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REVIEW

Microfungi of the Tatra Mountains. Part 7. Correction of some data from herbaria and the literature

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Abstract
The Tatra Mts are located on the border of two countries – Poland and Slovakia. It is a unique, extremely geobotanically-differentiated region, protected by law and listed on the UNESCO Biosphere Reserve List as an internationally recognized area. Due to the high nature values of the Tatra Mts, varied research, including mycological, has been intensively conducted on this area for many years. The first data on the microscopic fungi of the Tatras comes from to the second half of the nineteenth century and spans more than 150 years. Currently, the critical list of microfungi is being prepared concerning species published up to date from the whole Tatra range (the Polish and Slovakian parts), and also the adjacent areas. During detailed study of the available mycological literature, many erroneous citations of the original data or incorrect interpretations of these records were noted. Often, this faulty data was also reproduced in subsequent publications.

The aim of this study was to correct some of the data published in the cited literature. In the paper, 68 fungal species were mentioned, including 29 species of Ascomycota and 39 species of Basidiomycota. Additionally, some information about the plants – the fungal hosts – has also been corrected.

Keywords
fungi; checklist; distribution; Western Carpathians, Tatra National Park; Poland; Slovakia

Introduction

Despite their relatively small surface area, the Tatra Mts are an important massif in Central Europe belonging to the Western Carpathians. They are the highest mountains between the Alps and the Caucasus Mts and between the Balkan Peninsula and Scandinavian mountains. The Tatra Mts are also the highest Carpathian range crossing the migration path of arctic and alpine species between the east and west and between the north and south. Although the Tatra Mts are significantly smaller and lower than the Alps, the subnival belt develops in the Tatras, making it the only place of such a type in Central Europe [1–3]. Due to the specific and unique character of the flora and vegetation two national parks were established on the territory of the Tatra Mts: one in the Slovakian Tatras (TANAP, Tatranský Národný Park, 1949), and the second in Poland (TPN, Tatrzański Park Narodowy, 1954).

The Tatras are an area of interest for researchers representing various scientific disciplines, both in their range of animate and inanimate forms of nature. From the mycological point of view, the Tatras flora and vegetation are of special value. The high richness of plants (about 1400 species) and their characteristic distribution, the

occurrence of relict and endemic species, the differentiation of the geological substrate and the infinite number of terrain forms make the nature of the Tatra Mts particularly noteworthy [1–3]. These features are directly connected with a high richness of fungal species, including microfungi.

Mycological investigations have been intensively carried out on both sides of the Tatra range, Polish and Slovakian. The first data about microscopic fungi was published in the second half of the nineteenth century by Hazslinszky [4–7], Kalchbrenner [8,9], and Greschik [10,11]. They collected fungi on the south, Slovakian side of the Tatra Mts. Soon, Polish researchers, e.g., Krupa [12,13], Raciborski [14–16], Rehman [17], and Boberski [18] also began studies, often on both sides of the Tatras. The first collective summary of parasitic fungi occurring in the whole Tatra range was prepared by Stamachowa [19] in a hundred years since the beginning of the first studies. For the entire area of the Tatra Mts and adjacent areas, only 450 species of microscopic fungi were reported during that time. This number was underreported and incomplete; however, for the next 30 years, this work was cited as the main source of information.

At the end of the twentieth century, several successive mycological works summarizing previous data were published. They concerned the Zakopane Basin (267 species) [20], the Polish side of the National Park (369 species) [21], and the Slovakian side of the National Park (283 species) [22]. However, at the beginning of the twenty-first century, the first critical list of microfungi known from only the Polish side of the Park was published (461 species) [23]. A rapid increase in the number of known fungal species from this region was noticeable (100 species in 8 years), and every subsequent synthesis suggested that the richness of fungal species found in the Tatra Mts is much higher than hitherto recorded.

In 1998, preliminary joint Polish–Slovakian mycological studies throughout the whole of the Tatra Mountains began. In the last decade (2005–2015), they were very intensively and systematically conducted under several research grants obtained from Polish and Slovakian institutions. One of the main goals of these projects, besides scientific research, was to prepare a complete, critical list of known microfungi in the whole Tatra range and in its surroundings [24]. Currently, the list of microfungi includes over 1700 species, while the cited mycological literature is comprised of more than 400 published scientific papers.

Aim and range of the study

As mentioned earlier, the literature on the subject is rich, and simultaneously very diverse. It contains not only the original results of field studies, but also different types of syntheses, reviews, and popular science papers – in them, previous results have been cited, generalized, or transformed.

During the study of all available literature about Tatras fungi, the authors noted many erroneous citations or incorrect interpretations of the source data, which were later duplicated in subsequent publications.

The causes of these inaccuracies can be conceived in a few points:

- incorrect localization of localities;
- incorrect identification of fungi and their hosts (mostly vascular plants);
- incorrect citations of data from the original source papers;
- omission of critical taxonomic studies, in which the significant proofs of existing data were made;
- incorrect citations of papers (authors' names, dates, titles, etc.) and random technical errors, uncritically treated as credible information.

The objective of the present study is to show and correct some of the erroneous data about the microfungi of the Tatra Mts published in various papers. Here, only the information that was cited incorrectly was included, and the introduced corrections did leave any doubt of the authors. In spite of these limitations, the list of reported mistakes is significant. Some of our suggestions also apply to the need for a re-identification of herbarium collections (plants and fungi). Modern methods of taxonomy have facilitated the separation of new species from existing ones (e.g., from genera

Caltha, *Senecio*, *Aconitum*, and others). Other, questionable data will be discussed in the aforementioned list of fungi being prepared for publication.

Some groups of fungi have already been the subject of our critical revision, and noted discrepancies have been corrected. This work concerns fungi belonging to two orders – Taphrinales (Ascomycota, including Taphrinaceae and Protomycetaceae) [25] and Peronosporales (Oomycota) [26], including members of the *Plasmopara* genus published previously [27]. Species belonging to the other groups, i.e., ascomycetous fungi (Ascomycota; 29 species), and basidiomycetous fungi (Basidiomycota; 39 species) have also been taken into consideration. Moreover, the authors have revised some doubtful but available herbarium collections and corrected erroneous information about many host species of fungi.

In keeping with the resolution that the present article is published in a continuous and generally accessible journal, our corrections will be readily available. We hope that this will contribute to significantly reducing the number of erroneous citations in the future publications concerning the fungi of the Tatra Mts.

