

## What is in fact *Nemecomyces mongolicus* Pilát?

JAN HOLEC

Mycological Department, National Museum,  
Václavské nám. 68, 115 79 Praha 1, Czech Republic

Holec J. (1996): What is in fact *Nemecomyces mongolicus* Pilát? – Czech Mycol. 48: 283–294

Revision of the type material of *Nemecomyces mongolicus* Pilát 1933 (Ann. Mycol. 31: 54–55) has showed that this fungus is identical with *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall., as suggested earlier by F. Kotlaba and Z. Pouzar in 1963. This fact is demonstrated by the agreement of macro- and microcharacters of these two species. Problematic characters as habitus of the fruitbodies, presence or absence of cheilocystidia and terrestrial growth of *Nemecomyces mongolicus* are discussed together with the possibility of occurrence of *Pholiota populnea* in northwestern Mongolia. This analysis confirmed conspecificity of *N. mongolicus* and *Pholiota populnea* too. The author prefers to include *P. populnea* and the closely related species *P. heteroclita* and *P. comosa* into the subgenus *Hemipholiota* Sing. ex Sing. because this position corresponds well to the real situation in the genus *Pholiota* s.l. This solution also prevents undesirable new combinations because when treated as members of a separate genus, the all aforementioned species should be transferred to *Nemecomyces* Pilát 1933. This name is older than the recently published generic name *Hemipholiota* (Sing.) Romagn. ex Bon 1986.

**Key words:** *Nemecomyces mongolicus*, revision, taxonomy, *Pholiota populnea*, subg. *Hemipholiota*, Agaricales

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Revize typového materiálu druhu *Nemecomyces mongolicus* Pilát 1933 (Ann. Mycol. 31: 54–55) ukázala, že tato houba je totožná s druhem *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. K témuž závěru došli už v roce 1963 F. Kotlaba a Z. Pouzar, ale nepublikovali ho. Oba druhy mají shodné jak makroskopické, tak mikroskopické znaky. Problematické znaky druhu *Nemecomyces mongolicus*, jako charakter a konzistence plodnic, přítomnost či nepřítomnost cheilocystid a růst na zemi, jsou diskutovány spolu s možností výskytu *Pholiota destruens* v severozápadním Mongolsku. Rozbor všech těchto znaků rovněž potvrzuje identitu *Nemecomyces mongolicus* a *Pholiota populnea*. Autor preferuje zařazení druhu *P. populnea* a blíže příbuzných druhů *P. heteroclita* a *P. comosa* do podrodu *Hemipholiota* Sing. ex Sing., protože toto zařazení dobře vystihuje skutečné vnitrorodové vztahy v rodu *Pholiota* s.l. Toto řešení také zabraňuje dalším nomenklatorickým změnám, protože v případě zařazení výše zmíněných druhů do samostatného rodu by pak musely být nově kombinovány do rodu *Nemecomyces* Pilát 1933. Toto jméno je sice málo známé, ale mnohem starší, než rodové jméno *Hemipholiota* (Sing.) Romagn. ex Bon 1986, pod které zařadil výše zmíněné druhy M. Bon.

### INTRODUCTION

In 1933, Dr. Albert Pilát described a new genus of brown-spored agarics – *Nemecomyces* g.n. (Pilát 1933a, named after the important Czech botanist and physiologist Prof. B. Němec). The description was based on two dried fruitbodies

