

## KNOWN DISTRIBUTION OF *BOLBITIUS VARIICOLOR* IN CROATIA

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### Abstract

Seven localities of *Bolbitius variicolor* G.F. Atk. have been recorded in Croatia up to the present. Annotated list of records is being given, along with the basic geographical and ecological data. Records from six localities have been revised. Known distribution of *B. variicolor* in Croatia is shown on the map with the UTM grid.

**Key words:** *Bolbitius variicolor*, *Bolbitiaceae*, *Agaricales*, distribution, Croatia.

### Izvod

Poznata rasprostranjenost vrste *Bolbitius variicolor* u Hrvatskoj.

Do sada je u Hrvatskoj zabilježeno sedam lokaliteta vrste *Bolbitius variicolor* G.F. Atk. Dat je pregled dosadašnjih nalaza s osnovnim geografskim i ekološkim podacima. Nalazi sa šest lokaliteta su revidirani. Poznata rasprostranjenost vrste *B. variicolor* u Hrvatskoj prikazana je na karti s UTM mrežom.

**Ključne riječi:** *Bolbitius variicolor*, *Bolbitiaceae*, *Agaricales*, rasprostranjenost, Hrvatska.

### INTRODUCTION

*Bolbitius variicolor* G.F. Atk. (Studies of American Fungi, Mushrooms Edible, Poisonous, Etc.; 1900) belongs to family *Bolbitiaceae*, order *Agaricales*, subdivision *Basidiomycotina*. It lives as saprotroph on grass remains, fertilized substrata, small wood pieces, sawdust, rarely on large wood pieces. It is a rare species in Europe. According to ARNOLDS et al. (1995), FURRER-ZIOGAS (1990), HAUSKNECHT & RÜCKER (1989), KRIEGLSTEINER (1983), KUTHAN (1992), MORENO et al. (1991), PERIĆ (2000), STROPNIK et al. (1988), and TKALČEC & KUSIN (1984) in Europe, so far, it has been found in Austria, Bulgaria, Croatia, Czech Republic, France, Germany, Great Britain, Hungary, Italy, the Netherlands, Slovenia, Spain, Switzerland and Montenegro (Yugoslavia). The records have been scarce in all of these countries. The species is also treated by BABOS (1974, 1981), BON (1992), BREITENBACH & KRÄNZLIN (1995), CACIALLI et al. (1995), CETTO (1979), ENDERLE et al. (1985), ENTS & SEDLÁČEK (1990), KRIEGLSTEINER (1991), MIGLIOZZI & COCCIA (1988), MOSER (1978, 1983) and WATLING (1982). This species was found in Croatia for the first time in 1978. TKALČEC

& KUSIN (1984) mention three known localities up to that time. So far *Bolbitius varicolor* has been recorded in seven localities in Croatia. Apart from Europe, it lives in North America and East Asia (SINGER 1977).

Abbreviations:

- alt. - altitude
- descr. - description
- det. - determinavit (identified)
- exs. - exsiccatum
- fung. - fu
- ngarium (collection of fungi specimens)
- leg. - legit (collected)
- not. - notavit (recorded)
- phot. - photograph
- publ. - published
- rev. - revidit (revised)
- UTM - Universal Transverse Mercator

#### MATERIAL AND METHODS

All collected material and data are kept in the private fungarium of Zdenko Tkalčec. Basidiocarps are preserved by drying. The records from six localities have been revised according to BON (1992), HAUSKNECHT & RÜCKER (1989) and MOSER (1983). It was impossible to revise the record from the seventh locality due to lack of collected material, description or photograph.

The revised records:

The vicinity of the village of Gornja Planina (near Kašina), ca. 15 km N-NE from Zagreb; ca. 45°55'10"N, 16°05'02"E; UTM WL88; alt. ca. 350 m; from the soil with small wood pieces by the road; 14 May 1978; many basidiocarps; leg. & det. I. Focht; rev. Z. Tkalčec & A. Mešic; fung. Tkalčec, descr. & phot. (1/1412); publ. Tkalčec & Kusin 1984.

Between the villages of Bosanci and Vukova Gorica, ca. 20 km W-SW from Karlovac; ca. 45°27'00"N, 15°17'42"E; UTM WL23; alt. ca. 200 m; from the heap of partially decaying hay; 13 May 1982; eight basidiocarps; leg. & det. I. Focht; rev. Z. Tkalčec & A. Mešic; fung. Tkalčec exs. 1/1413, descr. & phot.; publ. Tkalčec & Kusin 1984.

Near by the village of Luzan Biškupečki, ca. 10 km S from Varaždin; 46°13'30"N, 16°21'17"E; UTM XM02; alt. 300 m; mixed forest with *Fagus sylvatica*, *Picea abies* and *Larix sp.*; substratum: chips and other small wood waste mixed with soil; 6 July 1984;

ca. 40 basidiocarps; leg. & det. Z. Tkalčec fung. Tkalčec exs. 1/1, descr. & phot.; publ. Tkalčec & Kusin 1984.

Near by the village of Gabrovica, ca. 9 km W-NW from Samobor; 45°50'13"N, 15°36'21"E; UTM WL47; alt. 260 m; on the heap of sawdust; 30 June 1986; more basidiocarps; leg. & det. Z. Tkalčec fung. Tkalčec exs. 1/57.