Factors affecting the occurrence of erroneous information

Over the 150 years of mycological research, changes have taken place not only in the political sphere (two world wars, the collapse of Austria-Hungary, the revival of Poland, and the dissolution of Czechoslovakia) but also in geobotanical conditions. Many mistakes may have been made due to the very strong internal differentiation and physiographic division of the Tatra Mountains as well as the mistranslation of old names, particularly those from Hungarian and German.

The research objectives and methods, the interpretation of results, and the means of publication have changed as well. The first botanical-mycological investigations carried out in this area had a typically preliminary nature, while at the same time providing scanty information about habitats and localities. With time, research became more detailed and took into account a greater number of habitat conditions. Therefore, the literature offers highly diverse information ranging from simple lists of species identified in sporadic and occasional research to complex environmental analyses.

The first explorers, e.g., Hazslinszky, Kalchbrenner, Boberski [4,9,18] regarded the area of the Tatra Mountains as unified and called the region the "High Tatras" (Tatry Wysokie, Vysoké Tatry, Hohe Tatra, Magas-Tátra). These were contrasted with the "Low Tatras" (Nízke Tatry, Alacsony-Tátra, Niedere Tatra), which are an isolated massif located approx. 30 km to the southwest. The first information about the region (both mycological and botanical) did not reflect the internal divisions of the Tatra Mountains. Although the exact location of the localities is not specified, it is obvious that the aforementioned researchers worked on the southern, i.e., Slovakian, part of the Tatra Mountains. Others, e.g., Krupa [12,13] and Raciborski [14], carried out their observations and collections on the northern side, which currently belongs to Poland. However, some Polish researchers reported information from both parts of the Tatra Mts, and Slovakian researchers have published data about fungi collected in the Polish part of the region.

A critical and cautious approach should be applied to the information published later by Namysłowski [28,29], who sometimes changed or generalized the position of localities while citing other authors' reports, e.g., Krupa [13] and Rouppert [30]. For instance, the information about the location of fungi in mountains near Zakopane and Kościelisko was reported stricte as Zakopane town and Kościelisko village. Conversely, other authors published data about fungi collected in the town of Zakopane and its surroundings with reference to those occurring in the mountains, thus covering the entire region as the Tatra Mountains (Tatra National Park).

There were also serious difficulties in distinguishing between localities in areas with extremely similar names situated in different parts (eastern or western) of the Tatra Mountains and on both (Polish and Slovakian) sides of the massif. For instance, localities situated within the Kościelisko village were often wrongly reported as "Dolina Kościeliska" valley. In the area of the Tatra Mountains, the name "Świstówka" (Slov.: Svišťovka) appears repeatedly (PL – Świstówka Roztocka, Świstówka Waksmundzka,

Mała Świstówka, Świstowa Czuba; SK – Svišťovka, Malá Svišťovka, Veľká Svišťovka, Svišťovská dolina). Furthermore, there are two areas called "Tichá dolina" valley (Tichá dolina Liptovská and Tichá dolina Oravská), two so-called "five lakes valleys" (PL – Dolina Pięciu Stawów Polskich valley; SK – kotlina Piatich Spišských plies valley), several lakes called "black lake", and many other examples. Since there were no critical analyses of the original papers, the localities were incorrectly assigned to regions or countries.

Some localities reported from the Tatra Mountains refer to quite different regions. For example, Kriváň Mt, i.e., one of the highest peaks of the High Tatras, was mistaken for Fatranský (Veľký) Kriváň Mt, which is the highest peak in the Malá Fatra massif (over a 50-km distance). Five fungal species were wrongly reported as coming from the Tatra Mountains, although their localities were situated as far as in the Ukraine. Four of them referred to the name "Volovec" (a peak in the Western Tatra Mountains and a village in the Ukraine) and one to Kościelniki village (a village in the Buchach district of the Ukraine; orig. reported by Raciborski) [14], which was mistaken for Kościelisko village near Zakopane by Starmachowa [19]. Two other species were reported as coming from the Tatra Mts by Guyot [31], although they were collected in the surrounding area of Kronstadt town (actually Braşov) located in Romania [32].

Finally, the authors of the current study themselves have also not avoided erroneous citations, especially in papers published previously, before the preparation of this current, critical list of Tatras fungi.

List of the species[1]

Ascomycota

Blumeria graminis (DC.) Speer (Erysiphales)

- On ***Dactylis glomerata*** L. On this plant, the fungus was reported from only two localities on the Polish side of the Tatra Mts. It was also incorrectly reported from the Vysoké Tatry Mts (SK) by Bacigálowa [22] after Paulech [33]. However, the latter author did not report this fungus on *Dactylis glomerata* from the territory of the Tatra Mts. *Blumeria graminis* is a commonly occurring fungus in the Tatra Mts and it was additionally recorded on 15 other plant species in this region.

Dangeardiella macrospora (J. Schröt.) Sacc. & P. Syd. (Dothideales)
Syn.: *Monographus macrosporus* J. Schröt.

- On *Anthyllis alpestris* (Kit.) Rchb. (Fabaceae). On this plant, the fungus was incorrectly reported by Starmachowa [19] after Moesz [34]. However, in the original paper by Moesz [34], the fungus was noted on "petioles of *Athyrii alpestris*" [= *Athyrium alpestre* (Hoppe) Nyl.] which belongs to Polypodiales (ferns) and is a synonym of *Athyrium distentifolium* Tausch ex Opiz. The fungus was collected by Moesz [34] at Malá Studená dolina (SK, Vysoké Tatry Mts). This region is located on granite rocks on which *Anthyllis alpestris* does not occur; however, *Athyrium distentifolium* is a common species.

Diatrype stigma (Hoffm.) Fr. (Xylariales)

- On *Fagus sylvatica* L. In the paper by Starmachowa [19], the fungus was reported from Wołowiec Mt (SK; the Slovakian name – Volovec Mt, Zapadné Tatry Mts, height 2064 m a.s.l.) after Klika [35]. However, the record originally reported by the last author referred to Volovec village located in Western Ukraine. At the

[1] Annotation: PL – Poland, including the Polish side of the Tatra Mts; SK – Slovakia, including the Slovakian side of the Tatra Mts; LBL – herbarium of Maria Curie-Skłodowska University of Lublin; SAV – herbarium of the Institute of Botany at Slovak Academy of Sciences in Bratislava (both acronyms after Index Herbariorum: http://sciweb.nybg.org/science2/IndexHerbariorum.asp); m a.s.l. – meters above sea level; syn. – synonym; the bolded name of a fungus or plant (in various combinations) – species occurring in the Tatra Mts (sometimes on plants other than those listed); unbolded name of a fungus – species erroneously assigned as present in the Tatra Mts; unbolded name of a plant – species erroneously assigned as a host of fungus in the Tatra Mts; dolina – valley; kotlina – basin; pleso – lake; sedlo – pass.

beginning of the last century, the region was known as Carpathian Ruthenia (Ruś Podkarpacka, Podkarpatská Rus), and it belonged to Czechoslovakia. Also, the host plant does not occur at this elevation.