sent to him by Prof. K. E. Murashkinski from Omsk (Russia). The fruitbodies were collected by the Russian botanist Prof. P. A. Baranov on soil in the district Kobdo (northwestern Mongolia) during an expedition to Mongolia in 1930. Pilát (1933a) described the fungus as *Nemecomyces mongolicus* sp.n. and considered it a steppe or desert inhabitant ("Fungus hic habitu suo maxime admirabilis characterem deserticum evidenter ostendit"), mainly on the basis of its leathery-fleshy ("crasse coriaceo-carnosa") fruitbodies with bone-hard context (when dried). In the discussion, Pilát (1933a) states that *Nemecomyces mongolicus* habitually resembles *Armillaria imperialis* (= *Catathelasma imperiale* (Quél.) Sing.) at first sight. He assumes that his new genus differs from all genera of brown-spored agarics summarized or described in Heim's general account of this group of fungi (Heim 1931). In his Latin-written work Pilát (1933a) considers *Nemecomyces* to be very different from *Hebeloma*, *Rozites* and *Pholiota*. However, in a parallel Czech-written description (Pilát 1933b) he places *Nemecomyces* close to *Hebeloma* and *Pholiota*, especially on the basis of the spore colour. In the same year Pilát (1933b) described a second species of *Nemecomyces* - *N. genezareticus*. Revisions of the type material showed, that this is undoubtedly an *Agaricus* species (Kotlaba et Pouzar - revision card; Singer 1975, 1986).

The type specimen of *Nemecomyces mongolicus* was revised by Horak in December 1965, who classified this fungus among the *Pholiotoideae* (Imai) Sing. (Horak 1968). According to him the main diagnostic features of the species are absence of cheilocystidia (see also Pilát 1933a), size of fruitbodies and growth on soil. Horak believes that if these characters were not considered, the fungus could easily be denominated as *Pholiota destruens* (Brond.) Gill.

The opinion that *Nemecomyces mongolicus* is *Pholiota destruens* was originally expressed by F. Kotlaba and Z. Pouzar, who studied the type material 14th Oct. 1963 (2 years before Horak). Unfortunately, the results of their revision were not published and written on a revision card only.

In a discussion on *Nemecomyces mongolicus*, Singer (1951: 583, 1962: 652) writes that he "has seen nothing quite similar to this in his travels in Central Asia" and "Imai thinks that this is probably identical with *Tricholoma mongolicum*... which is common in Mongolia". Based on this speculation, Singer (1951: 218, 1962: 246) placed the genus *Nemecomyces* into the synonymy of *Tricholoma* (Fr.) Staude (with a question mark).

During his stay in Czechoslovakia in 1974, Singer studied the type material of *Nemecomyces mongolicus* too. He accepted the opinion of F. Kotlaba and Z. Pouzar and in the third and fourth edition of his book (Singer 1975: 546, 1986: 576) writes: "The type belongs in *Pholiota* sect. *Hemipholiota*" (sect. *Destruentes*, Singer 1986) "as was suggested by Svrček, Kotlaba and Pouzar and by type studies (PR) by this author. The type specimen does have cheilocystidia". On page 578 he adds (Singer

1986) that *N. mongolicus* is either identical or very close to *Pholiota destruens* or another species of the sect. *Hemipholiota*.

On the ground of all these facts we can summarize that *Nemecomyces mongolicus* belongs to the genus *Pholiota* s.l. (e.g. ss. Kühner 1980, Singer 1986, Jacobsson 1990). However, the identity of this fungus on the species level remained unresolved, especially with respect to a contradiction between Horak's and Singer's data on the absence or presence of cheilocystidia. Also the habitat – soil, which is quite unusual for this group of fungi – needs discussion and careful consideration.

The aim of my study is to make the specific position of *Nemecomyces mongolicus* more accurate (or confirm older opinions). This paper represents a part of my work on the taxonomy of the genus *Pholiota*.

#### MATERIAL STUDIED

Holotypus: *Nemecomyces mongolicus* Pilát, Mongolia, distr. Kobdo, ad terram, 15. 9. 1930, leg. Prof. Baranov, PRM 156136. There are no other herbarium specimens of *Nemecomyces mongolicus* in PRM (and probably also in any other herbaria). The holotypus consists of two well preserved fruitbodies (Fig. 3). The envelope contains three revision cards (Fig. 2):

- 1) F. Kotlaba et Z. Pouzar, 14. X. 1963, det. as *Pholiota destruens*
- 2) E. Horak, vidi XII. 1965
- 3) M. Bon, 18. VII. 1990, det. as "a phaeospered species (not *Tricholomataceae*) cf. *Pholiota* close to *Hemipholiota destruens*"

