

Genus *Dimerella* (Coenogoniaceae, lichenized Ascomycota) in Slovakia

ANNA LACKOVIČOVÁ*, ANNA GUTTOVÁ

Institute of Botany, Slovak Academy of Sciences, Dúbravská cesta 14, 845 23
Bratislava, Slovakia

The genus *Dimerella*, comprising ca 25 species worldwide, was studied to clarify its occurrence in Slovakia. The paper, based on literature review, revision of collections (BP, BRA, PR, PRC, SAV, W, herb. Věžda, herb. Pišút) and fieldwork, brings together evidence of two species, *D. pineti* and *D. lutea*. The first voucher specimens and published data for *D. pineti* date back to the second half of 19th century; 20th century records are only occasional, therefore the species was regarded as rare. However, this investigation shows that it is widely distributed throughout Slovakia, mainly on tree bases, stumps or mossy soil in forests. The sub-oceanic *D. lutea* is recorded from Slovakia for the first time. Its historical occurrence in the Vihorlat Mountains complements our current observation in the Eastern Carpathians (Bukovské vrchy Mts) in 2002. From an investigation of its ecological requirements, it is evident that the species is confined to humid, well preserved forest biotopes. Within the studied territory the species has not been overlooked, but is extremely rare, which is the reason for including it in the Red List of Lichens of Slovakia as critically endangered. Vernacular names for both the species are introduced.

Key words: *Dimerella*, lichens, indicator species, conservation, Red List, Slovakia

Introduction

The genus *Dimerella* Trevis. includes ca 25 species of ascolichens worldwide (KIRK et al. 2001). It has a rather inconspicuous, crustose thallus and light coloured (yellowish, pinkish, orange) biatorine apothecia, producing ellipsoid, 2-cell spores (for more details see BRODO et al. 2001, OXNER 1956, PURVIS and COPPINS 1992). Within the system of fungi the genus *Dimerella* was recently transferred to the genus *Coenogonium* (LÜCKING and KALB 2000) according to certain growth-form features. This step was supported by KAUFF and LUTZONI (2002) who studied the phylogeny of Gyalectales (the genus *Dimerella* being represented by *D. subzonata*, *D. flavicans* and *D. lutea*) based on SSU and LSU rDNA and ranked the genus *Coenogonium* s. l. (including *Dimerella*) in *Coenogoniaceae*. The family *Gyalectaceae*, where the genus formerly belonged, comprises other genera: *Gyalecta*, *Belonia*, *Cryptolechia*, *Pachyphiale*, *Ramonia* and *Semigyalecta*. VĚZDA (2004) comments that the merging of the genera *Coenogonium* and *Dimerella* is wrong since ontogeny of the fruiting bodies and organisation of hyphae in *Coenogonium* points to a long independent phylogeny.

* Corresponding author: anna.lackovicova@savba.sk

Dimerella is represented by 3 species in Europe (NIMIS 2003): (1) the widespread *D. pineti* (Ach.) Vězda, (2) a suboceanic element of seminatural woodlands *D. lutea* (Dicks.) Trevis. and (3) the mild-temperate *D. tavaresiana* Vězda growing in open, humid and warm woodlands. Of these, only *D. pineti* was known to be present in Slovakia. This investigation was initiated to determine the true species diversity, to detect current distribution and habitat preferences, and to assess any threats to the species.

Material and methods

This paper is based on a detailed literature review, revision of collections (BP, BRA, PR, PRC, SAV, W, herb. Vězda, herb. Pišút) and fieldwork. The localities of the species are listed alphabetically according to orographic units. The specimens and published entries are fully cited and in English translation (from original Slovak, Hungarian and German version). Altitude is given in metres above sea level. Each locality is supplemented by a code of Central European grid mapping, used to draw up distributional maps.

Results

Dimerella lutea (Dicks.) Trevis.

Ric. Ist. Lomb. Sc. Lett., 13: 65, 1880 – *Lichen luteus* Dicks., Fasc. Pl. Cryptog. Brit., 1: 11, 1785.

Syn.: *Microphiale lutea* (Dicks.) Zahlbr., *Biatorina lutea* (Dicks.) Körb.

D. lutea is reported for the first time from Slovakia. As in Norway (HOLIEN 1998), its occurrence is based on both an old specimen (collected in the Vihorlat Mounts by J. Nádvořík in 1932, discovered in Budapest) complemented by a recent observation (in Bukovské vrchy, the Eastern Carpathians, in 2002) (Fig. 1); both sites are currently noted for their well-preserved forest biotopes.

In the global context the species is pantropical extending into suboceanic, temperate regions in both hemispheres (PURVIS and COPPINS 1992). It grows directly on bark in shaded and humid situations or on epiphytic bryophytes, often in Lobarion communities (e.g. in S Sweden with *Lobaria virens*, ARUP et al. 1997). It is treated as endangered (EN) in Austria (TÜRK and HAFELLNER 1999), Sweden (GÄRDENFORS 2000), Switzerland (SCHEIDEGGER and CLERC 2002), regionally extinct in Finland where the main threats are changes in tree species composition and age structure of forests (RASSI et al. 2002), and critically endangered (CR) in Poland (CIEŚLINSKI et al. 2003). The species is listed along with other indicator taxa to assess the woodland continuity and quality of the deciduous woodlands of Great Britain and Ireland (COPPINS and COPPINS 2002).