Notes. The same remark also applies to the other three species listed below.

Erysiphe heraclei DC. (Erysiphales)
Syn.: *Erysiphe polygoni auct. p.p.*, *Erysiphe umbelliferarum* de Bary

- On ***Laserpitium latifolium*** L. On this plant, the fungus was earlier noted without localization by Paulech et al. [36], and later in the monograph by Paulech [33] reported from three localities from the Slovakian side of the Tatra Mts: Starý Smokovec village (Vysoké Tatry Mts), Juráňova dolina (Západné Tatry Mts), and Oravice village (Orava region). The information was cited by Bacigálová [22]. However, during the recent revision of the herbarium collection in SAV (Bratislava) by K. Bacigálová, the fungus was found only on the plant collected from the first locality.

Erysiphe polygoni DC. (Erysiphales)

- On *Phyteuma spicatum* L. On this plant, the fungus was reported from the Havran Mt (Belianské Tatry Mts, SK) by Klika [35]. However, in the monograph by Paulech [33] the fungus was not mentioned on this plant. Also in the monographs by Braun [37] and Braun and Cook [38], only *Leveilula taurica* (Lév.) G. Arnaud is reported on the host. There is also no information about the host-fungus combination in Fungal Databases USDA (http://nt.ars-grin.gov/fungaldatabases/). In the Tatra Mts, the fungus occurs on some other plant species (genera ***Polygonum*** and ***Rumex***).

Erysiphe trifoliorum (Wallr.) U. Braun (Erysiphales)
Syn.: *Erysiphe trifolii* Grev., *Microsphaera trifolii* (Grev.) U. Braun

- On *Trifolium arvense* L. On this plant, the fungus was reported from the Polish side of the Tatra Mts by three authors – Namysłowski [29], Starmachowa (as *Erysiphe martii* Lév.) [19], and Sałata et al. [20] after the paper of Krupa [13]. However, the last author did not report this host-fungus combination. In the Tatra Mts (PL and SK), the fungus is known to occur on another 14 species of plants.

Gibbera conferta (Fr.) Petr. (Venturiales)

- On *Vaccinium uliginosum* L. On this plant, the fungus was reported by Kubička [39] from Trojrohé pleso at alt. 1600 m (SK, Vysoké Tatry Mts, dolina Bielych plies). The plant is probably ***Vaccinium gaultherioides*** Bigelow, the only species occurring at higher altitudes in the Tatra Mts. In earlier botanical literature, this species was not recognized.

Gibbera myrtilli (Cooke) Petr. (Venturiales)
Syn.: *Venturia myrtilli* Cooke

- On *Vaccinium uliginosum* L. On this plant, the fungus was reported by Picbauer [40] from the sedlo Červenej hliny at alt. ca. 1400 m a.s.l. (SK, Belianské Tatry Mts), and later cited by Starmachowa [19]. The plant is probably ***Vaccinium gaultherioides*** Bigelow. At that height and in grassy places it is the only species occurring in the region (see also notes on *Gibbera conferta* above).

Golovinomyces echinopis (U. Braun) V. P. Heluta (Erysiphales)
Syn.: *Erysiphe echinopis* U. Braun

- On *Stachys sylvatica* L. On this plant, the fungus was reported from the Vysoké Tatry Mts and Belianské Tatry Mts (SK) by Bacigálová [22]. However, the fungus belongs to ***Neoërysiphe galeopsidis*** (DC.) U. Braun, and is known on this plant from 10 localities, while *Golovinomyces echinopis* occurs on *Echinops ritro* L. and was reported from Tatranská Lomnica town (SK).

Hymenoscyphus callorioides (Rehm) Lizoň (Helotiales)
Syn.: *Helotium callorioides* Rehm

- On *Aconitum variegatum* L. On this plant, the fungus was incorrectly noted by Starmachowa [19] after Svrček [41]. However, the latter author did not report the species on this plant but on ***Dentaria bulbifera*** L. (Belianské Tatry Mts, SK).

Hymenoscyphus vitellinus (Rehm) Kuntze (Helotiales)
Syn.: *Helotium geiphilum* Velen.
- On ***Geum rivale*** L. The fungus was reported by Velenovský [42] from the Vysoké Tatry Mts (SK, environs of Tatranska Lomnicá town at alt. 1800 m a.s.l.) [orig.: m. Tatra (1800) supra Lomnice, 1924, leg. Pilát]. Later, the data was cited by Svrček [43] and Lizoň and Jančovičová [44]. However, Lizoň and Jančovičová [44] suggested that the place of collection was the town of Tatranská Lomnica (ca. 800–900 m a.s.l.). We agree with this suggestion because the plant *Geum rivale* does not occur at such high altitudes.

Lophodermium maculare (Fr.) De Not. (Rhytismatales)
- On *Vaccinium uliginosum* L. On this plant, the fungus was reported by Kubička [39] from Trojrohé pleso at alt. 1600 m (SK, Vysoké Tatry Mts, dolina Bielych plies). However, the plant is probably ***Vaccinium gaultherioides*** Bigelow (see notes on *Gibbera conferta* above).

Phaeosphaeria silenes-acaulis (De Not.) L. Holm (Pleosporales)
Syn.: *Leptosphaeria silenes-acaulis* De Not.
- On ***Silene acaulis*** (L.) Jacq. On this plant, the fungus was reported from five localities located in the Slovakian part of the Tatra Mts. But, it was also incorrectly reported from the Polish side of the region by Sałata and Mułenko [21] and Mułenko et al. [23].

Phyllachora heraclei (Fr.) Fuckel (Phyllachorales)
- On ***Heracleum*** sp. On this plant, the fungus was reported by Wróblewski [45] from Dolina Kościeliska (PL). However, in two later papers of Starmachowa [19] and Sałata et al. [20], the locality was incorrectly noted after Rouppert [30] from Kościelisko village. In the paper by Rouppert (l.c.), there is no information on this fungus. The fungus was also reported in the region on *Heracleum sphondylium* L. by Wróblewski [46].