Concerning priority of description (Pilát 1933a – in Latin or Pilát 1933b – in Czech), the date of effective publication of Čas. Čs. Houb., Vol. 12, No. 9–10 (with Czech description) must have been later than 10th March 1933, although the year of publication on front cover is 1932. This date is mentioned on page 156 (5th line from the bottom) as a day when fruitbodies of a *Collybia* species were brought to an editor of the journal. Consequently, the issue 9–10 of Čas. Čs. Houb. could not have been published before 10th March 1933. On the other hand, Ann. Mycol., Vol. 29, No. 1–2, where a Latin description of *Nemecomyces mongolicus* is given, was effectively published on 25th January 1933. Therefore, the Latin description in Ann. Mycol. has priority.

#### RESULTS

Macroscopic characters: included in the thorough original Latin description (Pilát 1933a), a Czech translation and photographs (Pilát 1933b), English excerpt based on the original description (Singer 1951, 1962), and a German description based on a study of the type specimen (Horak 1968).

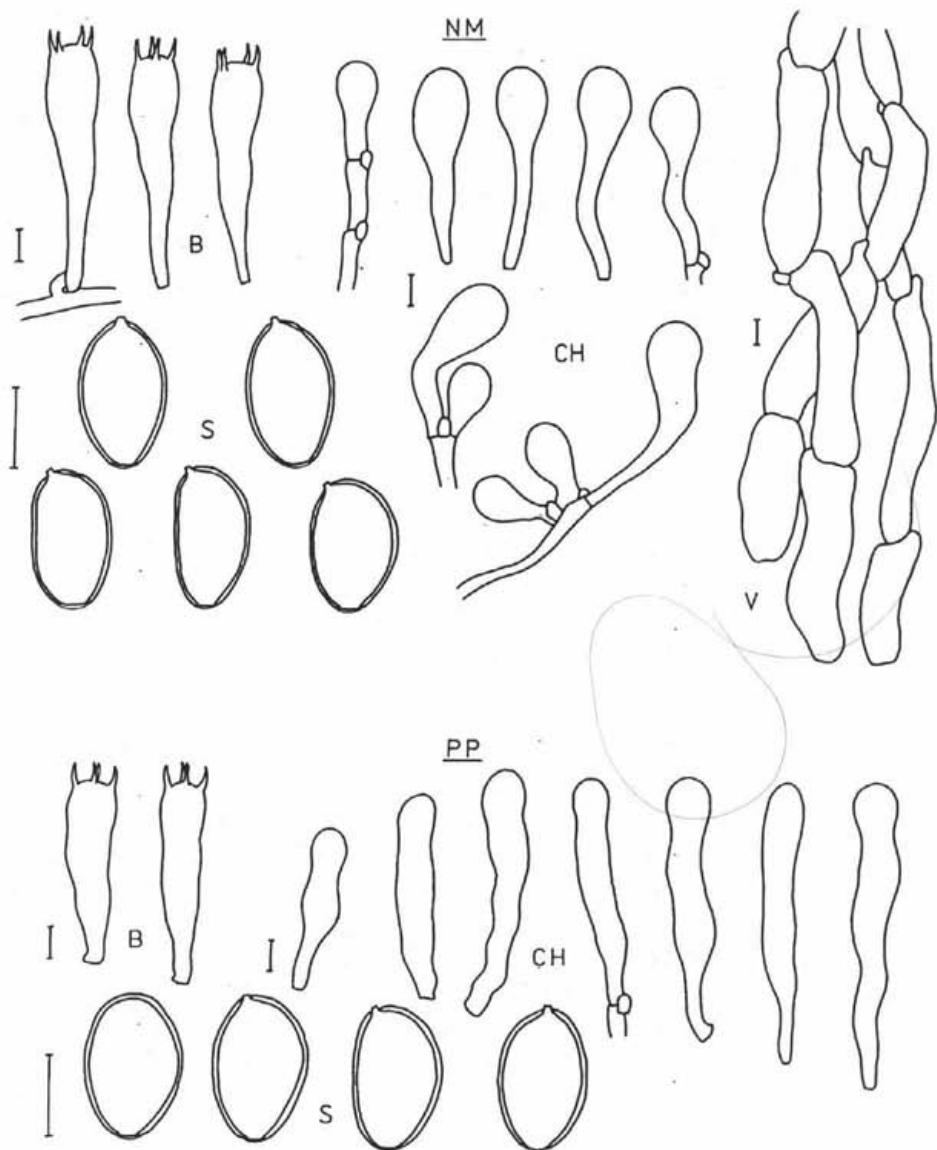


Fig. 1 NM: *Nemecomyces mongolicus*, holotype, young fruitbodies, PP: *Pholiota populnea*, Czech Republic, Libický luh near Poděbrady, *Populus nigra* (herb. J. Holec 334/94), mature fruitbodies. B: basidia, CH: cheilocystidia, S: spores, V: velum, hyphae from scales on the pileus surface. Scale bar: 5  $\mu$ m. Note difference between size of cheilocystidia from young (NM) and mature (PP) fruitbodies. (del. J. Holec)

Short description based on the author's study of the type specimen (see also Fig. 3):

Pileus 5–5,5 cm broad, thick, plano-convex with involute margin, the ground colour ochre brown or light ochre, the surface divided into angular fields as a result of drying, centre of these fields brown, cap covered by scarce but large, 0,3–0,5 cm broad tomentose scales that are appressed or slightly flaring, whitish to light ochre, at the margin fibrillar-tomentose rests of velum.

