Recent collections of powdery mildews (Erysiphales) in Poland

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Findings on the occurrence of 17 species of powdery mildews in Poland and Europe, collected on 37 plant taxa (species, varieties), are reported. Eight species were found on 13 host species not noted in Europe before. 24 species of plants are new hosts for these fungi in Poland. The greatest number of plants (10 species) was infected by Erysiphe berberidis.

Key words: parasitic microfungi, Erysiphales, Ascomycota, distribution

INTRODUCTION

Distinctive infection symptoms, easiness with which they can be observed and damage caused to cultivated plants make powdery mildews (Erysiphales) particularly interesting to mycologists and phytopathologists. It is a group examined well, both in Poland and in the world (e.g. Sałata 1985; Braun 1987, 1995). First findings on the occurrence of Erysiphales in Poland come from 1855, while a comprehensive monograph study on the subject was published in 1985 (Sałata 1985).

An increase in the number of reports of powdery mildews has been observed in recent years. Findings are indicative of an exceptionally quick spread of these fungi in the world, including Poland and Europe. The number of newly described species has been increasing, although to a small extent. However, reports on new localities of these fungi, infections of new host plants and quick spread of some species, including migrations of successive Asian and North-American species, have become more numerous. Teleomorphic stages of these fungi which for many years occurred only in conidial stages have also been found (review of literature, see Wołczańska and Muленко 2002). These features may indicate a quick adaptation of powdery mildews to new habitat conditions as well as the invasive nature of representatives of this group (Muленко et al. unpubl.).
The description and remarks on the distribution of 17 species of powdery mildews collected on successive 37 taxa (species or varieties) of vascular plants, collected mostly in eastern Poland, are presented. The majority of the fungi listed are polyphagous, known well in Poland, Europe and in the world. However, they have not been reported on the plants listed below or they have been known from a single locality or few localities. Only those species whose number of localities on a specific host did not exceed 5 for entire Poland are given. A general distribution in Europe is also provided for each species.

Those species that occur on plant hosts new for these fungi in Europe constitute the most important group. 13 plant taxa belong here: Berberis amurensis var. japonica, B. x chopinii ‘Mazurek’, B. lycioides, B. x ottawensis ‘Purpurea’, B. vulgaris ‘Atropurpurea’ and B. wilsoniae var. subcaulialata (infected by Erysiphe berberidis), Monarda fistulosa (infected by Golovinomyces biocellatus), Erysimum marshalianum (infected by Erysiphe cruciferarum), Euonymus europeaus var. alba (infected by Erysiphe euonymi), Heracleum sosnowskyi (infected by Erysiphe heraclei), Cornus stolonifera ‘Flaviramea’ (infected by Erysiphe tortilis), Sambucus nigra var. lacinia (infected by Erysiphe vanbruntiana var. sambuci racemosae) and Inula macrocephala (infected by Golovinomyces cichoracearum var. cichoracearum).

Fungi collected in Poland on plants not infected by powdery mildews before are an interesting group. As many as 24 plant species (66% of collected species) are hosts new for these fungi. Except from the plants given above, these also are: Delphinium cuneatum (infected by Erysiphe aquilegiae var. rannunculi), Berberis bretschneideri, B. lycium, B. morrisonensis, B. vernae (infected by Erysiphe berberidis), Ajuga chamaepitys and Monarda fistulosa (infected by Golovinomyces biocellatus), Fumaria officinalis (infected by Erysiphe cruciferarum), Vinca minor (infected by Golovinomyces orontii), Acer ginnala (infected by Sawadaea tulasnei) and Senecio macrophyllus (infected by Golovinomyces cichoracearum var. cichoracearum).

Detailed descriptions of the fungi examined are given in several monograph studies (e.g. Braun 1987, 1995; Saliata 1985). Morphology of specimens found in Poland is consistent with these descriptions. Therefore, a full description of all species is not given but only the most important and most characteristic features of their morphological structure are emphasised.

Nomenclature of the fungi is given acc. to Gelyuta (1988), Braun (1999) and the latest study by Braun and Takamatsu (2000), based on molecular examinations of the ITS rDNA sequence. Names used before (Braun 1995) are given as synonyms. Nomenclature of the host plants is adjusted to the latest edition of Checklist of vascular plants and pteridophytes of Poland (Mirek et al. 2002). Geographic regions of Poland are given acc. to Kondracki (1998).