Plowrightia noxia (Ruhland) Sacc. & D. Sacc. (Dothideales)
- On the bark of *Fagus sylvatica* L. In the paper by Stamachowa [19], the fungus was reported from Wołowiec (Volovec) Mt after Klika [35]. However, the record should refer to Volovec village located in Western Ukraine (see note on *Diatrype stigma* above).

Podosphaera alpina (S. Blumer) U. Braun & S. Takam. (Erysiphales)
Syn.: *Sphaerotheca alpina* S. Blumer
- On *Saxifraga rotundifolia* L. On this plant, the fungus was reported from the Tatra Mts without precise localization by Paulech et al. [36]. However, occurrence of the fungus in the Tatra Mts is doubtful, because the herbarium specimens were not preserved, and in the monograph by Paulech [33], this information was not repeated. On this plant, the fungus was reported from the Malá Fatra Mts and Západné Beskydy Mts (SK). In the monograph of Braun and Cook [38], the information was generally cited from Slovakia.

Podosphaera drabae (Juel) U. Braun & S. Takam. (Erysiphales)
Syn.: *Sphaerotheca drabae* Juel, *Sphaerotheca fuliginea auct. p.p.*
- On ***Arabis alpina*** L. The fungus is known to occur in some localities located on the Polish side of the Tatra Mts. However, the one Polish record first reported by Starmachowa [19] from Wielka Świstówka Mt (PL; Tatry Wysokie Mts, Dolina Roztoki) was also incorrectly noted from Slovakian side of Tatry Mts (Belianské Tatry Mts) by Paulech et al. [36], Paulech [33], and Bacigálová [22].

Podosphaera epilobii (Wallr.) U. Braun & S. Takam. (Erysiphales)
Syn.: *Sphaerotheca epilobii* (Wallr.) Sacc.

- On *Epilobium alpestre* (Jacq.) Krock. On this plant the fungus was reported from Dolina Miętusia (PL) by Starmachowa [19] and later cited by Mułenko et al. [23], although in the earlier monograph by Sałata [47] it was mentioned, that the fungus was incorrectly noted on this plant from the Tatry Mts. Also Bacigálová [22] wrongly cited the data reported by Paulech [33] on *Epilobium alpestre*; the latter author did not mention this host. On the territory of the Tatra Mts the fungus was collected on five other species of *Epilobium* genus, from both parts of the region (PL and SK).

Podosphaera fuliginea (Schltdl. ex Fr.) Braun & S. Takam. (Erysiphales)
Syn.: *Sphaerotheca fuliginea* (Schltdl. ex Fr.) Pollacci

- On *Veronica* sp. On this plant, the fungus was incorrectly noted by Bacigálová [22] from the Belianské Tatry Mts (SK) after Paulech [33]. However, Paulech (l.c.) reported it from the Belianská dolina in the Malá Fatra Mts (massif located approx. 50 km west of Tatra Mountains). In the territory of the Tatra Mts, the fungus is known to occur only on ***Veronica chamaedrys*** L.

Podosphaera fusca (Fr.) U. Braun & Shishkoff (Erysiphales)
Syn.: *Sphaerotheca fusca* (Fr.) S. Blumer

- On ***Doronicum austriacum*** Jacq. On this plant, the fungus is known to occur in some localities on both sides of the Tatra Mts. However, on the same plant it was also noted by Starmachowa [19] and Paulech [33] after Moesz [34] from Päť Spišských plies valley (SK, Vysoké Tatry Mts). Then, the record was quoted by Bacigálová [22]. However, Moesz [34] reported this fungus on *Doronicum stiriacum* (Vill.) Dalla-Tore, which is currently a synonym of ***Doronicum clusii*** (All.) Tausch. It was probably misinterpreted. The valley is located at an altitude above 2000 m. a.s.l. where *Doronicum austriacum* occurs sporadically (or is not present), while *Doronicum clusii* is a common species.

Podosphaera volkartii (S. Blumer) U. Braun & S. Takam. (Erysiphales)
Syn.: *Sphaerotheca volkartii* S. Blumer

- On *Trifolium medium* agg. This host/fungus combination was incorrectly noted by Bacigálová [22]. The fungus is parasite of ***Dryas octopetala*** L., and known to occur in a few localities in the region (PL and SK).

Podosphaera xanthii (Castagne) U. Braun & Shishkoff
Syn.: *Sphaerotheca fusca* (Fr.) S. Blumer

- On *Petasites kablikianus* Tausch ex Bercht. The fungus was wrongly noted on this plant in the monograph of the Erysiphales of Slovakia published by Paulech [33] and later cited by Bacigálová [22]. The host-fungus combination was reported from one locality (SK, Vysoké Tatry Mts, between Tatranská Polianka village and Sliezsky dom mountain hotel). The herbarian specimen was reidentified by W. Mułenko. The host is ***Adenostyles alliariae*** (Gouan) A. Kern.

Pyrenopeziza atrata (Pers.) Fuckel (Helotiales)
Syn.: *Mollisia atrata* (Pers.) P. Karst.

- On *Senecio cordatus* W. D. J. Koch. On this plant, the fungus was reported by Klika [35] from Havran Mt (SK, Belianské Tatry Mts). The record is doubtful and collection needs revision. The plant species does not occur in this region (it is an Alpine-Apennine species). From the Tatra Mts the fungus was also reported on ***Doronicum austriacum*** Jacq.

Pyrenopeziza rubi (Fr.) Rehm (Helotiales)

- On *Gentiana asclepiadea* L. On this plant, the fungus was reported by Kubička [48] from the Belianské Tatry Mts (SK). The collection needs revision because up to the time this fungus was not noted on the host. It is known to occur only on ***Rubus idaeus*** L., also at the region.

Rhytisma salicinum (Pers.) Fr. (Rhytismatales)

- On ***Salix retusa*** L. On this plant, the fungus is known to occur in some localities on both sides of the Tatra Mts. It was also reported by Hrubý [49] from Päť Spišských plies lakes (SK, kotlina Piatich Spišských plies). This data was later incorrectly cited by Starmachowa [19] as located on the Polish side of the Tatra Mts (Dolina Pięciu Stawów Polskich), and cited later in the same way by Mułenko et al. [23].

Rhytisma umbonatum Hoppe (Rhytismatales)
Syn.: *Rhytisma amphigenum* (Wallr.) Magnus, *Rhytisma symmetricum* Jul. Müll.

- On *Salix caprea* L. In the paper by Starmachowa [19], the fungus was reported from Wołowiec (Volovec) Mt after Klika [35], and in the same way cited later by Bacigálová [22] and Mułenko et al. [23]. However, the record should be refer to Volovec village located in Western Ukraine (see note on *Diatrype stigma* above).