Gorica forest near by the village of Gomirje, ca. 3 km S-SE from Vrbovsko; ca. 45°21'00"N, 15°05'57"E; UTM WL02; alt. 420 m; *Abies alba* forest; substratum: soil with some chips and sawdust; 21 July 1990; more basidiocarps; leg. N. Matočec; det. Z. Tkalčec; fung. Tkalčec, exs. 1/263; 11 Aug. 1990; 18 basidiocarps; leg. & det. Z. Tkalčec fung. Tkalčec exs. 1/271, descr. & phot.

Gornja Bistra, ca. 13 km N-NW from Zagreb; 45°55'32"N, 15°54'12"E; UTM WL68; alt. 225 m; on sawdust and chips spread by the country road; 27 May 1998; 13 basidiocarps; leg. & det. Z. Tkalčec fung. Tkalčec exs. 1/883.

The unrevised record:

Stubičke Toplice, ca. 18 km N from Zagreb; ca. 45°58'40"N, 15°56'17"E; UTM WL79; alt. ca. 180 m; on small wood pieces; 16 May 1998; ca. 15 basidiocarps; not. V. Štruglin.

## RESULTS AND DISCUSSION

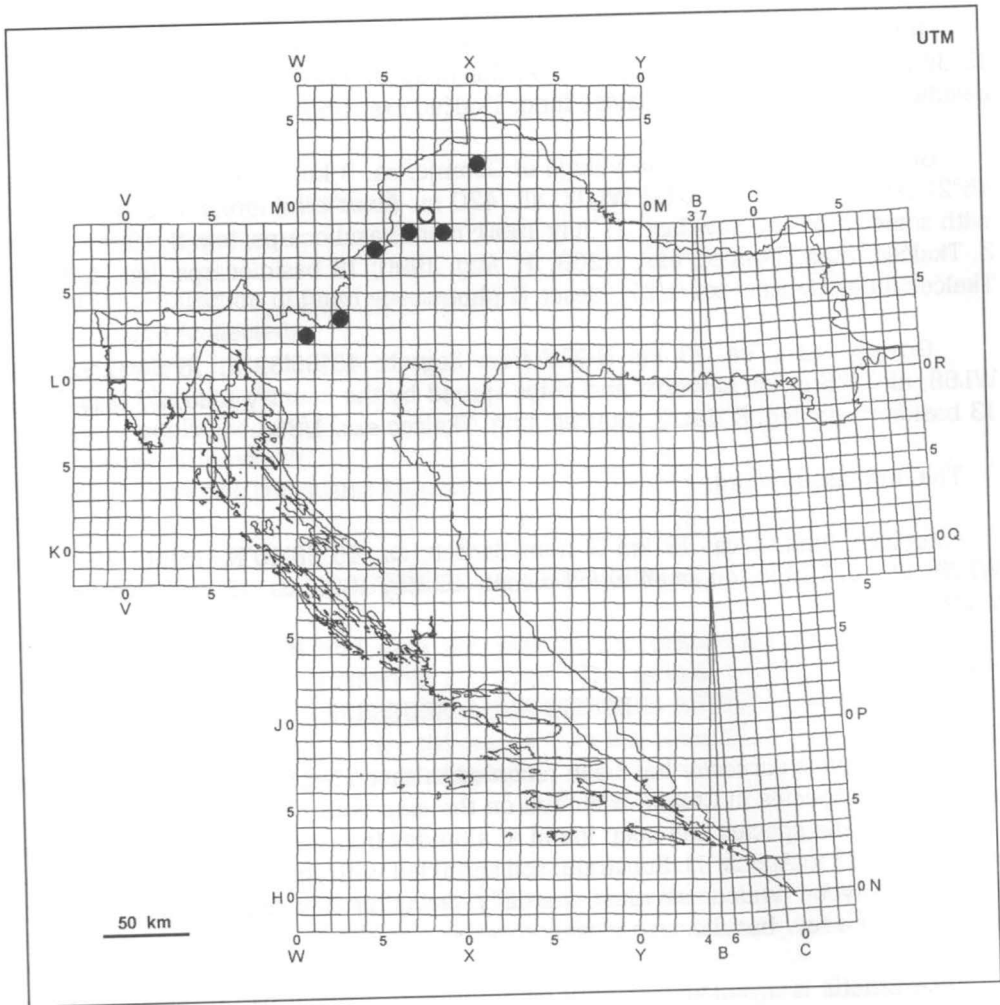
So far *Bolbitius variicolor* has been recorded in seven localities. The known distribution of this species in Croatia is shown on the map with UTM grid (10 x 10 km).

In Croatia the species has been found at altitudes from 180 to 420 m, in the period from May 13 to August 11. Substrata: soil sprinkled with small wood pieces or sawdust, small wood waste, sawdust, partially decaying hay. Basidiocarps come in groups, often a few basidiocarps closely together.

Since Croatia is mycologically very poorly explored, it can be presumed that this known distribution is the consequence of the fact that this part of Croatia has been most frequently explored (the vicinity of the capital).

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Known distribution of *Bolbitius variicolor* in Croatia

- The localities from which the records have been revised
- The locality from which it was impossible to revise the record

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