List of localities: **Bukovské vrchy**: Zboj, S slope of Mt. Beskyd (646.3 m), remains of old mixed beech forest (*Fraxinus*, *Carpinus*, *Quercus*, *Fagus*) at the end of the valley of an unnamed stream (followed by the valley Líščia dolina), bark of *Fraxinus*, 600 m, 12. 6. 2002 leg. Guttová and Lackovičová (SAV), (69100b).

Vihorlat Mts: Kamenica nad Cirochou (as Kamenice), 1932 leg. Nádvořík, rev. Vězda 1963 (BP-35942), (7098c). [Note: Substrate not specified, thallus growing probably on *Alnus* bark – wood is reddish; apothecia \varnothing 0.2–1.2 mm, spores: 1.5–3×5–8 μ m, conidia 1.2×5.3 μ m.]

***Dimerella pineti* (Ach.) Vězda**

Sched. ad Lich. Sel. Exs.: nr. 1279, 1975 – *Lecidea pineti* [Schrad. ex] Ach., Lich. Univ.: 195, 1810.

Syn.: *Gyalecta pineti* (Ach.) Tuck., *Biatorina pineti* (Ach.) A. Massal., *Dimerella diluta* (Pers.) Trevis., *Biatorina diluta* (Pers.) Th. Fr., *Microphiale diluta* (Pers.) Zahlbr.

First voucher specimens and published data referring to the species date back to the second half of the 19th century (by Kalchbrenner and Hazslinszky); 20th century records are occasional (by e.g. Zahlbruckner, Szatala, Suza, Vězda, Pišút), therefore the species was regarded as vulnerable (Pišút et al. 1996, 1998), and was listed as indicator of natural montane forests (Pišút 1997). The first massive occurrence in lowland Slovakia was published by LACKOVIČOVÁ (1998); the idea that *D. pineti* is currently overlooked in Slovakia and not potentially threatened was noted by ORTHOVÁ and Pišút (1999).

The work by VAN HERK et al. (2002) provides another reason why it may have been overlooked in the past: summarising results from long-term monitoring of the occurrence of 178 epiphytes (including *D. pineti*), that is, the correlations between frequencies of occurrence and ecological determinants, in the Netherlands, the authors suggest that certain high frequencies of occurrence in recent years are a response to global warming. Consequent intensive investigation showed and confirmed the European trend, that it is widely distributed throughout Slovakia (Fig. 1), preferably on ± acidic bark of trees (mostly their bases), stumps or mossy soil in forests.

List of localities: **Borská nížina Plain:** Lakšárska Nová Ves, NNR Červený rybník, *Quercus* sp., 1988 leg. Lisická (LISICKÁ 1989:51), (7468b).

Branisko Mts: Lipovce, valley Lipovecká dolina, *Fagus sylvatica*, 600 m (SUZA 1951b:181, as *Microphiale diluta*), (6991b).

Bukovské vrchy: Nová Sedlica, NNR Stučica, the valley of Stučická rieka, *Fagus sylvatica*, 650 m, 1989 leg. Lackovičová and Pišút (Pišút 1990, Pišút and Lackovičová 1992; SAV), (69101a); *ibid.*, N slope between Packova Mt. Kyčera and Mt. Príkry, stump, 750 m, 3. 7. 2003, leg. Lackovičová and Pišút (SAV), (69101a); Nová Sedlica, valley of the stream Zbojský potok, area of gamekeeper's house, *Ulmus glabra*, 580 m, 11. 6. 2002 leg. Guttová and Lackovičová (SAV), (69100b); *ibid.*, upstream of Zbojský potok, area on the foot of an elevation 579.5, ca 250 m from the meadow Lúka medovej baby, on soil, 670 m, 11. 6. 2002 leg. Guttová and Lackovičová (SAV), (69100b); Runina: SW slope of the mountain ridge right above the well/water source Tri studničky, an unnamed valley, old *Fagus*, 720 m, 12. 6. 2002 leg. Guttová and Lackovičová (SAV), (69100a); Uličské Krivé: NNR Rožok, remains of primeval mixed beech forest, *Fagus sylvatica*, 640 m, 13. 6. 2002 leg. Guttová, Lackovičová and Palice (SAV), (70100b); *ibid.*, the valley of an unnamed stream between the locations Pol'ana and Žľab, remains of old beech forest, *Fagus sylvatica*, 500 m, 13. 6. 2002, leg. Guttová, Lackovičová and Palice (SAV), (69100b); Zboj, S slope of Mt. Beskyd (646.3 m), remains of old mixed beech forest (*Fraxinus*, *Carpinus*, *Quercus*, *Fagus*) at the end of the valley of an unnamed stream (followed by the valley Líščia dolina), bark of *Quercus petraea*, 500–550 m, 12. 6. 2002 leg. Guttová and Lackovičová (SAV), (69100b); *ibid.*, *Fraxinus* sp., *Quercus* sp., 600 m, 12. 6. 2002 leg. Guttová and Lackovičová (SAV), (69100b).