Sawadaea bicornis (Wallr. ex Fr.) Homma (Erysiphales)

- On ***Acer pseudoplatanus*** L. On this plant, the fungus is known to occur in two localities on the Slovakian side of the Tatra Mts: Juráňova dolina and Oravice village (Západné Tatry Mts) [33]. However, it was also reported by Bacigálová [22] from the territory of the Vysoké Tatry Mts on the basis of herbarium collections (SAV, Nový Smokovec village, Sep. 6, 1989, leg. C. Pulech). The collection was revised by W. Mułenko and identified as ***Sawadaea tulasnei*** (Fuckel) Homma on ***Acer platanoides*** L.

Sphinctrina turbinata (Pers.) De Not. (Mycocaliciales)

- On ***Pertusaria*** sp. (lichens). On this lichen, the fungus was reported by Lojka [50] from the environs of Ždiar village (SK, Spišska Magura Mts), and later cited by Rehman [17], Boberski [18], Lisická [51], and Kyselová [52]. In the last paper (Kyselová l.c.), the fungus was additionally (but incorrectly) reported also from the Polish side of the Tatra Mts after Alstrup and Olech [53] and Bielczyk [54]; however, this locality is situated in the Beskidy Mts (PL).

Tapesia vaccini Velen. (Helotiales)

- On *Vaccinium uliginosum* L. On this plant, the fungus was reported by Kubička [39] from dolina Bielych plies (the environs of Trojrohé pleso at alt. 1600 m, SK). However, only ***Vaccinium gaultherioides*** Bigelow occurs at this altitude (see also notes on *Gibbera conferta* above).

Basidiomycota

Aecidium euphorbiae J. F. Gmel. ex Pers. (Pucciniales)

- On *Euphorbia cyparissias* L. [*Tithymalus cyparissias* (L.) Scop.]. On this plant, the fungus was incorrectly cited by Bacigálová [22] from the Vysoké Tatry Mts (SK) after Cejp and Veselý [55]. However, the latter authors have reported this fungus from the surroundings of the town of Trnava (near Bratislava, the western part of Slovakia). In the Tatra Mts, the fungus is known to occur on *Euphorbia* sp. (Kežmarok town) [56].

Coleosporium tussilaginis (Pers.) Lév. (Pucciniales)

- On *Campanula pusilla* Haenke. On this plant, the fungus was noted by Wróblewski [57] from Mała Dolinka pod Giewontem (PL, Tatry Zachodnie Mts). However, the herbarium collection was later revised by Majewski [58] and identified as ***Campanula serrata*** (Kit.) Hendrych (*Campanula napuligera* Schur).
- On *Campanula scheuchzeri* Vill. All records on this plant were attached to ***Campanula tatrae*** Borbás on the basis of two critical revisions by Majewski [58] and Urban and Marková [59]. On this host, the fungus is known to occur in seven localities from both sides of the Tatra Mts.
- On *Phyteuma orbiculare* L. On this plant, the fungus was reported from Mały Giewont Mt (PL, Tatry Zachodnie Mts) by Wróblewski [57] and later cited by Starmachowa [19] and Mułenko et al. [23]. However, during an earlier revision of

herbarium specimens Majewski [58] did not find the fungus on this host plant. It is therefore assumed that to date the fungus on this plant has not been collected.
- On ***Sonchus oleraceus*** L. On this plant, the fungus was reported from Kościelisko village (PL, near the town of Zakopane) by Starmachowa [19] and Sałata et al. [20] after Wróblewski [45]. However, the latter author has reported the fungus from the Dolina Kościeliska (Tatra National Park).

Notes. *Coleosporium tussilaginis* is a very common species; from the Tatra Mts, it was reported on 39 plant species.

Cronartium ribicola J. C. Fisch. (Pucciniales)
Syn.: *Cronartium ribicola* A. Dietr.
- On *Pinus mugo* Turra. On this plant, the fungus was reported by Hrubý [49] from four localities in the Vysoké Tatry Mts (SK). However, the fungus occurs on pines possessing five needles on the brachyblast. According to Urban and Marková [59] it was evidently misidentified, and all records were attached to ***Cronartium flaccidum*** (Alb. & Schwein.) G. Winter. In the Tatra Mts, *Cronatium ribicola* occurs on *Pinus cembra* L., *Pinus strobus* L. (cult.), and some species of *Ribes*.

Endophyllum euphorbiae-silvaticae (DC.) G. Winter (Pucciniales)
- On ***Euphorbia amygdaloides*** L. [*Tithymalus amygdaloides* (L.) Hill]. On this plant, the fungus was reported from the Belianské Tatry Mts (SK) by Picbauer [60]. The record was later cited by Majewski [58] and Urban and Marková [59]. However, Starmachowa [19] and later Bacigálová (after Starmachowa) [22] wrongly cited this data after Pilát [61]. The last author did not mention this species.

Hyalopsora aspidiotus (Magnus) Magnus (Pucciniales)
Syn.: *Hyalopsora polypodii-dryopteridis* (Moug. & Nestl.) Magnus
- On ***Gymnocarpium dryopteris*** (L.) Newman [*Phegopteris dryopteris* (L.) Fée] (Ferns). In the Tatra Mts, the fungus is a common species known to occur on this plant on both sides of the region (PL and SK). However, it was also incorrectly reported from Kriváň Mt (the Vysoké Tatry Mts, SK) by Starmachowa [19] and Bacigálová [22] after Baudyš and Picbauer [62]. However, in a recent publication, it was reported from the Velky Kriváň Mt in the Malá Fatra Mts, and later correctly reported by Urban and Marková [59].

Melampsora caprearum Thüm. (Pucciniales)
Syn.: *Melampsora laricis-caprearum* Kleb.
- On *Salix aurita* L. On this plant, the fungus was incorrectly reported from Slovakian side of the Tatra Mts by Bacigálová [22] after Pilát [61]; however, the latter author reported it as ***Melampsora epitea*** Thüm. (*Melampsora laricis-epitea* Kleb.).
- On *Salix aurita* L. × *Salix silesiaca* Willd. On this plant, the fungus was reported from the Polish side of the Tatra Mts by Starmachowa [19]; however, Majewski [58] identified it as ***Melampsora epitea*** Thüm.