All samples cited in the part „Host and locality” were deposited in mycological herbarium (LBLM) in Department of Botany and Mycology of Maria Curie–Skłodowska University (Lublin, Poland).
LIST OF SPECIES AND LOCALITIES

_Erysiphe aquilegiae var. rannunculi_ (Grev.) Zeng & Chan


**Hosts and localities:** On _Clematis integrifolia_ L.: WYŻyna LUBELSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. A. Wołczańska (LBM 8552);
on _Thalictrum lucidum_ L.: WYŻyna LUBELSKA UPLAND, Lublin, Botanical Garden, 26.07.2000, leg. W. Muńenko, det. U. Świderska (LBM 8522);

**Remarks.** The fungus has not been recorded on _Delphinium cuneatum_ Steven ex DC. in Poland before. On _Clematis integrifolia_ L. known from one locality only (Dzierżoniów); on _Thalictrum minus_ L. also from one locality (Księte near Lipno), and on _Thalictrum lucidum_ L. from two localities (Rębków near Garwolin and Pogjezirze Łęczyńsko–Włodawskie lake district) (Sałata 1985, Muńenko 1988).

_E. aquilegiae var. rannunculi_ is frequently noted in Poland. This powdery mildew has been recorded so far on 38 species of host plants. Sałata (1985) listed 30 host plants for this species (Paonia officinalis was excluded – Piątek 2004a), and 8 have been added: _Aconitum lasiocarpum_ (Rchb.) Gáyera (Wołczańska and Oklejewicz 2001), _Aconitum plicatum_ Köhler ex Rchb. (Piątek 2004a), _Consolida ajacis_ (L.) Schur (Czerwińska 2001, Adamska 2002), _Delphium oxypepalum_ Borbás et Pax (Sałata, Romaniszewska-Sałata, Muńenko 1993), _Nigella damascena_ L. (Adamska 2002), _Ranunculus arvensis_ L. (Adamska 2001), _Ranunculus oregophilus_ M. Bieb. (Sałata et al. 1984), _Ranunculus polyanthemos_ L. (Romaniszewska-Sałata and Muńenko 1983).

The fungus has been noted relatively frequently on the plant species listed in Europe. It is known on _Clematis integrifolia_ from 7 countries, on _Thalictrum lucidum_ from 9 countries, and on _Thalictrum minus_ from 14 countries (Braun 1995). It occurs rarely only on _Delphium cuneatum_; it has been reported on this plant only from the former Soviet Union (Braun l.c.).

_Erysiphe berberidis_ DC.

= _Microsphaera berberidis_ (DC. ex Mérat) Trev.

The fungus infects leaves and, to a smaller degree, shoots and fruits, covering them with a whitish coating. Conidia cylindric, 25–37 × 11.5–15 μm. Chasmothecia dark brown, diam. 90–126 μm, scattered or gregarious. Appendages fairly numerous (8–18), hyaline, 2–4 times dichotomously branched and obtuse at the ends, 1–3
(most frequently 1.5) times longer than chasmothecium diameter. Asc 4–8, ovoid, 44–58 × 28–32 μm. Ascospores 4–5(–6), ellipsoid, 16–24 × 9–10 μm.

Braun (1987) distinguished two varieties within this species: Microsphaera berberidis (DC.) Lév. var. berberidis and Microsphaera berberidis (DC.) Lév. var. asiatica. U. Braun, differentiated by the appendage length. Appendages in Microsphaera berberidis var. berberidis are 1-3 times (most frequently 1.5-2 times) longer than the chasmothecium diameter. Appendages of this length were observed on barberry species occurring in Europe. Microsphaera berberidis var. asiatica is characterised by shorter appendages (1-2, most frequently 1-1.5 times longer than the chasmothecium diameter) and it was found on species occurring in Asia. In present collection mature chasmothecia occurred only very rarely and the appendages were most frequently 1.5 times longer than the chasmothecium diameter. It was impossible to specify the variety on the basis of the material collected. It seems, however, to be Microsphaera berberidis var. berberidis. Additional observations are needed at the future.

