

Pseudoomphalina kalchbrenneri (Agaricales) in the Czech Republic

In honour of Dr. Josef Herink, an octogenarian

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The authors have studied Bresadola's type material of *Omphalia kalchbrenneri* Bres. from Italy as well as fresh and dried herbarium specimens from Bohemian and Moravian localities. After studying the material and perusal of the literature, the conclusion was reached that fungi described by various authors as *Omphalia kalchbrenneri* Bres., *Agaricus compressipes* Peck and *Omphalia graveolens* Sev. Petersen are conspecific and the correct name for this fungus is *Pseudoomphalina kalchbrenneri* (Bres.) Sing. In the Czech Republic, this rare species is known from only six localities.

Key words: *Pseudoomphalina kalchbrenneri*, agaric, taxonomy, nomenclature, localities in the Czech Republic

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Autoři studovali Bresadolův typový materiál *Omphalia kalchbrenneri* Bres. z Itálie a živé i herbářové položky této houby z českých lokalit a z moravské lokality. Po studiu materiálu a literatury dospěli k závěru, že houby popsané různými autory jako *Omphalia kalchbrenneri* Bres., *Agaricus compressipes* Peck a *Omphalia graveolens* Sev. Petersen jsou totožné; správné jméno pro tuto houbu je *Pseudoomphalina kalchbrenneri* (Bres.) Sing. Tento vzácný druh je v České republice známý pouze ze šesti lokalit.

INTRODUCTION

Pseudoomphalina kalchbrenneri (Bres.) Sing. belongs to the fairly rare agarics and, whilst collected several times in Bohemia during the last thirty years, it has not been published for Czech Republic. It was first collected in this country by J. Kubička and J. Herink and determined by J. Herink (both Czech mycologists) in 1949 and determined by the latter, to whom we dedicate this paper. Our recent findings induced our interest in the variability and the delimitation of this species.

Various characters have been published in the literature which define *Pseudoomphalina kalchbrenneri* (Bres.) Sing. and *P. graveolens* (Sev. Petersen) Sing. as two distinct species. Moser (1983), for instance, separates *P. kalchbrenneri* (Bres.) Sing. from *P. compressipes* (Peck) Sing. (= *Omphalia graveolens* Sev. Petersen) on the grounds of the more reddish pileus surface and stipe, the smaller spores and the agreeable but different (not specially farinaceous) smell.

MATERIAL AND METHODS

We studied rather rich material – fresh as well as dried – from three mutually distant places in the western part of the Czech Republic (Northern, Central and Southern Bohemia). After a thorough study, we reached the conclusion that the above-mentioned characters are variable and, for this reason, cannot be used for distinguishing between the species.

For instance, the red-brown or reddish tint of the pileus surface was noted only in one collection from near Poříčko n. Sáz., Central Bohemia (PRM 710091) but the pileus surface in another collection from the same locality (PRM 829202), as well as from the remainder, was dark woody-brown when moist and pale when slightly dry.

Smaller spores were found in various collections with some from the same locality. Also, the farinaceous smell, whilst noted in some collections was absent from others. In the collection from the Krkonoše Mountains, made in 1993, the smell was inconspicuous whereas it was markedly farinaceous in the 1994 and 1995 collections. It may be that the intensity of the smell depends on the weather – moist or dry, cold or warm etc.

The spore size in material from Vítkovice in the Krkonoše Mountains (Northern Bohemia) in 1993 was (7-)8-10.5 × (3-)4.5-5(-5.3) μm (PRM 878727) but from "Žofínský prales" near Pivonice (Southern Bohemia) only (6.5-)7-7.5(-9) × 4-4.5 μm (PRM 710092).

From these facts, we conclude that the colour of the pileus, the spore size and the smell are variable and so cannot be retained as distinguishing features.