Melampsora euphorbiae (C. Schub.) Castagne (Pucciniales)
Syn.: *Melampsora euphorbiae-dulcis* G. H. Otth., *Melampsora helioscopiae* (Pers.) G. Winter
- On *Euphorbia carniolica* Jacq. On this plant, the fungus was reported by Wróblewski [63] from the Polish side of the Tatra Mts (without localization), and later cited by Starmachowa [19]. This collection is doubtful because according to Majewski [58] the plant is not a component of mountain flora (it is a Balkan species). In the region this fungus is found on two other plant species – ***Euphorbia helioscopia*** L. and ***Euphorbia platyphyllos*** L.

Melampsorella caryophyllacearum (DC.) J. Schröt. (Pucciniales)
Syn.: *Melampsora cerastii* G. Winter
- On *Picea abies* (L.) H. Karst. On this plant, the fungus was reported by Bacigálová [22] from the Tomanovská dolina (SK, Západné Tatry Mts). However, the

herbarium collection was revised by W. Mułenko and identified as ***Abies alba*** Mill. On the latter plant, the species is known to occur in both sides of the region.

Microbotryum heliospermae Piątek & M. Lutz (Microbotryales)

- On ***Heliosperma pusillum*** (Waldst. & Kit.) Rchb. [*Heliosperma quadridentatum* (Murray) Schinz & Thell., *Ixoca pusilla* (Waldst. & Kit) Soják, *Silene pusilla* Waldst. & Kit.]. On this plant, the fungus is known to occur in some localities on the Polish and Slovakian sides of the Tatra Mts. It was also cited by Starmachowa [19] [as *Ustilago violacea* (Pers.) Roussel] from "Kopa under Jaworzynka at alt. 1650 m" (SK) after Součková [64]. However, Součková (l.c.) did not report it from this locality.

Puccinia allii F. Rudolphi (Pucciniales)

Syn.: *Puccinia mixta* Fuckel, *Puccinia porri* (Sowerby) G. Winter

- On *Allium schoenoprasum* L. subsp. *sibiricum* (L.) Hay. On this plant, the fungus was reported from the Belianské Tatry Mts (SK) by Součková [65] and later cited by Bacigálová [22]. However, the collection was revised by Urban and Marková [59] and the plant was identified as ***Allium montanum*** F. W. Schmidt [= *Allium senescens* L. subsp. *montanum* (Fr.) Holub.].

Puccinia arenariae (Schumach.) G. Winter (Pucciniales)

Syn.: *Puccinia herniariae* Unger, *Puccinia spergulae* DC.

- On *Sagina procumbens* L. On this plant, the fungus was wrongly cited by Starmachowa [19] and later by Sałata et al. [20] from Kościelisko village near the town of Zakopane (PL). However, in the original paper published in 1888 by Raciborski [14], the correct location was Kościelniki village (Buchach district, the Ukraine). In the territory of the Tatra Mts, the fungus is known to occur in many localities on some other plant species.

Puccinia calthae Link (Pucciniales)

- On ***Caltha laeta*** Schott, Nyman & Kotschy [*Caltha palustris* L. subsp. *laeta* (Schott, Nyman & Kotschy) Hegi] and ***Caltha palustris*** L. (*Caltha palustris* L. subsp. *palustris*). On these two plants, the fungus is known to occur in many localities and often noted on both plant species. However, these two species were not distinguished before. Special attention should be paid to plants growing at higher altitudes where *Caltha laeta* is the only species. For this reason, the whole collection should be revised.

Puccinia campanulae Carmich. (Pucciniales)

- On *Campanula alpina* Jacq. On this plant, the fungus was reported by Bacigálová [22] (after the herbarium of TANAP, SK) and later repeated by Urban and Marková [59]. However, in this herbarium there is a collection of only *Campanula cochlearifolia* Lam. In the territory of the Tatra Mts, the fungus is known to occur on five other species belonging to the *Campanula* genus.

Puccinia dentariae (Alb. & Schwein.) Fuckel. (Pucciniales)

- On *Dentaria enneaphyllos* L. On this plant, the fungus was incorrectly reported by Starmachowa [19] and later by Bacigálová [22] from the Kriváň Mt in the Vysoké Tatry Mts (SK) after Baudyš and Picbauer [62]. However, in the latter paper, it was reported from a locality between the Tatranský Kriváň Mt and Terchova village. It was a misprint. The proper name is Fatranský (Veľký) Kriváň Mt in the Malá Fatra Mts. The data was later properly reported by Urban and Marková [59].

Puccinia dioicae Magnus (Pucciniales)

- On *Carex brachystachys* Schrank. & Moll. (*Carex tenuis* Host.). On this plant, the fungus was reported from the Polish side of the Tatra Mts as *Puccinia sylvatica* J. Schröt. by Raciborski [14] and Namysłowski [28,29], and later cited by Starmachowa [19] (as *Puccinia scabiosae-sempervirentis* Hasler). However, Majewski [66] reidentified this species as ***Puccinia caricina*** DC. These two species (*Puccinia dioicae* and *Puccinia caricina*) are very common in the Tatra Mts.

Puccinia graminis Pers. (Pucciniales)
Syn.: *Puccinia anthoxanthi* Fuckel

- On *Anthoxanthum odoratum* L. s. l. On this plant, the fungus was reported by Wróblewski from the town of Zakopane [67] and Dolina Kościeliska [57] (PL), and later cited by Starmachowa [19], in all papers as *Puccinia anthoxanthi* Fuckel. During Majewski's revision [66], the fungus was identified as ***Puccinia poae-nemoralis*** G. H. Otth. On the same plant, the fungus was also incorrectly cited by Bacigálová [22] after Picbauer [40] from the Slovakian side of the Tatra Mts; however, the latter author did not report it in the paper.
- On *Deschampsia flexuosa* (L.) Trin. (*Aira flexuosa* L.). On this plant, the fungus was noted by Wróblewski [57] from Dolina Kościeliska (PL) and from Temnosmrečinská dolina (SK), and later cited by Starmachowa [19] and Bacigálová [22]. According to Majewski [66], the record from the Polish side of the region is ***Uromyces airae-flexuosae*** Berd. & Winge and the record from the Slovakian side is ***Puccinia deschampsiae*** Arthur on ***Deschampsia caespitosa*** (L.) P. Beauv. However, in the monograph by Urban and Marková [59], this record was omitted.
- On ***Elymus caninus*** (L.) L. (*Triticum caninum* L.). On this plant, the fungus was reported by Wodziczko [68] from Dolina Kościeliska (PL, leg. Żmuda, Aug. 1910); however, in the papers by Namysłowski [28,29] and Starmachowa [19] the place was incorrectly reported as Kościelisko village.