Hosts and localities: On Berberis amurensis Rupr. var. japonica (Reg.) Rehd.: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. M. Mameczarz (LBM 8498);

on Berberis bretschneideri Rehd.: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. M. Kozłowska (LBM 8499);

on Berberis x chopinii Seneta ‘Mazurek’: WYŻYNA LUBEŃSKA UPLAND, Lublin-LSM, 04.10.2004, leg. et det. M. Kozłowska (LBM 8500); Puławy-Gościńczyk, 03.10.2004, leg. et det. U. Świderska (LBM 8501);

on Berberis lycoides Stapf: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 26.07.2000, leg. W. Mułęńko, det. U. Świderska (LBM 8524);

on Berberis lycium Royle: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. M. Kozłowska (LBM 8503);

on Berberis morrisonensis Hayata: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. M. Kozłowska (LBM 8504);

on Berberis x ottawensis Schn. ‘Purpurea’: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. U. Świderska (LBM 8505);

on Berberis vernae Schn.: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. U. Świderska (LBM 8506);

on Berberis vulgaris L. ‘Atropurpurea’: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. M. Mameczarz (LBM 8507, 8508);

on Berberis wilsoniae Hemsfl. et Wills. var. subcaulata Schn.: WYŻYNA LUBEŃSKA UPLAND, Lublin, Botanical Garden, 05.10.2004, leg. et det. U. Świderska (LBM 8509);


Remarks. The fungus has been reported only on 6 plant species in Poland, including 4 species of the genus Berberis L. (B. amurensis Rupr., B. koreana Palibin, B. thunbergii DC., B. vulgaris L.) (Sałat 1985; Romaszewska-Sałat, Sałat, Mułęńko 1986; Dynowska et al. 1999; Czerniawska et al. 2000; Piątek 2004a), on Mahonia aquifolium Nutt. (Sałat 1985; Dynowska, Fiedorowicz, Kubiak 1999; Czerniawska 2001) as well as on Mahoberberis neuberti C. K. Schneid. (Romaszewska-Sałat et al. 1986, Piątek 2004a). All the spe-
cies and varieties of the barberry reported in the present study are new hosts of the parasite in Poland.

The fungus has not been reported on Berberis amurensis var. japonica, B. × chopyi-
nii ‘Mazurek’, B. lycioides, B. × ottawensis ‘Purpurea’, B. vulgaris ‘Atropurpurea’ and
B. wilsoniae var. subcaudalata in Europe before. It has been reported, however, on
Berberis lycium from Romania, on B. bretschneideri, B. morrisonensis and B. vernaefrom the Great Britain, and on B. amurensis and B. wilsoniae from the Great Britain and
Romania. The species has been noted most frequently on B. vulgaris (19 European
countries) and on Mahoberberis neuberti (8 countries) (Braun 1995).

Erysiphe cruciferarum Opiz ex L. Junell

The fungus infects both leaves and stems, sometimes fruits, covering them with a
white, arachnoid, farinose coating. Conidia cylindrical or cylindrical-ellipsoid, 29–34 × 11–14 μm, solitary, rarely in short chains. Chasmothecia very few, immature.

Hosts and localities: On Erysimum marschallianum Andrz. ex M. Bieb.: WZYN
LUBELSKA UPLAND, Lublin, on railway lines near FSC, 18.07.1993, leg. F. Święć, det.
A. Wołczańska (LBLM 8514);

on Erysimum piniencicum (Zapał.) Pawł.: KOTLINA SANDOMIERSKA BASIN,
Bolesławszyce Arboretum, 08.06.2001, leg. W. Muleńko, det. U. Świderska (LBLM 8527);

on Fumaria officinalis L.: ROZTOCZE, Chełmowa Góra reserve near Krasnoberd,
stony slope, 28.09.2002, leg. W. Muleńko, det. U. Świderska (LBLM 8528);

on Lunaria rediviva L.: BESKID NISKI MTs., Cergowa Góra Mt., in Dentario gland-
dulosae-Fagetum (=Fagetum carpticum), 02.07.1993, leg. et det. A. Wołczańska
(LBLM 8515).