Lamellae: crowded, with lamellulae, adnate, ochre-brown, edge even.

Stipe: 3,4–4,0 × 1,8–2 cm, central, broadly cylindrical to slightly ovoid, solid, with fissile ring-like zone, glabrous and light ochre above it, below ochre but almost entirely covered with whitish or light alutaceous tomentose scales that are large and almost appressed.

Context: whitish. Smell of dried fruitbodies none.

Microscopic characters: described in the original work by Pilát (1933a) and later by Horak (1968, including line-drawings).

Description based on the author's study of the type specimen (see also Fig. 1):

Spores (7,3)8–9(9,2) × 4,9–5,5 μm (20 spores), oblong to ellipsoid, in frontal view sometimes slightly phasaeoliform, glabrous, with small lateral hilar appendix, wall moderately thick (ca. 0,5 μm), brown with ca. 1,3–1,8 μm broad germ-pore of the so called "pseudoporus" type (Clémencon 1974; Holec 1994, 1995). Consequently, under a light microscope the apex seems to be slightly truncate and the flattened apical epispodium is covered by a fine convex cap (see Fig. 1) visible after careful observation under a good light microscope. Colour yellow-ochre in 5 % KOH. Inamyloid, acyanophilic.

Basidia: 27–40 × 7–8 μm narrowly clavate, thin-walled, colourless, 4-spored, clamped, sterigmata 3–4 μm long.

Basidioles: 21–32 × 6,5–8 μm narrowly clavate to cylindrical, broadening upwards.

Cheilocystidia: present, inconspicuous but abundant, 20–27 × 7–9 μm, obovoid when young, at maturity narrowly clavate, lower cylindrical part often curved to flexuous, thin-walled, colourless, clamped at base. Edge of lamellae sterile, with cheilocystidia only.

Pleurocystidia: absent.

Hymenophoral trama: regular, in medium part slightly subregular and made up of 4–8 μm thick hyphae, in lateral parts the hyphae are thinner, 2–3 μm broad, hyphae densely crowded, not gelatinous, thin-walled, with numerous clamp connections. Subhymenium 4–8 μm thick, made up of densely crowded branched hyphae, not gelatinous.