Chočské vrchy: Likavka, ruins of the castle Likava, mixed forest nearby, shaded *Acer* sp., 600 m, 28. 6. 1997 leg. Guttová (GUTTOVÁ 2001:208; SAV), (6881d).

Hornádska kotlina (Basin): Spišská Nová Ves and its vicinity, birches, willows (HAZSLINSZKY 1884:155, as *Biatorina Pineti*; SZATALA 1930:872, as *Microphiale diluta*), (7089a–c); *ibid.*, *Pinus sylvestris*, leg. Hazslinszky (BP-79458, as *Biatorina pineti*), (7089a–c).

Javorníky Mountains: Kysucké Nové Mesto, NE part of the hill Tábora called »Kopce«, the Škorča area, spruce forest along the forest road, exposed roots of *Picea*, 370 m, 16. 2. 2002 leg. Guttová (SAV), (6678d).

Kysucká vrchovina (Mts): Radoľ'a, Malý Vreť Mt., E slope, beech forest mixed with pines, bark of pine trunk, 600 m, 28. 2. 2003 leg. Guttová (SAV), (6778b); *ibid.*, Vreť Mt., NE ridge sloping to the valley with Veľ'ké Ostré Mt. opposite, *Fagus sylvatica*, 650 m, 20. 4. 2002 leg. Guttová (SAV), (6778b); *ibid.*, Veľ'ké Ostré National Monument, W facing slope of the hill, base of a beech stump, 460 m, 31. 3. 2002 leg. Guttová (SAV), (6778b); Lopusné Pažite – part Lopusná, hill Prašivá, S slope, light scree beech forest, *Fagus sylvatica*, 580 m, 30. 3. 2002 leg. Guttová (SAV), (6778b).

Levočské vrchy (Mts): Levoča, Rúrová Hill, mixed pine, spruce, birch forest along the dirt road to Uloža, *Betula* sp., *Quercus* sp., 800 m, 26. 6. 2003 leg. Guttová and Lackovičová (SAV), (6989b).

Malé Karpaty (Mts): Borinka, Borinské údolie (valley), Medené hámy, on *Frullania* sp. on *Alnus glutinosa*, 300–320 m, 1916 leg. Suza (SUZA 1920:103, 1926b:4, 1948:15, Zahlbruckner 1911; W-6472, all as *Microphiale diluta*), (7768b); *ibid.*, *Quercus* sp., 350 m, 1971 leg. Pišút (PišÚT 2002:6), (7768b); *ibid.* NE slope of Klčovanice above the »Pod vrchom« gamekeeper's house mixed deciduous forest with *Fagus*, *Quercus* and *Carpinus*, old *Quercus* sp., 300 m, 24. 11. 2001 leg. Guttová (SAV), (7768a); Brezová pod Bradlom, Klenová Hill, *Fagus sylvatica*, 500 m (SUZA 1948:20, as *Microphiale diluta*), (7371d); Častá, Častianska dolina (valley), remains of primeval forest, SE slopes, 400 m, *Quercus* sp., 29. 9. 2003 leg. Guttová, Lackovičová and Orthová (SAV), (7570c); Dobrá Voda, ruins of the castle Dobrá Voda, *Acer campestre*, 350 m, 20. 4. 1998 leg. Guttová, Lackovičová and Pišút (SAV), (7371c); Limbach, NNR Nad Šenkárkou, peat-bog with *Eriophoro vaginati-Betuletum pubescentis*, *Betula pubescens*, 557 m, 16. 11. 2001 leg. Guttová, Kocourková and Lisická (SAV), (7769a); *ibid.* E slopes above garden yards (»chatty«) and vineyards, oak forest, leaning *Quercus* trunk, 320 m, 16. 11. 2001 leg. Guttová, Orthová, Kocourková and Lisická (SAV), (7769a); Modra – Harmónia, a tourist base, »Zochova chata«, mixed beech forest along the stream, *Alnus glutinosa* on the bank of the stream, 460 m, 2000 leg. Guttová, Kučera and Orthová (GUTTOVÁ 2001:208; SAV), (7669b); Pezinok, part Cajla, SE exposed slopes of Kolársky vrch (hill) above the mines, mixed deciduous forest, *Quercus* sp., 350 m, 16. 4. 2004, leg. Guttová, Orthová and Pišút (SAV), (7669c); *ibid.*, part Cajla, slopes above the Rudné bane plant, oak stumps, 16. 4. 2004 not. Guttová, Orthová and Pišút (SAV), (7669c–d).