Remarks. The fungus has not been noted on Erysimum marschallianum Andrz. ex
M. Bieb. and Fumaria officinalis L. in Poland so far. On Erysimum piniencicum (Zapał.)
Pawł. has been reported only from the Wzgórze Zamkowe hill in Czorsztyn (Sałat a
1985) and from Krościenko on Dunajec (Piałtek 2004a), and on Lunaria rediviva
L. from the Pieniny Mt. and Krynica (Sałat a 1985). The fungus occurs commonly
in Poland and has been reported on 33 plant species so far. Salata (1985) listed 28
host plants for this species and 5 have been added: Brassica oleracea L. ssp. capitata
(L.) Duchesne (Dynowska et al. 1999), Brassica rapa L. subsp. rapa (Czerniawska
2001), Cardaminopsis arenosa (L.) Hayek (Muleńko 1988), Lepidium latifolium L.

The fungus has not been collected on Erysimum marschallianum in Europe; on
Erysimum piniencicum reported only from Poland, on Fumaria officinalis only from
Switzerland, while on Lunaria rediviva known from 11 countries (Braun 1995).

Erysiphe euonymi DC.

= Microsphaera euonymi (DC. ex Mérat) Sacc.

Coating mostly on the lower surface of the leaf, distinctive, white, arachnoid.
Conidia ellipsoid-cylindrical or cylindrical, 25.5–34 × 13.5–15 μm, solitary. Chas-
mothecia diam. 86–118 μm, appendages 7–10, 3–5 times dichotomously branched

**Host and locality:** On *Euonymus europeaus* var. *alba* Schn.: **WYŻyna Lubelska UPLAND**, Lublin, Botanical Garden, 05.10.2004, leg. et det. U. Świderska (LBLM 8529).

**Remarks.** The fungus has not been reported on *Euonymus europeaus* var. *alba* in Poland. It has been frequently collected on *Euonymus europeaus* (Sałata 1985; Danilkiewicz 1987; Muńenko 1988; Sałata et al. 1993; Dynowska et al. 1999; Czerniawska 2001). In Europe known from 19 countries (Braun 1995).

**Erysiphe hedwigii** (Lév.) U. Braun & S. Takamatsu

= *Microsphaera hedwigii* Lév., *M. viburni* (de Bary) Blumer


**Remarks.** *Erysiphe* (*Microsphaera*) *hedwigii* has been already reported in Poland on *Viburnum opulus* L., *Viburnum trilobum* Marsh. and *Viburnum lantana* L (Sałata 1985, Madej 1971). The identification of *Viburnum trilobum*, however, was corrected in the successive study by Madej (1974): it is *V. opulus*. The identification of *Viburnum lantana*, collected in Wolica near Dobczyce, was corrected by Sałata (1985): it is *Viburnum opulus*. According to Braun (1995), data on *Viburnum opulus* should be referred to *Erysiphe viburni* Duby (*=Microsphaera sparsa* Howe). The above explanations show that *Erysiphe* (*Microsphaera*) *hedwigii* on *Viburnum lantana* has not been collected in Poland before.

The fungus has been reported on *Viburnum lantana* L. from 15 countries in Europe, including Poland (Braun 1995), however these findings are probably reported for the locality from Wolica near Dobczyce (see above), where the host was *Viburnum opulus*, on which *Erysiphe viburni* Duby (*=Microsphaera sparsa* Howe) occurs.

**Erysiphe heraclei** DC.

The fungus infects leaves, covering them with greyish, amphigenous, coating, consisting of the mycelium and few conidiophores and conidia. Conidia cylindrical or cylindrical-ellipsoid, 27–38 × 11–16 μm, most frequently 32–34 × 11–14 μm, formed singly. Chasmothecia on both surfaces of the leaf, globose, dark brown or black, diam. 85.5–107 μm, most frequently 91–99 μm. Appendages shorter or as long as chasmothecium diameter. Asci ellipsoid or ovoid, 63–68 × 36–41 μm, 3(-4)-spored. Ascospores ellipsoid, rarely ovoid, 18–23 × 11–14 μm.
Hosts and localities: On *Heracleum sosnowskyi* Manden.: Wyżyna Lubelska Upland, Lublin, Botanical Garden, 14.10.2004, leg. et det M. Mamczarz (LBLM 8510, 8511);

on *Heracleum* sp. (*H. sosnowskyi* Manden. or *H. mantegazzianum* Somm. et Leve-er): Wyżyna Kielecka Upland, Świętokrzyski National Park, beginning of the tourist trail to Święty Krzyż Mt., 04.08.2004, leg. et det. M. Mamczarz (LBLM 8512, 8513).