For the above-mentioned reasons, we consider *Omphalia kalchbrenneri* Bres. and *O. graveolens* Sev. Petersen to be conspecific. However, as the first name is much older (1883) than the second (1907), the correct name for this agaric is *Pseudoomphalina kalchbrenneri* (Bres.) Sing. However, in the same year as Bresadola, Peck (1883) published *Agaricus compressipes*, which is considered by some authors to be conspecific with Bresadola's fungus. It was recombined by Singer with *Pseudoomphalina* as *P. compressipes* (Peck) Sing., who considered it the correct name for the agaric under discussion. According to Stafleu and Cowan (1976, 1983) the first volume of Bresadola's *Fungi Tridentini* (dated 1881) appeared in January 1883, and not in 1881, whereas Peck's Report of the Botanist (Ann. Rep. New York State Mus. vol. 33) was issued as late as June 1883. Therefore, Bresadola's name *Omphalia kalchbrenneri* has nomenclatural priority.

The same opinion has been already reached by Knudsen and Hansen (1991), where the synonymy of *Pseudoomphalina kalchbrenneri* is treated in detail. There also exists another species in the genus *Pseudoomphalina*, viz. *P. pachyphylla* (Fr.) Knudsen, which is remarkable for the usually broad, ventricose, distant, emarginate lamellae and the subsquamulous pileal surface (see Knudsen and Hansen 1991).



Fig. 1 *Pseudoomphalina kalchbrenneri*. Mature carpophores in the locality near Vítkovice in the Krkonoše Mountains, 19.9.1993. x1.25 Photo F. Kotlaba.



Fig. 2 *Pseudoomphalina kalchbrenneri*. Left: view of the pileus surface, right: view of gills. Horní Vltavice, "Boubínský prales", 11.9.1949. Photo J. Herink.

We have studied Bresadola's type of *Omphalia kalchbrenneri* from the Forest of Birreni near Trento (Italy), Summer (aestate) 1883, coll. G. Bresadola (S 94/217). There were originally probably about three carpophores, now broken into many small pieces, and three fragments of stipes, 2.2, 1.4 and 1.3 cm long and about 1 mm thick with the spores measuring (7-)7.5-9.5(-10) \times 4-5 μ m. There is still another, much younger, Bresadola's collection of this species: Varena, August 1919, coll. G. Bresadola (S). It is also fragmented into small pieces and is identical with the type, with spores are of the same character and measuring 7-9.5 \times 4-5 μ m (both revised by us on 15th December, 1994).

Ballero and Contu (1993) distinguish *Pseudoomphalina compressipes* (Peck) Sing. mainly by the orange-rouge colour of the pileus surface. In the original description of *Agaricus compressipes* Peck, however, no mention was made of any trace of this colour with Peck 1883 (p. 18) writing: "Pileus... brownish when moist, whitish or pale-alutaceous when dry...". We requested for study the loan of the specimens of *Pseudoomphalina compressipes* and *P. kalchbrenneri* collected in Sardinia (Italy) published by these authors and received four specimens (herb. CAG): 1. Pula, 14.10.1990, N. 13/32.3a; 2. M.te Limbara, 12.10.1984, N. 13/32.3b, both as *Pseudoomphalina compressipes* (but only the second collection, with amyloid spores measuring 7-8.5(-11) \times 4-5.5 μ), represents *P. kalchbrenneri*; 3. M.te Arci, 1.11.1989, N. 13/32.5c; 4. the same locality, 1.10.1989, N. 13/32.5a, both as *Pseudoomphalina kalchbrenneri*. The only collection published as *P. kalchbrenneri* in Ballero and Contu (1993) was from M. te Arci, 1.11.1989, and appeared to have large, shortly ovoid inamyloid spores; this is not *P. kalchbrenneri* but represent some *Omphalina* sp. The second specimen, determined as *P. compressipes*, was from Pula, 14.10.1990, but had the same microscopical characters and cannot therefore represent any *Pseudoomphalina*; it was also an *Omphalina* sp. (and the same as the other specimen send to us).