Nitrianska pahorkatina Highland: Hlohovec, oak-hornbeam forest Mladý háj between Hlohovec and Rišňovce, *Quercus* sp., 180 m, 24. 4. 2001 leg. Guttová (SAV), (7673a); Dolné Krškany, oak-hornbeam forest Dvorčiansky les, S of Nitra, bank of the stream Stará Nitra, *Quercus* sp., 130 m, 24. 4. 2001 leg. Guttová (SAV), (7774b); Nový Cabaj, oak-hornbeam forest Javor SSW of Nitra, enclave of *Pseudotsuga menziesii* near gamekeeper's lodge, bases of *Pseudotsuga menziesii*, 200 m, 24. 4. 2001 leg. Guttová (SAV), (7774a); Sereš – Vinohrady nad Váhom, NNR Dubník, oak-hornbeam forest, gamekeeper's house in NW part, *Quercus* sp., 180 m, 24. 4. 2001 leg. Guttová (SAV), (7672d).

Nízke Tatry (Mts): Brezno, valley Bystrá dolina, *Fagus sylvatica*, 1300 m, 1966 leg. Pišút (PIŠÚT 1981:12; BRA-60, sub n. *D. diluta*), (7083d); Liptovská Teplička, by Čierny Váh River (SZATALA 1930:872, as *Microphiale diluta* – erroneously given as Hazzlinsky's collection, 1884: »Lojka apud Hazsl. 1884:155, as *Biatorina pineto*)«, (7086b); Liptovský Mikuláš, valley Demänovská dolina: *Picea abies*, 820 m (SUZA 1935:165, as *Microphiale diluta*); ibid., *Larix decidua*, 830 m (SUZA 1935:168, as *Microphiale diluta*), (6983d); Telgárt, Kráľova hoľa Mt., mosses, plant debris, leg. Lojka (HAZSLINSKY 1884:155, as *Biatorina Pineti*), (7186b); Východná, summit of Mačacia Mt. (complex of Veľký blok), *Acer pseudoplatanus*, 1360 m, 1968 leg. Pišút (PIŠÚT 1970:33; BRA-73, all as *D. diluta*), (7085a).

Pieniny Mts: Červený Kláštor, S slope of the hill Kláštorhá hora, mixed spruce-pine-fir forest, basis of *Abies alba*, *Sambucus nigra*, 500 m, 21. 8. 2001 leg. Guttová, Lackovičová, Liška and Palice (SAV), (6688b); NNR Prielom Dunajca, the part of the canyon between the points Janoškov skok and Stredný diel (W slope of the elevation 675.3), bark of *Populus*, ca 450 m, 23.8.2001 leg. Guttová, Lackovičová, Lisická, Liška, Palice (SAV), (6688b); Haligovce, NNR Haligovské skaly, SE part, area of Aksamitka Cave and Końcysto Cliff, *Sorbus* sp., 750 m, 1997 leg. Guttová (SAV), (6688b); Stráňany, mixed beech-fir forest on S slope of elevation point 829.0 above meadows called Čierť aže, fallen fir trunk, ca 740 m, 22. 8. 2001 leg. Guttová, Lackovičová, Liška and Palice (SAV), (6689a–b).

Podunajská rovina (Plain): Bajdel, 1996 leg. Puškárová and Slezáková (BRA-408), (7969a); Rusovce, forest near the village, *Aesculus hippocastanum*, 130 m, 11. 3. 1999 leg. Pišút (SAV), (7968b); Svätý Jur, NNR Šúr, *Alnus incana*, *Populus* sp., *Quercus robur*, 130 m, 22. 4. 1998 leg. Lackovičová (LACKOVIČOVÁ 1998:25, sub n. *Abconditella lignicola* sic!, prerev. Z. Palice; SAV); ibid., *Alnus incana*, *Salix* sp., *Quercus* sp., 130 m, 1998 leg. Orthová (ORTHOVÁ and PIŠÚT 1999:8), (7769c).

Podtatranská kotlina Basin: Šuňava, 1868 leg. Lojka, prerev. Vězda 1964 (W, as *Gyalecta geoica*), (6986d).

Pol'ana Mts: L'ubietová, L'ubietovský Vepor Mt., N slope, *Abies alba*, 750 m (SUZA 1945:41, as *Microphiale diluta*), (7282d).

Považský Inovec Mts: Hrádok, ruins of the castle Tematínsky hrad, *Fagus sylvatica*, 600 m (SUZA 1936a:300, 313, as *Microphiale diluta*), (7373b).