Remarks. *Heracleum sosnowskyi* and *H. mantegazzianum* are related Caucasian species, very similar to each other (Rutzowski 1998). No descriptions of *H. sosnowskyi* are given in Polish literature; however, according to Caucasian flora (Grossgejm 1967), fruits, not collected in the present study, are required for the differentiation of the two species. Thus, a detailed determination of the specimen found in the Świętokrzyski National Park was not possible and the plant must be collected again.

The fungus occurs commonly in Poland and has been reported on 33 plant species. Sałata (1985) listed 29 host plants for this species and 4 have been added: *Aethusa cynapium* L. (Dywnowska et al. 1999), *Chaerophyllum aureum* L. (Wolczańska and Oklejewicz 2001), *Chaerophyllum temulum* (Mułenko 1988; Dywnowska et al. 1999; Czerniawska et al. 2000; Adamska 2001), *Oenanthe aquatica* (L.) Poir. (Romaszewska-Sałata et al. 1986; Mułenko 1988). However, it is known only from 4 localities on *H. mantegazzianum* (Przelewice near Pyrzyce, Dzierżoniów, Ożarów Mazowiecki, Lublin), while it has not been noted so far on *H. sosnowskyi* (Sałata 1985).

The fungus has not been reported on *Heracleum sosnowskyi* in Europe either. It is known on *H. mantegazzianum* from 8 countries (Braun 1995).

*Erysiphe tortillis* (Wallr.) ex Fr.


Remarks. The fungus has not been reported on *Cornus stolonifera* ‘Flaviramea’ in Poland before, and collected only in Przelewice near Pyrzyce on *C. stolonifera* Michx. (Madej 1971, Sałata 1985). Also known from one locality (n. Strzelno) on *C. alba* L. and from numerous localities on *C. sanguinea* L. (Romaszewska-Sałata and Mułenko 1983, Sałata 1985, Danilkiewicz 1987, Mułenko 1988, Czerniawska 2001).

It has not been reported on *Cornus stolonifera* ‘Flaviramea’ in Europe either, while on *Cornus stolonifera* known only from Poland (Braun 1995).
Erysiphe vanbruntiana var. sambuci racemosae (U. Braun)
U. Braun & S. Takamatsu
= Microspphaera vanbruntiana var. sambuci racemosae U. Braun

Conidiophores and conidia were not observed. Chasmothecia on both surfaces of the leaf, scattered or gregarious, dark brown, diam. 128–144 μm. Appendages 20–27 without transverse septa, 2–5(-6) times dichotomously branched at the ends, 1–1.5 times longer than chasmothecium diameter. Ascii were not observed.


It has not been reported on S. nigra var. laciniata in Europe either. Reported on Sambucus nigra in Germany, France, Italy and Romania (Braun 1995).

Golovinomyces biocellatus (Ehrenb.) V. P. Gelyuta
= Erysiphe biocellata Ehrenb.

The fungus was collected only in the conidial stage. Delicate, whitish, arachnoid coating occurs on leaves and stems. It consists of the mycelium, conidiophores and conidia. Conidiophores 48–50 × 10–13 μm. Conidia ellipsoid or cylindrical, 28–33 × 14–17 μm, formed in chains.

Hosts and localities: On Ajuga chamaepitys (L.) Schreb.: WYZNA LUBELSKA UPLAND, Lublin, Botanical Garden, 28.09.2004, leg. et det. A. Wołczańska (LBM 8550);

on Monarda didyma L.: POBREŻE GDAŃSKIE LITTORAL REGION, Władysławowo, flower-bed, 26.07.1999, leg. W. Mułenko, det. U. Świderska (LBM 8525);


Remarks. Golovinomyces biocellatus is a frequent species in Poland, noted on 17 plant species so far. Sałat a (1985) listed 15 host plants for this species and 2 have been added: Mentha x citrata Ehrh. subsp. citrata (Adamska 2001) and Monarda hybrida Wender (Adamska 2002). The fungus has not been recorded on Ajuga chamaepitys and Monarda fistulosa, while it has been known only on M. didyma from the Botanical Garden in Lublin (Sałat a 1985).