Pileipellis: a cutis composed of two layers, upper layer about 70–100 μm thick, not gelatinous, consisting of densely crowded parallel to slightly interwoven 3–8 μm thick hyphae, thin-walled, clamped, in water strongly yellow-brown incrustated, the

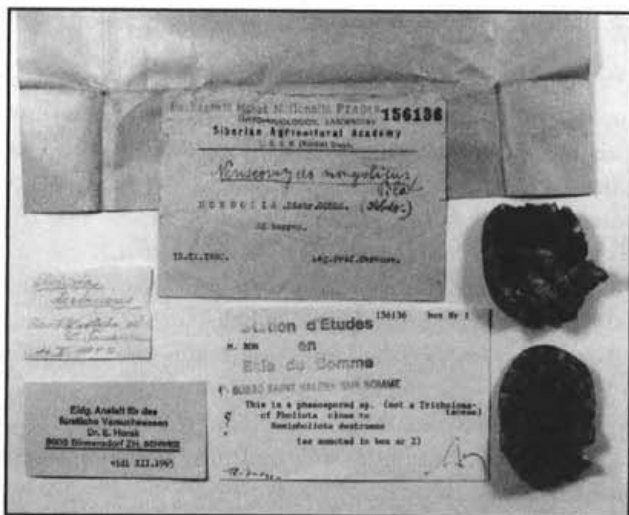


Fig. 2 Herbarium specimen (holotypus) of *Nemecomyces mongolicus*. The envelope contains two fruitbodies and three revision cards. The envelope with label originates from Omsk (Russia), the number (156136) was added in National Museum, Prague (herbarium PRM). The name *Nemecomyces mongolicus* is written by A. Pilát. (photo J. Holec)

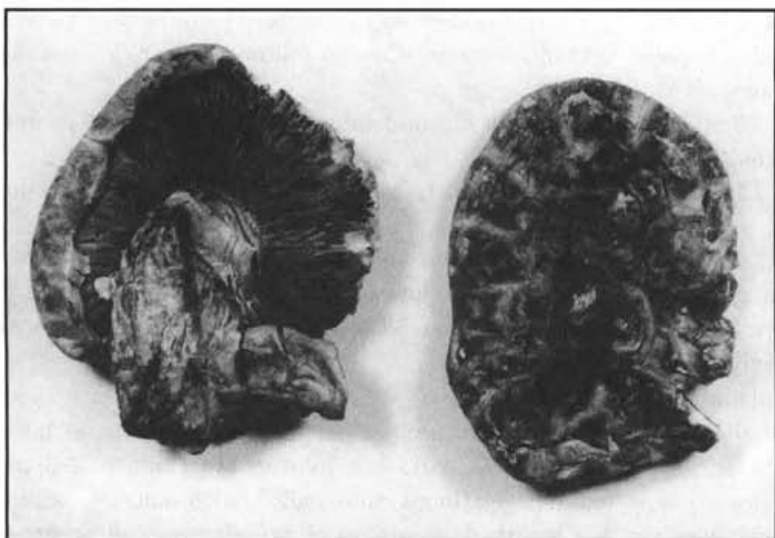


Fig. 3 Fruitbodies of *Nemecomyces mongolicus* (holotypus) in detail (photo J. Holec). A. Pilát published photos of the same fruitbodies in his Czech-written article (Pilát 1933b) which is, however, hardly accessible for foreign mycologists.

pigment soluble in 5 % KOH, lower layer about 30–50  $\mu\text{m}$  thick, slightly gelatinous, made up of similar but loosely arranged hyphae. The pileipellis is sharply divided from the context of the pileus.

Context: irregular, composed by relatively densely arranged, colourless, thin-walled, clamped hyphae that are 4,5–12  $\mu\text{m}$  thick.

Hyphae of velum: parallel to interwoven, made up of cylindrical to slightly barrel-shaped cells (20–80  $\times$  6–12  $\mu\text{m}$ ), clamped, not gelatinized, thin-walled, colourless.

In my opinion, both macroscopic and microscopic characters show that the fungus named *Nemecomyces mongolicus* is really identical with *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. (= *P. destruens* (Brond.) Gill.), as had been suggested by F. Kotlaba and Z. Pouzar (see Introduction).