Slovenský kras Karst: Kunova Teplica, Plešivská planina plateau, Holá skala, plot 11, 12, leg. Lisická (LISICKÁ 1988:17, as *D. diluta*), (7388c); ibid., plot 15, leg. Lisická (LISICKÁ 1988:17, as *D. diluta*), (7388d); ibid., in clivo steposo exadversum pagum Kunova Teplica, 600–650 m, ad stirpem muscosam *Tiliae* sp., 19. 5. 1981 leg. Lisická (LISICKÁ 1985:85, 1988:17, both as *D. diluta*; PIŠÚT 1999:97), (7388c);

Spišská Magura Mts: Jezersko, the ridge above the ski-center, spruce forest, exposed roots of *Picea abies*, 1100 m, 8. 9. 2004 leg. Guttová (SAV), (6787b); Toporec, mountain pass Toporecké sedlo, spruce grove, exposed roots of *Picea abies*, 802 m, 8. 9. 2004 leg. Guttová (SAV), (6788b).

Spišsko-gemerský kras Karst, Muránska planina plateau: Muráň, foot of Cigánka Mt., *Fagus sylvatica*, 700 m, 1981 leg. Čupková (PIŠÚT 1983:70, as *D. diluta*; BRA), (7286a); ibid., valley Hrdzavá dolina, *Picea abies*, 700 m, 1981 leg. Jůvová (PIŠÚT 1983:70,

sub n. *D. diluta*; PišÚT 1999:97; BRA), (7286a); *ibid.*, *Picea excelsa*, 1982 leg. Jůvová (GUTTOVÁ 2002:21; BRA), (7286A); *IBID.*, Mochy peat-bog, foot of NE slope of Vrbiarka Mt., *Betula* sp., 700 m, 18. 10. 1999 leg. Bayerová, Guttová, Hájek and Palice (GUTTOVÁ and PALICE, 1999:39), (7285d); upper part of valley Javorníkovej doliny, light, deciduous forest, *Acer pseudoplatanus*, *Acer* sp., *Fagus sylvatica*, *Fraxinus excelsior*, *Picea abies*, rotten wood, pland debris, 470–700 m, 28. 10. 2001 leg. Guttová, Halda, Orthová and Palice (GUTTOVÁ and PALICE 2002:56), (7286c); Nižná Kl'aková, S slope of Kl'ak Mt., ca 0,5 km from Nižná Kl'aková gamekeeper's house, mixed cultivated forest, *Fagus sylvatica*, 1000–1050 m, 16. 10. 1999 leg. Guttová, Orthová and Palice (GUTTOVÁ and PALICE 1999: 39), (7285b); Závadka nad Hronom, the valley of Klátna Stream, *Fagus sylvatica*, 900 m (SUZA 1950:193, as *Microphiale diluta*), (7285b); Zlatno, beech forest S of the village, *Picea abies*, 820 m, 16. 8. 1999 leg. Blanár (KOCHJAROVÁ et al. 1999:62, 67), (7186d); *ibid.*, NR Havrania dolina, beech-spruce forest, *Picea abies*, 800 m, 14. 5. 1999 leg. Blanár (KOCHJAROVÁ et al., 1999:62, 67), (7186c).

Spišsko-gemerský kras Karst, Slovenský raj Mts: Čingov, Sokolia dolina (valley), bare wood, 570–1000 m, 12. 06. 1998 leg. Bayerová, Halda; (PALICE et al. 1999:14), (7088c); *ibid.*, NNR Prielom Hornádu, *Tilia* sp., 495–500 m, 9. 06. 1998 leg. Bayerová, Halda & Palice (PALICE et al. 1999:14), (7088d); Dedinky, Glac Mt., *Fagus sylvatica*, 900 m (SUZA 1930b:10; SUZA 1946:125, both as *Microphiale diluta*), (7088c); *ibid.*, NNR Zejmarská roklina, the gorge, *Acer* sp., 950–1000 m, 1997 leg. Guttová and Orthová (POČUBAJOVÁ et al. 2000:33; SAV), (7188c); Hrabušice, ravine Suchá Belá, stump, 570–650 m, 11. 06. 1998 leg. Bayerová, Halda, Palice (PALICE et al. 1999:14), (7088a); Hrabušice, valley Vel'ký Sokol, fallen trunk by the stream, 640–800 m, 10. 06. 1998 leg. Bayerová, Halda, Palice (PALICE et al. 1999:14), (7088c); *ibid.*, Kamenné vráta (gorge), bare wood, 750–800 m, 10. 06. 1998 leg. Bayerová, Halda, Palice (PALICE et al. 1999:14), (7088c); *ibid.*, by the way ca 0,5 km from confluence with the stream Vel'ká Biela voda, rotten stump, 640 m, 10. 06. 1998 leg. Bayerová, Halda, Palice (PALICE et al. 1999:14), (7088c); Hrabušice – Píla, downstream in the gorge Stredné Piecky, among exposed roots of *Picea abies*, 600–650 m, 8.06.1998 leg. Bayerová, Halda and Palice (PALICE et al. 1999:14), (7088c); Hrabušice – Podlesok, downstream of the gorge Vel'ký Kysel', roots of upended tree, 750 m, 12. 06. 1998, leg. Palice (PALICE et al. 1999:14), (7088c); Stratená, the valley of Hnilec, 800 m, *Pinus sylvestris* (SUZA 1946:125, as *Microphiale diluta*), (7188a).