The fungus has not been reported in Europe on Monarda fistulosa, on Ajuga chamaepitys known only from Romania, while on Monarda didyma from 6 countries (Braun 1995).
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Golovinomyces cichoracearum (DC.) V. P. Gelyuta var. cichoracearum
= Erysiphe cichoracearum DC.var. cichoracearum


Hosts and localities: On Inula macrocephala Boiss. & Kotsch et Boiss.: WYŻYNA LUBELSKA UPLAND, Lublin, Botanical Garden, 28.09.2004, leg. et det. A. Wołczańska (LBLM 8548);

on Hieracium umbellatum L.: POBRZEŻE GDAŃSKIE LITTORAL REGION, Hel Peninsula, Jastarnia, on the side of Zatoka Pucka, 04.09.1999, leg. et det. A. Wołczańska (LBM 8518);

on Senecio macrophyllus M. Bieb.: POLESIE WOŁYŃSKIE, BRZEŹNO RESERVE, 18.08.2004, leg. B. Czarnecka and K. Kowalska, det. A. Wołczańska (LBM 8546, 8547).

Remarks. The fungus has not been noted on Inula macrocephala and Senecio macrophyllus in Poland before; while on Hieracium umbellatum reported only from the vicinity of Świnoujście and Władysławowo (Sałat a 1985).

Senecio macrophyllus was not differentiated earlier as a separate species but included in Senecio umbrosus Waldst. & KIT. sensu lato (Mirek et al. 2002). Its range in Poland is limited only to the Lublin region (Zając and Zając 2001). Senecio macrophyllus is not listed as a host of Erysiphe cichoracearum var. cichoracearum in the European monograph by Braun (1995) either. Only Senecio umbrosus, on which the parasite was collected in former Czechoslovakia, Romania and the former Soviet Union, is listed. The fungus has not been collected on Inula macrocephala in Europe either, while it has been noted on Hieracium umbellatum in 11 countries (Braun 1995).

Golovinomyces cichoracearum var. latisporus (U. Braun) U. Braun
= Erysiphe cichoracearum var. latispora U. Braun

Infection visible as distinctive, whitish, arachnoid or farinosus coating, covering stems and both surfaces of the leaf. Conidia cylindrical-ellipsoid or cylindrical; 28–34 × 15–18 μm, formed in chains. Chasmothecia diam. 100–165 μm. Ascii were not developed.


Remarks. On Helianthus annuus fungus was collected only in Kraków (Piątek 2004a).

It occurs on this host in 11 countries in Europe (Braun 1995).
Golovinomyces orontii (Cast.) V. P. Gelyuta
= Erysiphe orontii Cast.

The fungus infects primarily leaves, as well as stems, covering them with a arachnoid coating. Conidia ellipsoid-ovoid or subcylindric, 27–38 × 15–18 μm, formed in chains.


**Remarks.** The fungus has not been reported on *Vinca minor* in Poland. It has been reported on this host in Europe only from 4 countries: France, Italy, the former Soviet Union and Switzerland (Braun 1995).

Golovinomyces sordidus (Junell) V. P. Gelyuta
= Erysiphe sordida Junell

Coating on both surfaces of the leaf, greyish, poorly visible. Conidia ellipsoid or cylindrical-ellipsoid, 25–32.5 × 12.5–16.5 μm, formed in chains. Chasmothecia few, diam. 120–140 μm. Ascii 5–7, 50–62.5 × 27–32.5 μm. Ascospores ellipsoid, 18–25 × 12.5–15 μm.


It has been noted on *Plantago intermedia* only in 4 countries in Europe: former Czechoslovakia, Hungary, Poland and Finland (Braun 1995).

*Neoerysiphe galii* (S. Blumer) U. Braun
= *Erysiphe galii* S. Blumer

Coating whitish, delicate, poorly visible, amphigenous. Conidia cylindrical or cylindric-ellipsoid, 11–16 × 25–32 μm, formed in chains. Chasmothecia not found.

**Host and locality:** On *Cruciata glabra* (L.) Ehrend.: PÓGÓRZE ŚRODKOWOBESKIDZKIE FOOTHILL, Rymanów, insolated slope, 16.09.1993, leg. et det. A. Wołczańska (LBM 8519).

