epithecium hyaline or shades of yellow or brown, granular (bright in polarized light), granules superficial and between paraphyses tips, fine to coarse, soluble in K and insoluble in N, sometimes with an epipsamma (insoluble in K, soluble in N); hymenium hyaline, 50–90 µm high; subhymenium indistinct; hypothecium hyaline or distinctly yellow to orange (becoming more intense in K), composed of prosoplectenchyma, clear, without granules, confluent with proper margin and similar in colour, 50–160 µm thick. Paraphyses simple or dichotomously branched at tips, slender or thickened, not expanded, or slightly expanded at tips, usually not pigmented, free in K. Asci clavate, 4–8-spored; ascospores hyaline, simple, broadly ellipsoid, (8.5–)9.0–12.0(–13.0) × 4.5–6.0(–7.5) µm. Pycnidia rare, black, inconspicuous; conidia elongate, filiform, usually curved, 10–17(–18) µm long.

CHEMISTRY. Apothecial margin K+ yellow, C– or C+ yellow, KC+ yellow, P–; disc K+ yellow or orange, C+ yellow or orange, P–; apothecia UV+ yellow-orange. Lichen products: vinetorin (5-chloro-3-*O*-methylnorlichexanthone) detected by TLC.

SUBSTRATE AND ECOLOGY. Directly on calcareous rocks (limestone, lime-rich sandstone) and concrete or overgrowing or commensally on other lichens, e.g. *Aspicilia calcarea* (L.) Mudd, *Caloplaca* spp., *Lecanora* spp., *Physcia* spp., *Phaeophyscia nigricans* (Flörke) Moberg, *Verrucaria* spp.; occasionally on bark, mosses and plant debris, also on metal.

GEOGRAPHICAL DISTRIBUTION. It is probably a cosmopolitan species; in the course of the revision of the *L. dispersa* group in North America, *L. semipallida* was studied from many regions (Śliwa 2007). Here I present the synopsis of examined collections to indicate the species range: Australia (FH), Austria (ASU, GZU, KRAM), Belgium (FH), Bulgaria (KRAM), Canada (CANL, COLO, MICH, MIN, US, WIS), Czech Republic (NY, US), Denmark (KRAM), Germany (ASU, GOET, L, M), Hungary (FH, KRAM, WIS), Italy (MSC), Mongolia (KRAM, LE), New Zealand (ASU, MSC: Campbell Island), Norway (GOET, NY), Poland (KRAM), Russia (WIS), Sweden (FH, L, LD, MIN, NY, WIS), Switzerland (GOET, NY), Ukraine (KRAM), United Kingdom (H, MSC, NY), U.S.A. (ASU, CANL, COLO, FH, H, KRAM, NY, MICH, MIN, MSC, OMA, OSC, US, WIS; H, MSC, US, WIS: Alaska).

In 2002 during revision of the herbarium material I labelled all these specimens as '*L. flotowiana* Spreng.', which is now equivalent to *L. flotoviana* auct. non Spreng.

COMMENTS. *Lecanora semipallida* is one of the more distinct species of the *L. dispersa* group. A key character distinguishing the species is the presence of epithecial granules that are soluble in K. The presence of vinetorin, resulting in positive spot tests and UV reaction of apothecial discs, is also diagnostic. Especially interesting was the discovery of the presence of elongate, curved conidia

in several specimens of *L. semipallida*, because pycnidia have not been previously reported for any member of the *L. dispersa* group even though they had been illustrated from the specimen from Rabenhorst's exsiccata (*Lich. Eur.* 747) held at the herbarium in Munich.

Lecanora semipallida is now one of the most widely distributed saxicolous species of the group, apart from *L. dispersa* (Pers.) Sommerf. s.str., from which it differs both anatomically and chemically. *Lecanora dispersa* is currently recognized as having epithecial granules that often extend into part or all of the hymenium and that are K-insoluble. The presence of pannarin in *L. dispersa* is also detectable in most specimens (P+ orange, detectable especially on the inner side of the apothecial margins) (Śliwa 2006, 2007). It is worthy of note that *L. semipallida* is very richly represented in most of the herbaria contacted. The species seems obviously over-collected in comparison with *L. dispersa*. This is perhaps because *L. semipallida* draws more attention in the field with its larger apothecia with prominent, thick thalline margins. For someone not familiar with the species it could be mistaken for well developed representatives of *L. dispersa*. Therefore, even if the two species co-occur *L. semipallida* is much more likely to be collected than *L. dispersa* itself.