Strážovské vrchy Mts: Zliechov, Strážov Mt., NW foot, beech forest above the meadow with fen peats in the valley of an unnamed stream, base of *Fagus sylvatica*, ca 720 m, 8. 5. 2003 leg. Guttová, Kresáňová, Smatanová and Smatana (SAV), (7076b);

Súl'ovské vrchy: Hlboké nad Váhom, the valley of Hlbocký potok (stream), section above Hlbocký vodopád (waterfall), managed beech forest, basis of *Fagus sylvatica*, 600 m, 9. 5. 2003 leg. Guttová, Kresáňová and Smatanová (SAV), (6877b); Súľ'ov, Súľ'ovské skaly, *Fagus sylvatica* (SUZA 1930a:81, as *Microphiale diluta*; SUZA 1947:17, as *Microphiale diluta*), (6877b); *ibid.*, part Brada – pass below, bases of *Fagus sylvatica*, 740 m, 9. 5. 2003 leg. Guttová, Kresáňová and Smatanová (SAV), (6877b).

Šarišská vrchovina highland: Prešov, foot of the hill Kalvária, on mosses, 1869 leg. Lojka, det. Szatala (SZATALA 1932:83; W, both as *Microphiale diluta* f. *leucostigma*), (7093a); *ibid.*, mineral spring »Kvašná Voda«, rev. Szatala (BP-1683, as *Secoliga geoica*), (7093a).

Malá Fatra Mts: Štefanová, Veľký Rozsutec Mt., NE slope, spruce stumps, (SUZA 1936b:127, as *Microphiale diluta*), (6780d).

Veľká Fatra: Blatnica, valley Dedošova dolina, W slope near gamekeeper's house Drobkové, plant debris on calcareous soil, 900 m, 1987 leg. Pišút (PIŠÚT 1990:10; BRA-310, both as *D. diluta*), (7080c); *ibid.*, side valley Vrátna within NR Biela skala, *Acer pseudoplatanus* ad ripam rivi, 800 m, 17. 10. 1995 leg. Guttová (SAV), (7080c); Čremošné, valley Žarnovická dolina, *Ulmus* sp., 720 m, 1992 leg. Lisická (LISICKÁ 1999:9), (7179b); Dolný Harmanec, valley Bystrická dolina, *Acer pseudoplatanus*, 710 m, 1992, LISICKÁ (1999:9), (7180c).

Liptovské Revúce – part Stredná Revúca, Javorina Mt., *Picea excelsa*, 1330 m, 1936b Suza (PRM-166659, as *Microphiale diluta*), (7080b); Necpaly, Necpalská dolina (valley), *Salix* sp., 520 m, 1991 leg. Lisická (LISICKÁ 1999:9), (7080a); Sklabinský Podzámok, valley Kantorská dolina, *Acer pseudoplatanus*, *Alnus* sp., 690 m, 1992, leg. Lisická (LISICKÁ 1999:9), (6980c); *ibid.* *Corylus avellana*, 720 m, 1992 leg. Lisická (LISICKÁ 1999:9), (6980c).

Veporské vrchy Mts: Klenovec, Klenovský Vepor Mt., S slope, location Pálenica, *Abies alba*, 1050–1100 m (SUZA 1949b:14, as *Microphiale diluta*), (7384a); Čierny Balog, NNR Dobročský prales, core part of the reserve, fallen *Fagus sylvatica*, 960 m, 19. 8. 2003 leg. Lackovičová and Pišút (LACKOVIČOVÁ and PIŠÚT 2004:23, SAV), (7384a).

Vihorlatské vrchy Mts: Kamienka, NNR Vihorlatský prales, NE slope of Mt. Kyjov, *Fagus sylvatica*, 650–700 m, 30. 6. 2003 leg. Guttová, Lackovičová and Pišút (LACKOVIČOVÁ et al. 2004; SAV), (7198a); *ibid.*, summit of Kyjov Mt., remains of mixed beech–ash–maple primeval forest, *Fagus sylvatica*, 780–820 m, 10. 6. 2002 leg. Guttová and Lackovičová (LACKOVIČOVÁ et al., 2004; SAV), (7198a); Vyšné Remety and its vicinity, beeches, leg. Lojka (HAZSLINSZKY 1884:155, as *Biatorina Pineti*), (7199d).

Volovské vrchy Mts: Spišské Vlchy, generally, leg. Kalchbrenner (HAZSLINSZKY 1884:155, as *Biatorina Pineti*; SZATALA 1930:872, as *Microphiale diluta*); *ibid.*, leg. Neupauer (BP-79459, as *Biatorina p.*); *ibid.*, *Picea abies* (HAZSLINSZKY 1859a:19); *ibid.*, Verpuš Mt., *Picea abies*, leg. Kalchbrenner (HAZSLINSZKY 1859b:92, as *Biatorina pineti*), (7090d); Poráč, valley Poráčska dolina, beech forest with limestone outcrops in the vicinity of tourist bases, on bark of *Betula* sp., *Fagus sylvatica* stump, 620 m, 28. 6. 2003 leg. Guttová (SAV), (7190a).

