

## ***Lactarius hrdovensis*, a new species of section *Uvidi* from Slovakia**

PAVOL ŠKUBLA

Drieňová 8, 927 01 Šaľa, Slovakia  
pskubla@duslo.sk

Škubla P. (2006): *Lactarius hrdovensis*, a new species of section *Uvidi* from Slovakia. – Czech Mycol. 58(1–2): 67–73.

A new species, named *Lactarius hrdovensis* Škubla, is described from the Západné Tatry Mts., Slovakia. The bright violet-coloured carpophores with a significant papillate umbo and yellow-whitish milk, grew among *Sphagnum* under *Betula* and *Salix* near a *Picea* forest margin. *Lactarius hrdovensis* belongs to section *Uvidi* (Konrad) Bon, subsection *Uvidini* Konrad. A description of macro- and microcharacters, colour photograph of fresh carpophores and line drawings of microcharacters are provided.

**Key words:** fungi, *Russulaceae*, *Lactarius*, violet-coloured carpophore, papillate umbo, new species, Slovakia

Škubla P. (2006): *Lactarius hrdovensis*, nový druh sekcie *Uvidi* zo Slovenska. – Czech Mycol. 58(1–2): 67–73.

Nový druh, *Lactarius hrdovensis* Škubla, je opísaný zo Západných Tatier na Slovensku. Živofialovo sfarbené plodnice s význačným bradavkovitým hrboľom a žltobelavým mliekom rástli v rašeliníku pod *Betula* a *Salix* blízko okraja smrekového lesa. *Lactarius hrdovensis* patrí do sekcie *Uvidi* (Konrad) Bon, podsekcie *Uvidini* Konrad. Je publikovaný opis makro- a mikroznakov, farebná fotografia čerstvých plodníc a kresby mikroznakov.

### INTRODUCTION

Four carpophores of an unknown *Lactarius* species were found in the forest „Hrdovo“, in the northern part of Slovakia, 4 km east-northeast of Pribylina (Liptovský Mikuláš Distr.) in August 1995. The carpophores grew among *Sphagnum* under *Betula* and *Salix* near a *Picea* forest margin. After that, two monographs of the genus *Lactarius* were published (Baso 1999, Heilmann-Clausen et al. 1998) but such a species was not included in either of them. The same counts for the publications by Hesler and Smith (1979) and Kränzlin (2005). It was evident, that the unknown *Lactarius* was a new species. Monitoring of this locality for the following ten years did not provide any further finds.

## MATERIAL AND METHODS

The description of macrocharacters is based on carpophores collected and studied in fresh condition by the author. The description of microcharacters is based on dried material. The spores were studied and drawn in Melzer's reagent, all other structures in 5 % KOH or in Congo-red. Spore measurements are based on three fruitbodies. From each fruitbody, 20 spores were randomly selected and measured, and average length and width values, as well as 95 % limits were calculated according to Breitenbach and Kränzlin (1991). In the description, the highest and lowest 95 % limits are presented, as well as the highest and lowest averages. Spore length/width quotients (Q-values) were calculated and are presented in the same way.