In morphology, *Lecanora semipallida* is a very variable species. The size and shape of apothecia as well as their colouration differ significantly. It is, however, consistent regarding anatomy (properties of epithecial granules) and chemistry (vinetorin always present). A closely related species is *L. invadens* H. Magn., described by the same author at the same time and also from Asia (Magnusson 1940: 87). This species differs in having a more distinct thallus as compared to *L. semipallida*, dark brown to blackish, heavily pruinose apothecial discs and a blue-green epithecium. Its close relation to *L. semipallida* is indicated by sparse but K soluble granules in the epithecium and the presence of vinetorin (Śliwa 2007).

EXSICCATES SEEN. Arnold, *Lich. Monac. Exsicc.* 206 (as *L. dispersa*) (M); *Flora Hung. Exsicc.* 812 (as *L. dispersa*) (FH, KRAM, WIS); Körber, *Lich. Select. German.* 338 (as *L. flotoviana*, lignicolous) (GOET, L, M); *Lich. Danici Exsicc.* 276 (as *L.* cf. *xanthostoma*) (KRAM); Malme, *Lich. Suecici Exsicc.* 544 (as *L. dispersa*) (MIN, WIS); Rabenhorst, *Lich. Eur.* 747 (as *L. flotowiana*) (FH, GOET, L, M, WIS); Verseghy, *Lich. Exsicc*. 61 (as *L. dispersa*) (KRAM); Wartmann & Schenk, *Schweiz. Kryptog.* 469 (as *L. caesio-alba*) (MIN).

SELECTED HISTORICAL SPECIMENS SEEN. GERMANY. Algau, [illegible]...burg, *s.d.*, *Rehm s.n.* (L 0367195); Algau Oberbayerns, *s.d., s.coll.* (L 0367190); am Blauen Berg, [18]58, *Graf Solms s.n.* (GOET), Prope Büren in Guestfalia, [corticolous], *s.d.*, *Lahm s.n.* (L 0367191); Büren, *s.d.*, *Lahm s.n.* (L 0367185); 'Gott' [Göttingen?], *s.d., s.coll.* (GOET); Kirchhof-Nexeralmoden, 1955, *Lampe s.n.* (GOET); Lahberg bei Bad Gadershein, 1955, *Lampe s.n.* (GOET); Neuhof bei Hildesheim, 1955, *Lampe s.n.* (GOET); Pfarrgarten in Kückenberg, *s.d.*, *Kemler s.n.* (L 0367193); Salzgitter-Band, Hamberg, 1955, *Lampe s.n.* (GOET); Südharzrand, o. Osterhagen, Römerstein, 1955, *Lampe s.n.* (GOET); Weddingen, 1955, *Lampe s.n.* (GOET); Ziegenberg, 1955, *Lampe s.n.* (GOET). MONGOLIA. Gobi Altai, northern slope of the Ikhe-Nomgon-Ula range, alt. 1850 m, [parasitic on *Aspicilia* sp.], 25 July 1970, *Golubkova 892* (LE). NORWAY. *s.loc.*, 1842*, Grisebach s.n.* (GOET). SWEDEN. Gotland, Torsburgen, 1874, *Elmqvist s.n.* (LD); Oeland and Gotland, *s.d.*, *s.coll.* (L 0367200). SWITZERLAND. *s.loc.*, *s.d.*, *s.coll.* (GOET). Additional specimens seen with no locality provided at all: 1955, *Klement s.n.* (GOET); *s.d.*, *s.coll*., *s.n.* (GOET); *s.d.*, *s.coll*., *s.n.* (GOET). Note: originally the specimens were labeled mostly as *L. flotov(/w)iana* but also as *L. albescens*, *L. crenulata* and *L. dispersa.*

CONCLUSIONS

It is important to mention here that other authors had often regarded *Lecanora flotoviana* auct. and *L. xanthostoma* Cl. Roux as two different species. During my studies of a large collection by various authors, the name *L. flotoviana* has been found to have been applied to a range of different species, notably *L. xanthostoma* (indistinctly yellowish morphotypes with brownish apothecial discs) and *L. dispersa* (Pers.) Sommerf. (individuals with large, crowded, flexuose apothecia and brownish apothecial discs). This implies that any renaming of specimens should be made only after their thorough and critical re-determination. Detailed

characteristics of all species of the *L. dispersa* complex as well as a key to their identification are being published separately (Śliwa 2007).

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