Tatry, Belianske Tatry Mts: Tatranská Javorina, on the way to Podspády, close to the river Javorinka, *Abies alba*, *Alnus glutinosa*, 950–1000 m, 27. 6. 2001 leg. Lisická & Košuthová (LISICKÁ and KOŠUTHOVÁ 2002:14), (6786b); *ibid.*, close to the Javorinka River, bark of young dead *Picea abies*, ca 950 m, 27. 6. 2001 leg. Lisická & Košuthová (LISICKÁ and KOŠUTHOVÁ 2002:14), (6786b); Tatranská Kotlina, Faixova meadow, by the stream Čierna voda, »Žihlavno«, base of *Picea abies*, ca 1200–1300 m (SUZA 1926b:5, 1937b:142, SZATALA 1930:872, all as *Microphiale diluta*), (6787d); *ibid.*, Skalné vráta: generally (ŠOLTÉS et al. 1999:16); *ibid.*, bark of *Pinus mugo*, 1650 m (SUZA 1926a, SZATALA 1930:872, both as *Microphiale diluta*); *ibid.*, plant detritus on humus calcareous soil, 1600 m (VĚZDA, 1960:175, as *D. diluta*), (6787d).

Tatry, Vysoké Tatry Mts: generally (SUZA 1951a); Lysá Pol'ana, Bielovodská dolina (valley), Šoltés et al. (1999:3), (6786d); *ibid.*, 4. 7. 1993 leg. Lisická (LISICKÁ 2005), (6786d); Vyšné Hágy, valley of the Poprad River between the Popradské pleso stop and the points »Výhybka Štôla« and Vyšné Hágy on rotten wood (*Picea abies?*), 1050–1100 m, 26.