#### DISCUSSION

The following problematic points concerning the conspecificity of *Nemecomyces mongolicus* and *Pholiota populnea* need discussion: 1) some macro- and microcharacters (habitus of the fruitbodies, presence of cheilocystidia), 2) relations to other species of the subg. *Hemipholiota* Sing. ex Sing. 1961, section *Hemipholiota* (= sect. *Destruentes* Konr. et Maublanc 1948), 3) possibility of the occurrence of sect. *Hemipholiota* species in Mongolia, 4) terrestrial growth as given by Prof. Baranov, the collector of *N. mongolicus*, and its "steppe or desert character" supposed by Pilát (1933a, b).

#### 1) Macro- and microcharacters

As annotated by Pilát (1933a), the fruitbodies of *N. mongolicus* are extremely hard in dried stage. Pilát attributed it to the "steppe or desert character" of this fungus (see Introduction) and assumed that with exception of some species of the genus *Pholiota* (! Pilát 1933b: 3) this character is unusual in brown-spored agarics. My own experience with herbarium specimens of *Pholiota populnea* and other species of the section *Hemipholiota* is that their fruitbodies can be very hard, especially when collected in young stage. The fruitbodies of *N. mongolicus* are relatively young too, as is demonstrated by the small diameter of the pileus and the presence of velum remnants on the pileus margin. Moreover, the given "steppe or desert character" of *N. mongolicus* is problematical (see point 4).

The presence of cheilocystidia in *Nemecomyces mongolicus* is quite obvious. This fact is also confirmed by Singer (1975, 1986). The cheilocystidia are present on the edge of the lamellae in great number (with no basidia associated) but their size is similar to that of the basidioles. This could be the reason why Horak (1968) did not recognize them. However, the cheilocystidia are more clavate (with swollen apex and cylindrical lower part) when compared with the upwards gradually broadening to

almost oblong basidioles. It is true that cheilocystidia can reach lengths of up to 40–50(60)  $\mu\text{m}$  in *Pholiota populnea*, as given by Horak (1968), but only in quite mature fruitbodies (own results, see e.g. Fig. 1), whereas the fruitbodies of *Nemecomyces mongolicus* are relatively young. Thus, the small size of its cheilocystidia (Fig. 1) can be explained by the immaturity of the fruitbodies.

## 2) Relations to other species of the section Hemipholiota

There are two, three or four species classified in this section, depending on the opinion of various authors: *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. (= *P. destruens* (Brond.) Gill.), *P. heteroclita* (Fr.) Orton, *P. comosa* (Fr.) Quél. (often considered as a synonym of *P. populnea*), and *P. dissimulans* (Berk. et Br.) Sacc..

*Pholiota dissimulans* can be excluded because it is much smaller and slender fungus with different macrocharacters (see e. g. Cooke, Table 371) than *Nemecomyces mongolicus*.

*Nemecomyces mongolicus* and *Pholiota heteroclita* are not conspecific owing to differences in the type of the germ pore. In *N. mongolicus*, there is a typical "pseudoporus" whereas *P. heteroclita* has a germ pore formed by apical attenuation of the epispodium and exospodium. This character proved to be quite reliable in distinguishing *P. populnea* and *P. heteroclita* (Holec 1994, 1995).

*P. comosa* was described by Fries (1838) as a species growing on *Fagus*-stems and having a fulvous cap covered by appressed scales. Recently, Orton (1969) published a thorough description of this rare fungus from beech in Great Britain. He believes that *P. comosa* is a good species characterized mainly by its host preference (*Fagus*), absence of a distinct smell and the cap becoming tinged tawny-honey or date or chocolate brown (but creamy-buff or wood coloured and then ochraceous buff when young). I have seen no material of this fungus. At present, the general opinion is that *P. comosa* is either closely related to or even identical with *P. populnea* (it has e.g. the same microcharacters as *P. populnea*). The colour of pileus in *N. mongolicus* (young fruitbodies!) fits both *P. populnea* and *P. comosa*, the odour is unknown. Thus, the solution of the identity of *Nemecomyces mongolicus* lies in the discussion of the host preference (see below).