Notes. *Puccinia graminis* is a common species in the Tatras; it was reported on nine plant species.

Puccinia hieracii (Röhl.) H. Mart. (Pucciniales)

- On *Hieracium glaucum* All. On this plant, the fungus was reported by Krupa [13] (as *Puccinia flosculosorum auct. p.p.*) from the Polish side of the region and later cited by Namysłowski [28,29]. The record is probably doubtful. In the monograph by Majewski [66], the plant is not mentioned as a host of the fungus, and there is no information on this plant in the Polish checklist of plants [69]. However, *Puccinia hieracii* is a very common species in the region, noted on 21 other species of plants.

Puccinia morthieri Körn. (Pucciniales)

- On ***Geranium sylvaticum*** L. On this plant, the fungus was reported by Wróblewski [57] from Mały Giewont Mt (PL, Tatry Zachodnie Mts). This collection was revised by Majewski [66], and the fungus was identified as ***Puccinia leveillei*** Mont. However, both species are known to occur in the region.

Puccinia obscura J. Schröt. (Pucciniales)
Syn.: *Puccinia luzulae-maximae* Dietel, *Puccinia obscura* var. *luzulae-maximae* (Dietel) U. Braun

- On ***Luzula luzulina*** (Vill.) Dalla Torre & Sarnth. [*Luzula flavescens* (Host.) Gaud.]. In the paper by Kochman and Sałata [70], the locality was incorrectly reported as the Łysica Mt in the Świętokrzyskie Mts (PL) (*Mycotheca Polonica*, Fasc. XXVI–XXX, No. 715). However, the original collection is in the herbarium of LBL (Sep. 27, 1978, leg. T. Majewski), and the correct place is the town of Zakopane (PL, Kotlina Zakopiańska). From this place, it was later correctly cited by Sałata et al. [20].

Puccinia pygmaea Erikss. (Pucciniales)

- On *Calamagrostis varia* (Schrad.) Host. On this plant, the fungus was reported by Wróblewski [57] from Dolina za Bramką (PL, Tatry Zachodnie Mts) and later cited by Starmachowa [19]. According to Majewski [66], it is ***Puccinia striiformis*** Westend. on ***Elymus caninus*** (L.) L. [*Agropyron caninum* (L.) P. Beauv.]. However, *Puccinia pygmaea* is known to occur on two other host plants from some localities on both sides of the Tatra Mts.

Puccinia ribis DC. (Pucciniales)

- On *Ribes alpinum* L. On this plant, the fungus is reported from both sides of the Tatra Mts. The herbarium collections were revised by Majewski [66] and Urban

and Marková [59], and the plant was identified as ***Ribes petraeum*** Wulfen. The fungus is known to occur in many localities in the region.

Puccinia scorzonerae (Schumach.) Jacky. (Pucciniales)

- On *Scorzonera purpurea* L. On this plant, the fungus was reported from the Polish side of the Tatra Mts without precise localization by Wróblewski [63], and later cited by Starmachowa [19]. According to Majewski [66], the occurrence of this fungus in the Tatra Mts is uncertain. The plant does not occur in the region, and herbarium specimens were not preserved.

Puccinia soldanellae (DC.) Fuckel (Pucciniales)

- On ***Soldanella hungarica*** Simonk. [*Soldanella montana* Vill. subsp. *hungarica* (Simk) Lüdi, *Soldanella major* (Neilr.) Vierh.]. On this plant, the fungus is known to occur in some localities on both sides of the Tatra Mts (PL and SK). It was also reported from Kościelisko village (near the town of Zakopane, PL) by Rouppert [30] and later cited by Starmachowa [19] on *Soldanella alpina* L. (= *Soldanella montana* Will.). However, Rouppert's collection (leg. K. Rouppert, Sep. 14, 1909, Kościelisko village – slope of Hruby Regiel Mt) was earlier published by Namysłowski [28] (on *Soldanella alpina* L.) who incorrectly reported this record from Dolina Kościeliska (Tatra National Park).

Puccinia striiformis Westend. (Pucciniales)

Syn.: *Puccinia glumarum* (J. C. Schmidt) Erikss. & Henning

- On *Calamagrostis epigejos* (L.) Roth. On this plant, the fungus was reported by Picbauer [40] (as *Puccinia glumarum*) from the Belianské Tatry Mts (SK), and cited in the same way by Starmachowa [19] and Bacigálová [22]. However, it was challenged by Urban [71] and later reidentified as ***Puccinia pygmaea*** Erikss. var. ***pygmaea*** on ***Calamagrostis*** sp. [59]. In this region, the *Puccinia striiformis* is known to occur on *Elymus caninus* (L.) L.

Puccinia swertiae (Opiz) G. Winter (Pucciniales)

- On ***Swertia perennis*** L. The fungus is known to occur in many localities on both sides of the Tatra Mts. On this plant, it was also reported by Wróblewski [57] from the surroundings of Zmarzły Staw (Eng. Frozen Pond) lake in the Tatry Wysokie Mts (PL). However, the same record was incorrectly reported by Urban and Marková [59] from the lake with a similar name (Zmrzlé pleso), which is located on the Slovakian side of the Tatra Mts.

Puccinia tanaceti DC. (Pucciniales)

Syn.: *Puccinia pyrethri* (Wallr.) Rabenh.

- On *Dendranthema zawadzkii* (Herbich) Tzvelev (*Chrysanthemum zawadzkii* Herbich). On this plant, the fungus was reported from the Tatra Mts by Jørstad [72] (leg. Ullepitsch, without localization). According to Majewski [66], this record was noted erroneously because the plant does not occur in the Tatra Mts. It occurs mainly in Asia, and in Europe it is known only from the Pieniny Mts (PL and SK). However, *Puccinia tanaceti* is known to occur in a number of localities on three other plant species from the genus *Artemisia* and *Tanacetum*.

Puccinia violae DC. (Pucciniales)

- On *Viola bicolor* Pursh. On this plant, the fungus was reported from dolina Javorinka (SK, Belianské Tatry Mts) by Klika [35]. According to Starmachowa [19] and Urban and Marková [59], it is a misprint and the plant name is ***Viola biflora*** L. which is infected by ***Puccinia alpina*** Fuckel. However, *Puccinia violae* is known to occur on some other species of the *Viola* genus.

Puccinia virgae-aureae (DC.) Lib. (Pucciniales)

- On *Solidago virgaurea* L. On this plant, the fungus was reported without precise localization from the Polish side of the Tatra Mts by Wróblewski [57,63], and later cited by Starmachowa [19] and Mułenko et al. [23]. However, according to Majewski [66] the record is uncertain and the herbarium collection was not preserved.