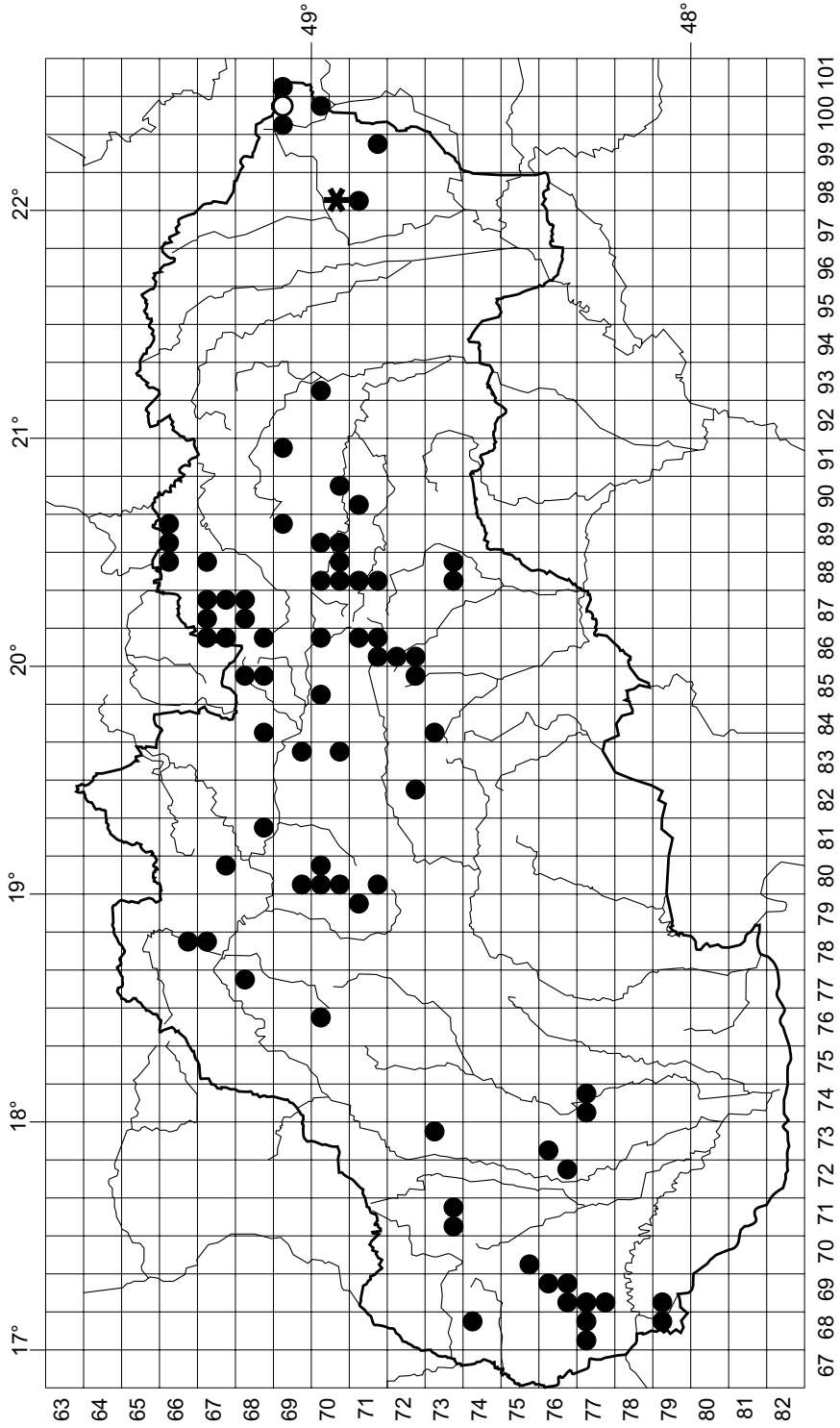


Fig. 1. Distribution of the *D. lutea* and *D. pineti* in Slovakia. (●) – *D. pineti*, (○) – *D. lutea*, * – common occurrence of both the species)

6. 2001 leg. Lisická and Košuthová (LISICKÁ and KOŠUTHOVÁ 2002:14), (6886d); *ibid.*, 1240 m, 26. 6. 2001 leg. Lisická & Košuthová (LISICKÁ, 2005), (6886d); Podbanské, valley Kôprova dolina, *Picea abies*, 1300 m (SUZA 1932:9, as *Microphiale diluta*), (6885b); *ibid.*, Nefcerka, ca 1500 m, on humus (SUZA 1932:9, as *Microphiale diluta* f. *terrestris*), (6885b); Tatranská Lomnica, on the way to Hrebienok (blue tourist route), wood, 1260 m, 22. 7. 2001 leg. Lisická (LISICKÁ 2005), (6887a); *ibid.*, *Betula* sp., 850 m, 21.09.1993 leg. Lisická (LISICKÁ 2005), (6887b); *ibid.*, *Betula pubescens*, 850 m, 1996 leg. Kyselová (TANAP-18/09/21, 5137), (6887b); *ibid.*, *Picea excelsa*, 800 m, 1961 leg. Vězda (BRA-167), (6887b); Podspády, *Alnus incana*, 700 m, 1960 leg. Vězda (BRA), (6787a).

Tatry, Západné Tatry Mts: Žiar, Žiarska dolina (valley), near an old mine, 930 m, 29. 5. 1984 leg. Lisická (LISICKÁ 2005), (6884c); Podbanské, Tichá dolina (valley), »*corticola*« (stump of *Picea abies*), leg. Lojka (SZATALA 1932:83; SUZA 1949a:257, both as *Microphiale diluta*; W-275, as *Biatorinopsis pineti*), (6885b–d).

Geographically not specified data: Western Carpathians Mts: Region Gemer: conifers (VARGA 1906:15, as *Biatorina diluta*); Humenné and its vicinity, mosses, plant debris (HAZSLINSZKY 1884:155, as *Biatorina Pineti*); Prešov and its vicinity: *Cerasus avium*, *Acer* sp., *Quercus* sp, mosses, forest debris (HAZSLINSZKY 1862:201, as *Biatorina pineti*; 1884:155, as *Biatorina Pineti*; SZATALA 1930:872, as *Microphiale diluta*); *ibid.*, cherry tree, 1868 leg. Lojka (W, as *Biatorina p.*); *ibid.*, *Pinus* sp., leg. Hazslinszky (BP-79455, 35934, as *Biatorina p.*); *ibid.*, *Pinus* sp., leg. Veselský 1963 (BP-1675, KRAM-L-3072, as *Biatorina p.*); *ibid.*, *Prunus* sp., leg. Lojka (W, as *Biatorina p.*); *ibid.*, *Quercus*, leg. Hazslinszky (BP, as *Biatorina p.*).

Conclusions

The investigation provides new information on the distribution of two species of *Dimerella* in Slovakia, namely *D. lutea* and *D. pineti*. *Dimerella lutea* is new for Slovakia (sought for a long time, certainly not overlooked but extremely rare) in two of the best preserved beech forests in the Slovak part of the Eastern Carpathians. It is recommended that it be included in the Red List of Slovak Lichens, ranked as critically endangered (CR). It is also suggested that it be included in the list of 70 indicator lichens for the assessment of natural montane forest (PIŠŮT 1997) instead of *D. pineti*. We propose the vernacular name: dimerela zlatá.

Recently *D. pineti* has been found to be more or less common when the ecological requirements are met. It is most frequent on *Fagus sylvatica* (ca 30%), *Picea abies* (ca 21%) and *Quercus* sp. (ca 18%); it was less commonly recorded (2.6–7.9%) on mossy soil in forests, stump, plant debris and rotten wood, being confined to forests within altitudinal range 130–1650 m a. s. l. Pursuant to ongoing research, it has been deleted from the latest Red List of Slovak Lichens (PIŠŮT et al. 2001) and also from the list of the indicators of natural montane forests (PIŠŮT 1997). We propose the vernacular name: dimerela borovicová.

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