## RESULTS

***Lactarius hrdovensis*** Škubla spec. nov.

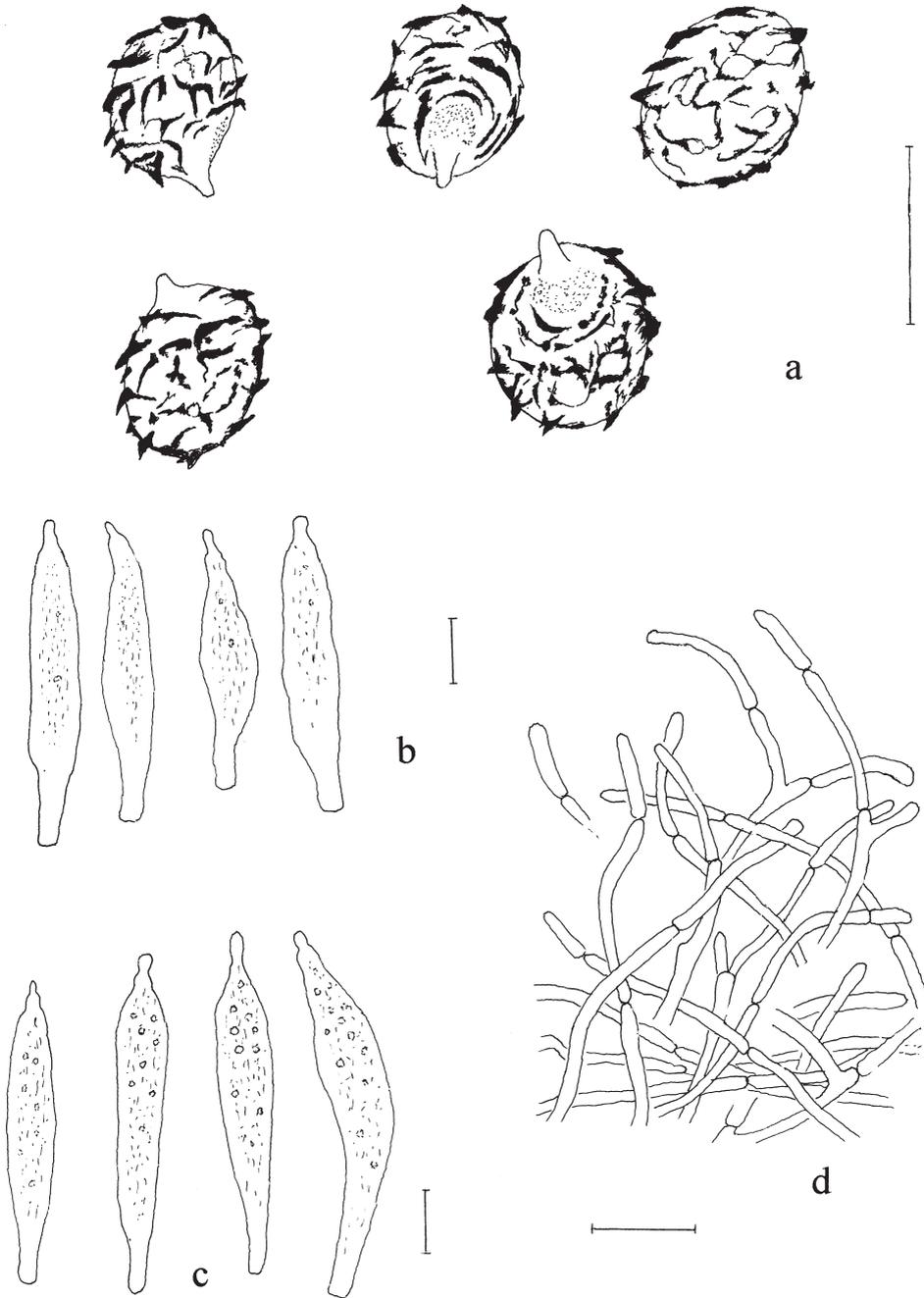
Pileo 15–55 mm lato, conico vel conico-convexo, dein applanato, margine incurvata, dein plus minusve recta, nec striata, centro umbonato dein papillate umbonato, cute tomentosa, argentato-violacea, vivide violacea, paulum irregulare brunneolo-ochraceo maculata, margine squamulosa. Lamellis medie distantibus, L = 55–65, curvatis vel sinuatis, decurrentibus, albido-violaceis, passim obscure violaceo maculatis, lamellis intermixtis, acie violacea. Stipite 50–100 × 7–17 mm, cylindrico, ad basim clavato, albido-violaceo, violaceo fibrilloso-tomentoso, paulum irregulariter brunneolo-ochraceo maculato, ad basim vivide violaceo villosulo vel strigoso. Carne albido-violacea, sapore resinoso, paulum acre. Latice luteolo-albido, sapore resinoso, paulum acre. Sporis 7.4–11.9 × 7.0–9.3 µm subglobosis vel late ellipsoideis. Pleuromacrocytidiis 40–80 × 5–10 µm, forte emergentibus, fusiformibus, apice mucronatis vel moniliformibus. Cheilomacrocytidiis 30–60 × 7–9 µm, emergentibus, fusiformibus, apice mucronatis. Habitatibus in *Sphagno* sub *Betula* et *Salice*.

**Holotypus:** Slovakia, Montes Západné Tatry, Pribylina (distr. Liptovský Mikuláš), Hrdovo, 13. VIII. 1995 leg. P. Škubla, holotypus in herbario BRA Cr 460 asservatur.