In our opinion, the distinguishing criteria given in the key to *Pseudoomphalina* by Ballero and Contu (1993) are partly incorrect, as some characters of *Omphalina* were involved. We are convinced that, taxonomically, *Pseudoomphalina compressipes* is not different from *P. kalchbrenneri*.

DESCRIPTION OF PSEUDOOMPHALINA KALCHBRENNERI

The following is prepared from fresh carpophores collected by the first author above Vítkovice in Krkonoše Mountains (North Bohemia) on 11. September 1994, supplemented by notes on fresh specimens from two other Bohemian localities (Poříčko n. Sáz. and Žofinský prales) and the descriptions of J. Herink, also based on fresh specimens, from the Boubín area in the Šumava Mountains (Southern Bohemia).

Pileus 11-51 mm in diam., at first appanate with an inflexed margin, deeply depressed at the centre, later (at maturity) broadly infundibuliform to infundibuliform, either smooth or sparsely radially costate with an undulated, smooth margin. Pileus surface otherwise glabrous (although faintly tomentose in one carpophore), slightly pruinose when young, especially on the crenate margin, where it forms a whitish zone; surface strongly hygrophanous with an almost cartilaginous consistency (the cuticle could be striped from the margin to the centre), colour woody brown when moist, rather dark without reddish tints, but becoming much paler when drying with the centre always darker. In some carpophores, the surface is translucently striate for over more than half of the pileus; pileal context 1.25-1.5 mm thick and rather silky fibrillose.

Lamellae 2.5-5 mm deep, 0.5-0.6 mm thick, with the entire edge (not dentate), deeply decurrent, white as a flour when young but soon becoming ivory and up to pale-butter-ochraceous when old.

Stipe central, slender, undulately uneven (slightly twisted), hollow, 30-65 mm long and 2-4(-5) mm broad, slightly glassy lustrous, elastic, slightly cartilaginous but little fragile, narrowly cylindrical, becoming grooved when old, smooth, woody brown; the base is slightly thickened, sometimes thin white felty, without any rhizoids.

Taste strongly cucumber-farinaceous, becoming remarkably bitter; smell also strongly cucumber-farinaceous.

Spores (6.5-)7-10(-11.5) × (3-)4-5(-5.5) μm, cylindrical ellipsoid with a distinct apiculus on the rounded base of the spore, mostly flat on the ventral but arched on the dorsal sides, thin-walled, smooth, hyaline, indexinoid, amyloid in Melzer's reagent.

Carpophores appear in autumn, in the Czech Republic from September 3 to November 7.

LOCALITIES OF PSEUDOOMPHALINA KALCHBRENNERI IN THE CZECH REPUBLIC

The following specimens from the Czech Republic are preserved in the herbarium of the National Museum, Prague (PRM) and in the private herbarium of MUDr. J. Herink (Mnichovo Hradiště):

Bohemia

Vítkovice, distr. Jilemnice, montes Krkonoše, Bohemia septentr.; in margine silvae supra Vítkovice in fossa viae ad Rezek, 800 m alt., ad terram humosam sub *Athyrium filix-femina*, *Urtica dioica* etc., 19.IX.1993 (PRM 878727), 11.IX.1994 (PRM 883243) and 21.X.1995 (885420), leg. F. Kotlaba, det. F. Kotlaba et Z. Pouzar. - Poříčko n. Sáz., Boh. centr., in valle rivuli "Křešický potok", 320 m