## 3) Possibility of the occurrence of *Pholiota populnea* and *P. comosa* in Mongolia

*P. populnea* is known from Europe, Asia – e.g. the former USSR (e.g. Kazakhstan (Samgina 1985), Jakutsk region (Lebedeva 1949)), and China (Samgina 1985) and North America (Smith and Hesler 1968). The species seems to be distributed throughout the whole temperate to subtropic zone of the northern hemisphere. Thus, from a mycogeographical viewpoint, its occurrence in Mongolia is highly probable. The world distribution of *P. comosa* is unknown.



The second important condition for the distribution of lignicolous fungi is the presence of their host tree species. *P. populnea* is known from the wood of the following trees: various species of *Populus*, in Europe e.g. *P. nigra* L., *P. × canadensis* Moench (own data from the Czech Republic and Slovakia), *P. × petrowskiana* Schroeder (Kreisel et al. 1987), in North America e.g. on *P. balsamifera* L. and *P. deltoides* Marsch. (Smith and Hesler 1968). All these species belong to *Populus* subg. *Populus*, no records are known from *Populus tremula* (subg. *Leuce* Duby). In literature and herbaria finds are mentioned on *Salix* and *Malus* (Tjallingii-Beukers 1987, herbarium PRM), *Ulmus* (Kreisel et al. 1987) and data such as "on various deciduous trees" other than *Populus* (Overholts 1927, Smith et Hesler 1968, Lebedeva 1949). The latter data may also include *Pholiota comosa* or some undescribed species. *P. comosa* should have a preference for *Fagus* (Fries 1838, Orton 1969) or Fagales (Bon 1994, but without giving any supporting data).

Neither *Fagus* nor other members of the order Fagales occur in Mongolia (Grubov 1955). Thus, the presence of *Pholiota comosa* s. str. in Mongolia is not possible. Concerning *P. populnea*, the genus *Populus* as the main host is represented by several species (Grubov 1955). In northwestern Mongolia, where *Nemecomyces mongolicus* was collected, *Populus densa* Kom., *P. laurifolia* Lab., and *P. pilosa* Rehder occur. *Pholiota populnea* is further reported from *Salix*, a genus also represented by several species in northwestern Mongolia. Both *Populus* and *Salix* species occur mostly on river and stream banks. All species of *Populus* mentioned belong to the subgenus *Populus*.

Consequently, the occurrence of *P. populnea* in northwestern Mongolia is highly probable both mycogeographically and from the viewpoint of substrate specificity.

#### 4) Terrestrial growth given by Prof. Baranov, the collector of *Nemecomyces mongolicus*, and "steppe or desert character" of this fungus supposed by Pilát (1933a, b)

It is quite obvious that *N. mongolicus* is a member of *Pholiota* section *Hemipholiota*. All members of this section are strictly lignicolous fungi. There are no data on their terrestrial growth in literature. Thus, Baranov's statement on the herbarium envelope ("ad terram", see Fig. 2) seems to be doubtful. Prof. P. A. Baranov (1892-1962) was an important Russian botanist who studied among others the flora of Central Asia as a leader of numerous expeditions. It is very likely that Baranov himself or another member of his research team collected fruitbodies growing on woody debris or a piece of wood (poplar wood?!) hidden in the soil. Not being a mycologist, Baranov may not have been very careful in observing the real substrate of his fungus. This is supported by the fact that the basal part of the stipes on both fruitbodies is missing (Pilát 1933a, own observation) which is common in non-professional fungi collecting.

Concerning the "steppe or desert character" of *Nemecomyces mongolicus*, the geography and vegetation of the district of Kobdo (=Cobdo: old transliteration, more recent form: Chobdo, present-day form: Chovd) must be discussed. It is not easy to determine the area where Baranov really collected *N. mongolicus* more exactly. On the maps from the beginning of the 20th century (e.g. Scobel 1913), Kobdo is an area in northwestern Mongolia between the lakes Uvs Nuur and Chövsgöl Nuur, covered by numerous mountain ranges and river valleys. After the foundation of the Mongolian People's Republic (1924), the administrative district Chovd is situated partly in the Basin of the Big Mongolian Lakes (e. g. Char Us Nuur) and partly in the Mongol Altaj mountains. All these areas must be taken into consideration because of the broadly cited locality.