**Etymology:** The epithet „*hrdovensis*“ indicates that this *Lactarius* comes from the forest „Hrdovo“.

**Description**

**Pileus** 15–55 mm broad, conical, with an inflexed margin when young, later conical-convex to convex, with a large, broad, rather acute, distinct umbo and



**Fig. 1.** *Lactarius hrdovensis* Škubla spec. nov. – a: basidiospores, scale bar = 10 µm, b: cheilomacrocystidia, scale bar = 10 µm, c: pleuromacrocystidia, scale bar = 10 µm, d: pileipellis, scale bar = 30 µm.



**Fig. 2.** *Lactarius hrdovensis* Škubla spec. nov. – Slovak Republic, Západné Tatry Mts., Pribylina (Liptovský Mikuláš Distr.), Hrdovo, 13 Aug. 1995 leg. P. Škubla (holotype: BRA Cr 460).

inflexed margin, then at maturity gradually applanate, with distinct papillate umbo (the papilla up to 7 mm high), margin not striate, at places slightly decurved or slightly reflexed, cutis violaceous tomentose with dense depressed fibrils (sub lente), sometimes with irregular brownish-ochraceous spots, at margin disrupted to small depressed scales with darker vividly violaceous colour, on an argentate,

whitish-violaceous background; viscid when wet. The whitish-violaceous colour on the background is seen at different places of the pileus cutis when the carpophore is young. Old carpophores have an entirely violaceous cutis colour, the whitish-violaceous colour is then seen only between the scales near the margin. The pileus margin edge is dark violaceous. Lamellae moderately close, L = 55–65, combined with lamellulae (l = 40–45) of different length (1/3L–3/4L), broadly adnate to decurrent, narrow (up to 4 mm broad), slightly sinuate, whitish-violaceous, sometimes with ochraceous brownish spots, slightly undulate near connection to pileus margin when the carpophore is old, becoming dark violaceous after bruising, with smooth, entire, dark violaceous edge. Stipe 50–100 × 7–14 mm, cylindrical, slightly clavate (up to 17 mm) towards base, slightly attenuate at base, sometimes slightly curved, hollow, distinctly violaceous fibrillose to tomentose on a violaceous-whitish base, pale violaceous at apex, brightly violaceous villose to strigose at base (20–30 mm), sometimes with ochraceous brownish spots; viscid when wet. Pileus context whitish-violaceous, immediately becoming spotted violaceous, with a resin-like and slightly acrid to biting taste; stipe context at base near the margin immediately becoming violaceous. Milk yellow-whitish, not changing when isolated from the flesh, with a resin-like and slightly acrid to biting taste. Spore deposit pale cream.

Spores 7.4–11.9 × 7.0–9.3 μm, av. 9.8–9.9 × 8.0–8.3 μm, subglobose to broadly ellipsoid, Q = 1.05–1.31, av. 1.21; ornamentation up to 1.2 μm high, made up of rather acute warts and irregular ridges, incompletely reticulate; plage often amyloid or distally amyloid (see Heilmann-Clausen et al. 1998: p. 16, fig. 3). Basidia 30–50 × 8–15 μm, subclavate to clavate, 4-spored. Trama irregular to bilateral. Pleuromacrocytidia numerous, 40–80 × 5–10 μm, strongly projecting, fusiform, with mucronate to moniliform apex. Cheilomacrocytidia numerous, 30–60 × 7–9 μm, projecting, fusiform, with mucronate or rounded apex. Pileipellis (ixo-)trichoderm to (ixo-)cutis, 100–200 μm thick; hyphae 2–6(–9) μm broad, often branched and interwoven. Terminal hyphae 15–40 μm long. Clamp connections not found.

Ecology: growing on moist places under *Betula* and *Salix* among *Sphagnum* in a bush of *Betula*, *Salix* and *Alnus* near a *Picea* forest margin.

Locality: Slovak Republic, Západné Tatry Mts., southern slope of Mt. Bystrá, 4 km east-northeast of the village of Pribylina (Liptovský Mikuláš Distr.) in the forest „Hrdovo“, alt. 860 m, 13 Aug. 1995 leg. P. Škubla (holotype: BRA Cr 460). Hrdovo is a spruce forest with heath, bilberries and with many small meadows. At the southern marginal part of the forest, Hrdovo passes into moist or wet meadows with *Sphagnum*, *Polytrichum*, *Carex echinata*, *Carex fusca*, *Scirpus silvaticus*, *Equisetum palustre* with isolated trees like *Betula*, *Pinus*, and *Picea* and into moist bushes with *Salix*, *Betula*, *Alnus* and *Corylus*.