alt.; ad terram (detritus), 13.X.1970, leg. et det. Z. Pouzar (PRM 710091); ib., in detr. *Carpini betuli* et *Piceae abietis*, 7.XI.1981, leg. J. Kubička, det. F. Kotlaba et Z. Pouzar (PRM 829202). – Horní Vltavice, vicus Kaplice, distr. Prachatice, montes Šumava, Boh. merid., vallis ad latera montium "Pažení" et "Boubín" (reservatio naturalis "Boubínský prales"), ca 950 m alt., 2.X.1952, leg. et det. J. Herink (herb. Herink 789/52). – Horní Vltavice, vicus Kaplice, distr. Prachatice, montes Šumava, vallis rivi "Kaplický potok", ca 910 m alt., ad terram humosam subarenosam, *Picea abies*, *Fagus sylvatica*, 11.IX.1949, leg. J. Kubička et J. Herink, det. J. Herink (herb. Herink 531/49). – Silva virginea "Žofínský prales" ap. Pivonice (Žofínské sruby), montes Novohradské hory, Boh. merid., ca 780 m alt.; in trunco valde putrido (detritus) *Piceae abietis*, 10.X.1968, leg. et det. Z. Pouzar (PRM 710460); ib., in detritu in *Fageto* sub *Urticis dioicae*, 3.IX.1970, leg. J. Kubička, det. Z. Pouzar (PRM 710092).

Moravia

Čeladná, pagulus Podolánky, distr. Frýdek-Místek, montes Moravskoslezské Beskydy, Silesia orient., reservatio naturalis "V Podolánkách", ca 680 m s.m., piceetum vetus umbrosum, solo turfoso... ad terram humosam adhaerentem ad radices *Piceae abietis* eversae, 22.IX.1982, leg. et det. J. Herink (herb. Herink 549/82).

ECOLOGY OF PSEUDOOMPHALINA KALCHBRENNERI IN CZECH REPUBLIC

None of the known localities in Czech Republic is situated on limestone with all are on acid, humous or clay-sandy soils, mostly on gneiss and granite. All localities are in the lower mountains (780 – 950 m alt.) except for Poříčko n. Sáz., which is in a deep brook valley in hilly country (320 m alt.).

In all localities, *Pseudoomphalina kalchbrenneri* occurs under spruce (*Picea abies*), sometimes together with frondose trees. In the mountainous localities "Boubínský prales", "Kaplický potok", "Žofínský prales" and "V Podolánkách", the spruce mixed forest is autochthonous, whilst the other two are secondary spruce plantations, probably since at least from the last century. In the locality near Vítkovice, the original vegetation was most probably mixed beech forest (*Fagus sylvatica* with *Picea abies*) whereas in Poříčko n. Sáz. at the bottom of the deep brook valley, it was probably brookside alder forest. The two last biotopes of *Pseudoomphalina kalchbrenneri* (Vítkovice and Poříčko n. Sáz.) have been influenced by man as they are on the forest roadside.

The first mentioned (Vítkovice) is on the margin of a road in a montane spruce forest (*Picea abies*) where the following plants occur: *Athyrium filix-femina*, *Urtica dioica*, *Senecio fuchsii*, *Oxalis acetosella*, *Petasites albus*, *Rubus idaeus*,

Silene dioica (= *Melandrium sylvestre*), young *Acer pseudoplatanus*, *Ajuga reptans*, *Sambucus racemosa* and *Myosoton* (*Malachium*) *aquaticum* (arranged according to their abundance in the locality). In association with *Pseudoomphalina kalchbrenneri* were *Clitocybe* sp., *C. fragrans* (With.:Fr.) Kumm., *Conocybe* sp., *Cystolepiota carcharias* (Pers.) Fayod, *Mycena sanguinolenta* (Alb. et Schw.:Fr.) Kumm. and *Tubaria* sp. whilst *Bjerkandera adusta* (Willd.:Fr.) P. Karst. and *Hymenoscyphus* sp. occurred on a small sycamore stump (*Acer pseudoplatanus*).

The Moravian locality ("V Podolánkách") is in a natural Carpathian moist spruce forest, with the following plants: *Calamagrostis villosa*, *Deschampsia flexuosa*, *Fagus sylvatica* (young), *Majanthemum bifolium*, *Oxalis acetosella*, *Rubus* sp., *Salix silesiaca*, *Senecio fuchsii*, *Viola palustris* etc.

We would like to draw the attention of mycologists to this interesting agaric (*Pseudoomphalina kalchbrenneri*) and allied species as there seem to be some problems which need further study and collaboration of mycologists from various countries.

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

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