The Basin of Big Lakes (ca. 700–1200 m a.s.l.) is covered by steppe-desert to xerophilous steppe vegetation. The prevailing vegetation of the Mongol Altaj mountains (2000–4362 m a.s.l.) is xerophilous mountain steppe. The region between lake Uvs Nuur, lake Chövsgöl Nuur, and the Changai mountains (ca. 2000–3500 m a.s.l.) is covered by steppe to forest-steppe vegetation and the area south of the Russian border is covered by coniferous forests (taiga). The river and stream valleys in the whole area described here are accompanied by *Populus* and *Salix species* (!). All data on vegetation are from Grubov (1955).

This analysis shows that it was exaggerated to say that *Nemecomyces mongolicus* has exclusively "steppe or desert character" without knowledge of its exact locality and habitat in the area with so many vegetation types.

#### CONCLUSION

We can conclude that *Nemecomyces mongolicus* Pilát is certainly identical with *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. in all macro- and microcharacters, as was suggested by F. Kotlaba and Z. Pouzar. Analysis of the geographic distribution and ecological requirements of *Pholiota populnea* showed that its occurrence in northwestern Mongolia, where *Nemecomyces mongolicus* was collected, is possible. The terrestrial growth given by the collector, Prof. Baranov, is highly improbable and can be explained by inattention to the gathering of the fruitbodies. Thus, the name *Nemecomyces mongolicus* can be included into the synonymy of *Pholiota populnea*.

#### NOMENCLATORIC CONSEQUENCES

If the subgenus *Hemipholiota* Sing. 1951 ex Sing. 1961, *Sydowia* 15: 70, is considered as a genus of its own (Romagnesi 1980; Bon 1986, 1994) and if we accept that *Nemecomyces mongolicus* is in fact *Pholiota populnea*, then the generic name

*Nemecomyces* Pilát 1933 is older than *Hemipholiota* (Sing.) Romagn. ex Bon 1986. This means that by strict application of nomenclatural rules *Pholiota populnea* (and all species of sect. *Hemipholiota*) should be transferred to *Nemecomyces*, because the generic name *Nemecomyces* has priority.

The whole situation is rather unfortunate. Pilát described the genus *Nemecomyces* at the beginning of his interest in agarics as a result of overvaluation of fruitbody habitus. This fact is clearly demonstrated by his including of two phylogenetically different fungi – a *Pholiota* (*Nemecomyces mongolicus*) and an *Agaricus* (*N. genezareticus*) – in one genus. Moreover, both Pilát's *Nemecomyces* species are described after dried fruitbodies, each from only single herbarium specimen. Thus, his knowledge of the newly published genus was very limited.

In such a case, it is unpleasant to strictly apply the nomenclatural rules and accept the generic name *Nemecomyces* for species mentioned above. However, it is unavoidable if the subgenus *Hemipholiota* is considered as a separate genus. Nevertheless, also the rejection of the name *Nemecomyces* can be proposed to conserve the name *Hemipholiota*, a better known name among mycologists.

I think that it is premature to apply such a "drastic" solution. I prefer to consider *Hemipholiota* a subgenus of *Pholiota* s. l. (ss. Kühner 1980, Jacobsson 1990). In my opinion, this solution corresponds better to the real situation in the genus *Pholiota*. On the subgeneric level, the position of *Hemipholiota* corresponds very well to the position of other subgenera of *Pholiota*, e.g. *Flavidula* Smith et Hesler 1968 which also has no chryso- and pleurocystidia and a very distinct habitus. The distance between subg. *Hemipholiota* and the typical subg. *Pholiota* seems to be similar as in the case of subg. *Flavidula* or subg. *Flammula* Sing. ss. Jacobsson 1990.

#### A c k n o w l e d g e m e n t s

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