On the same plant species, the fungus was also collected on the Slovakian side of the Tatra Mts. In this case, all data were included to ***Solidago alpestris*** Waldst. & Kit. [*Solidago virgaurea* L. subsp. *alpestris* (W. K.) Gaud., *Solidago virgaurea* L. subsp. *minuta* (L.) Arcang.] on the basis of critical revisions of Urban and Marková [59]. It seems that the Polish data should also be included in this species.

Trachyspora intrusa (Grev.) Arthur (Pucciniales)
Syn.: *Trachyspora alchemillae* (Pers.) Fuckel, *Uromyces alchemillae* (Pers.) Fuckel

- On *Alchemilla baltica* Sam. ex Juz. On this plant, the fungus was incorrectly cited from the Západné Tatry Mts (SK) by Bacigálová [22] after Urban [73]. However, Urban [73] did not mention the plant in this publication. The fungus is known to occur on many other species of the *Alchemilla* genus.

Uredinopsis filicina (Niessl) Magnus (Pucciniales)

- On *Gymnocarpium dryopteris* (L.) Newman [*Phegopteris dryopteris* (L.) Fée]. On this plant, the fungus was reported by Starmachowa [19] and later cited by Mułenko et al. [23]. However, Majewski [58] reidentified the plant as ***Phegopteris connectilis*** (Michx.) Watt (*Phegopteris polypodioides* Fée), on which the fungus is known to occur in numerous localities on both sides of the Tatra Mts (PL and SK).

Uredo ribicola Lasch (Pucciniales)

- On *Ribes alpinum* L. On this plant, the fungus was reported by Kalchbrenner [9] from Lučivná village near Poprad town (SK). However, the collection was revised by Urban and Marková [59] and identified as ***Puccinia ribis*** DC. on ***Ribes petraeum*** Wulfen. The last species (on the mentioned host) is common in the region.

Uromyces acetosae J. Schröt. (Pucciniales)

- On *Rumex acetosella* L. On this plant, the fungus was reported from Polish side of the Tatra Mts by Krupa [13] and later cited by Namysłowski [28,29] and Starmachowa [19] under two names, as *Uromyces acetosae* J. Schröt. and additionally as *Puccinia acetosae* Körn. However, it was revised by Majewski [66] and identified as ***Uromyces polygoni-avicullariae*** (Pers.) P. Karst. and cited later in the same way by Sałata et al. [20].
- On ***Rumex alpestris*** Jacq. [*Acetosa arifolia* (All.) Schur., *Rumex arifolius* All.]. On this plant, the fungus was reported from Temnosmrečinská dolina and Liptovské múry Mt (SK, Vysoké Tatry Mts) by Urban [73]. This record was later twice quoted by Starmachowa [19] – once correctly as ***Uromyces acetosae*** and once incorrectly, as *Uromyces rumicis* (Schumach.) G. Winter.

Uromyces airae-flexuosae Ferd. & Winge (Pucciniales)

- On *Deschampsia flexuosa* (L.) Trin. [*Aira flexuosa* L., *Avenella flexuosa* (L.) Parl]. On this plant, the species is known to occur in some localities in the region. However, it was also noted from Západné Tatry Mts (SK, between Rákoň Mt and Roháč Mt) by Součková [74]. According to Urban and Marková [59], it is ***Puccinia festucae*** Plowr. on ***Festuca picta*** Kit.

Uromyces anthyllidis (Grev.) J. Schröt. (Pucciniales)

- On *Anthyllis polyphylla* Kit. ex DC. On this plant, the fungus was incorrectly reported from the Tatra Mts by Guyot [31: p. 160] after Magnus [32]. However, Magnus [32] reported it from Kronstadt town (= Braşov town, Romania). In the Tatra Mts, the fungus is known to occur on two other plants – ***Anthyllis alpestris*** (Kit.) Rchb. and ***Anthyllis vulneraria*** L., but all collections require revision. Until recently, these two species were not distinguished, and only *Anthyllis vulneraria* was given.

Uromyces cacaliae (DC.) Unger (Pucciniales)

- On ***Adenostyles alliariae*** (Gouan) A. Kern. (*Adenostyles albifrons* Reichenb.). On this plant, the fungus is known to occur in some localities in the region. However, it was also incorrectly cited by Starmachowa [19] from Malá Studená dolina (SK,

Vysoké Tatry Mts) after Husz [75]. However, Husz [75] did not provide this information. This record was published by Hrubý [49].

Uromyces geranii (DC.) Fr. (Pucciniales)

- On ***Geranium sylvaticum*** L. On this plant, the fungus is known to occur in some localities from both sides of the Tatra Mts (PL and SK). Additionally, it was incorrectly reported from the Tatra Mts by Guyot [76: p. 257] after Magnus [32]. However, Magnus [32] reported it from Kronstadt town (= Braşov town, Romania).

Uromyces phyteumatum (DC.) Unger (Pucciniales)

- On *Adenostyles alliariae* (Gouan) A. Kern. (*Cacalia alpina* Mill.). On this plant, the fungus was reported by Hazslinszky [5] from the Slovakian side of the Tatra Mts (without localization). However, *Adenostyles alliariae* can be infected by two *Uromyces* species: *Uromyces veratri* (DC.) J. Schröt. and *Uromyces cacaliae* (DC.) Unger [66]. On the basis of the description of teliospores, the fungus was included to ***Uromyces cacaliae***, which was also reported by Kalchbrenner [9]. In the Tatra Mts, the *Uromyces phyteumatum* is known to occur only on *Phyteuma spicatum* L. and was noted in two localities on the Polish side of the region.

Uromyces pisi (DC.) G. H. Otth (Pucciniales)

- On ***Lathyrus pratensis*** L. On this plant, the fungus is known to occur in some localities in both parts of the Tatra Mts and surroundings. It was also reported by Starmachowa [19] from the Wołowiec (Volovec) Mt after Klika [35]. However, the record should be refer to Volovec village located in Western Ukraine (see also notes on *Diatrype stigma*, Ascomycota).

Uromyces rumicis (Schumach.) G. Winter (Pucciniales)

- On *Rumex acetosa* L. On this plant, the fungus was reported by Wróblewski [57] from the town of Zakopane (PL). The herbarium collection was revised by Majewski [59] and identified as ***Puccinia acetosae*** Körn. In the region, however, the *Uromyces rumicis* is known to occur on some other plant species.

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