## DISCUSSION

*Lactarius hrdovensis* is characterised by having medium-sized bright violet-coloured carpophores, at first with a distinctly large and then papillate umbo, violaceous tomentose cutis, whitish-violaceous lamellae becoming darkly violaceous after bruising, darkly violaceous lamellae edge, cylindrical, slightly clavate, violaceous fibrillose, at base bright violaceous strigose stipe, yellow-whitish milk, not changing when isolated from the flesh, rather large basidiospores with often amyloid plage, strongly projecting fusiform pleuromacrocytidia and cheilomacrocytidia. Pileus, stipe and lamellae are sometimes covered with brownish-ochraceous spots.

*Lactarius hrdovensis* belongs to section *Uvidi* (Konrad) Bon, subsection *Uvidini* Konrad. It differs from the other members of this subsection [*L. uvidus* (Fr.: Fr.) Fr., *L. luridus* (Pers.: Fr.) Gray, *L. violascens* (J. Otto: Fr.) Fr., *L. pseudouvidus* Kühner, and *L. brunneoviolaceus* M.P. Christ.] by the bright violet-coloured carpophores, significantly large and papillate umbo, darkly violaceous lamellae edge and except of *Lactarius violascens* by the brownish-ochraceous spots on pileus and stipe, too. *Lactarius uvidus*, *L. luridus*, *L. violascens* and *L. pseudouvidus* have inamyloid spores plage, only *L. brunneoviolaceus* and *L. hrdovensis* have the plage strongly distally amyloid (see Heilmann-Clausen et al. 1998).

With regard to the species of the subsection *Uvidini* Konrad, *Lactarius hrdovensis* is relatively close only to *L. brunneoviolaceus*, but there are very distinct differences between these two species. *L. brunneoviolaceus* has a fawn, brownish vinaceous to dark vinaceous pileus without brownish-ochraceous spots and is only sometimes  $\pm$  umbonate, and the umbo is never distinct. Lamellae have a concolorous edge and no brownish-ochraceous spots. The stipe is small, 10–35  $\times$  4–16 mm, all whitish to pale cream or greyish, also at the base, and has no brownish-ochraceous spots. Pleuromacrocytidia are rather scarce. It grows with *Salix* in arctic and alpine areas [see Heilmann-Clausen et al. 1998, Basso 1999 (as *L. robertianus* Bon)]. In contrast, *Lactarius hrdovensis* has a violaceous pileus with brownish ochraceous spots and with distinct papillate umbo, lamellae with dark violaceous edge and with brownish ochraceous spots. Its stipe is slender, 50–100  $\times$  7–17 mm, brightly violaceous villose to strigose at base, sometimes with ochraceous brownish spots. Pleuromacrocytidia are numerous. It grows with *Betula* and *Salix* in moist submontane areas. The differences between *Lactarius hrdovensis* and *L. brunneoviolaceus* are so distinct, that it is evident, that *L. hrdovensis* is a new species with typical characters differing from those of other *Lactarius* species.

*Lactarius hrdovensis* was collected only once and the collection comprised four carpophores of different age (Fig. 2). It was found in bush of smaller decidu-

ous trees (*Salix*, *Betula*, *Alnus*) near a *Picea* forest margin on humid soil among *Sphagnum*. Monitoring of this locality has so far not provided any further finds of this species. *Lactarius hrdovensis* has such distinctly different macrocharacters from other species of the genus *Lactarius*, that in our opinion the only one collection of four carpophores is fully satisfying to describe a new species.

#### REFERENCES

- BASSO M. T. (1999): *Lactarius* Pers. Fungi Europaei, Vol. 7. – 845 p. Alassio.  
BREITENBACH J. and KRÄNZLIN F. (1991): Pilze der Schweiz, Band 3, Röhrlinge und Blätterpilze, 1. Teil. – 364 p. Luzern.  
HEILMANN-CLAUSEN J., VERBEKEN A. and VESTERHOLT J. (1998): The genus *Lactarius*. Fungi of Northern Europe, Vol. 2. – 287 p. Odense.  
HESLER L. R. and SMITH A. H. (1979): North American species of *Lactarius*. – 856 p. Ann Arbor.  
KRÄNZLIN F. (2005): Fungi of Switzerland, Vol. 6, *Russulaceae*. – 317 p. Luzern.