**Remarks.** The fungus was collected on *Cruciata glabra* only in the Sokola Góra reserve near Częstochowa (Ruszkiewicz 2000). Additionally it is known on 8 other plant species: 7 reported *Sałata* (1985), and 1 (*Galium palustre* L.) Romaszewska-Sałata et al. (1986) and Muńenko (1988).
In Europe it has been noted on *Cruciata glabra* in Austria, Romania and former Soviet Union (Braun 1995).

*Podosphaera tridactyla* (Wallr.) de Bary var. *tridactyla*

Conidiophores and conidia was not observed on infected organs. Chasmothecia 80–95 μm, scattered or gregarious on both surfaces of the leaf. Appendages 2–4 (most frequently 3–4) times dichotomously branched. Ascii broadly ellipsoid or almost globose, 68–85 × 58–63 μm. Ascospores 8 ellipsoid or broadly ellipsoid, 22–26.5 × 14–15.5 μm.

**Host and locality:**


**Remarks.** The fungus occurs rarely on *Cerasus avium* in Poland and has so far been reported only from Kraków and Mszana Dolna (Sałata 1985) as well as from Pojezierze Łęczyńsko-Włodawskie lake district (Muńenko 1988). From Poland is known 8 host plants of this fungus. Sałata (1985) listed 7 hosts for this species and 1 (*Padus serotina* (Ehrh.) Borkh.) was noted by Ruszkiewicz (2000) and Ruszkiewicz-Michalska and Muńenko (2003).

It has been reported on this host in 10 countries in Europe (Braun 1995).

*Sawadaea tulasnei* (Fuck.) Homma

= *Uncinula tulasnei* (Fuck.) Homma


**Host and locality:** on *Acer ginnala* Maxim.: Sudejt ŚRODKOWE MTS, Polanica Zdrój, 20.09.2001 (conidial stage); WYŻyna lubelska upland, Lublin–Czechów, 18.10.2003 (conidial and teleomorphic stages), leg. W. Muńenko, det. U. Świderska (revised by U. Braun, Germany) (LBM 8543-8545).

**Remarks.** The fungus has not been reported on *Acer ginnala* in Poland before. However, it frequently occurs on *Acer platanoides* L., and lately was also collected on *Acer tataricum* L. (Piątek 2004a).

It has been reported on *Acer ginnala* in Europe only from the former Soviet Union and Ukraine (Braun 1995).

*Oidium carpini* Fotzik


Remarks. The fungus was collected on *Carpinus betulus* L. only in Kraków and Tarnów (Piątek 2004b).

It has been noted on this host only in 3 countries in Europe: Germany, Great Britain (Braun 1995) and Hungary (Szabó 2003).

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REFERENCES


Recent collections of powdery mildews (Erysipales) in Poland


Interesujące gatunki mączniakowych (Erysipales) zebrane w Polsce

Streszczenie

W ciągu ostatnich kilku lat zebrane w Polsce 17 interesujących gatunków grzybów mączniakowych (Erysipales) na 37 taksonach (gatunkach, odmianach) roślin naczyniowych. W pracy przedstawiono krótką charakterystykę tych grzybów oraz podano informacje o ich rozmieszczeniu w Polsce i w Europie. Osiem gatunków pasożytniczych znajdowano na 13 nowych (dla grzybów) roślinach żywiceliskich. Należą do nich: Erysiphe berberidis (na Berberis amurensis var. japonica, B. x chopini ‘Mazurek’, B. lycioides, B. x ottawensis ‘Purpurea’, B. vulgaris ‘Atropurpurea’ i B. wilsoniae var. subcaulialata), Erysiphe cruciferarum (na Erysimum marshalianum), Erysiphe euonymi (na Euonymus europeus var. alba), Erysiphe heraclei (na Heracleum sosnowskyi), Erysiphe tortilis (na Cornus stolonifera ‘Flaviramea’), Erysiphe vanbruntiana var. sambuci racemosae (na Sambucus nigra var. laciniata), Golovinomyces biocellatus (na Monarda fistulosa) i Golovinomyces cichoracearum var. cichoracearum (na Inula macrocephala). Nowymi żywicelikami dla grzybów mączniakowych w Polsce okazały się 24 gatunki roślin. Największa liczba roślin (10 gatunków) zainfekowana była przez Erysiphe berberidis DC.