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First records of three *Hericium* species (Basidiomycota) in Kosovo

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Short communication

First records of three *Hericium* species (Basidiomycota) in Kosovo

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Running title: *HERICIUM* SPECIES IN KOSOVO

Abstract – This study presents the first report of three *Hericium* species in Kosovo: *Hericium cirrhatum* (Pers.) Nikol., *H. coralloides* (Scop.) Pers. and *H. erinaceus* (Bull.) Pers. These species were found in mixed deciduous and oak forests in the central-eastern part of the country.

Keywords: fungal diversity, Kosovo, mycobiota, new records

Introduction

Hericium species known for their cream-colored fruiting bodies with tooth-like hymenophoral structures and monomitic hyphal system (Stalpers 1996), belong to the *Hericiaceae* family (Russulales, Basidiomycota) and are closely related to *Laxitextum* Lentz, which has stereoid basidiomes (Larsson 2007). The species usually grow on dead standing and fallen trunks but can also colonize living trees (Kirk et al. 2008, Bernicchia and Gorjón 2010). Some of them are used in traditional food and medicine, notably *Hericium erinaceus* (Bull.) Pers. in China (Jumbam et al. 2019).

While various organism groups in Kosovo have been extensively documented, such as vascular flora (Millaku et al. 2013), the national forest inventory (Tomter et al. 2013), Red Book of Fauna (Ibrahimi et al. 2018), endangered and endemic plants (Berisha et al. 2020) and both plants and spiders (Berisha and Geci 2023), the fungi biota was less studied until recent research (Ramshaj et al. 2021, 2022). This study constitutes the first report of the presence of three *Hericium* species in Kosovo: *Hericium cirrhatum* (Pers.) Nikol., *H. coralloides* (Scop.) Pers. and *H. erinaceus*.

Materials and methods

The study is based on field research in three districts in Kosovo (Suhareka, Lipjan, and Prishtina) from 2017 to 2022 (Fig. 1).

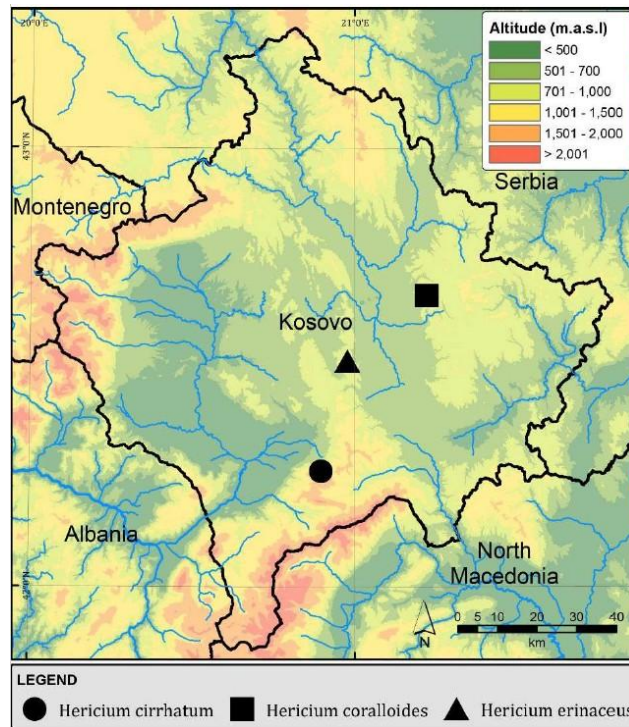


Fig. 1. Locations of newly recorded species in Kosovo.

The fruiting bodies of *Hericium* species were collected from different locations during several field expeditions over the years. The collected species was deposited in the Herbarium of the Faculty of Mathematics and Natural Sciences of the University of Prishtina. Nomenclature of the taxa follows Fungorum database.

Results and discussion

Three species of *Hericium* were recorded for the first time in Kosovo. The descriptions of their locations are given below.

Hericium cirrhatum (Pers.) Nikol.

The species was found on 24th of September 2022 in the southeastern part of Kosovo (42°15'53.5" N, 20°53'41.5" E), in Sharri National Park, which is a part of Suhareka town area, at 1090 m a.s.l., in beech forest, on a growing tree of *Fagus sylvatica* L. (Figs. 1, 2A). The reference specimen RQPC 2022/613 was collected by Q. Ramshaj and identified by Q. Ramshaj, S. Tofilovska and M. Karadelev. *Hericium cirrhatum* is a rare species that mainly colonizes dead trees, especially cut logs, but is rarely found twice on the same substratum (Marren and Dickson 2000, Boddy and Wald 2003). It is listed as Under Assessment in the Fungal Global Red List (<https://redlist.info/iucn>). Additionally, it is included in the list of strictly protected species in Serbia (www.fungiserbia.com). It is a vulnerable species in Denmark, an endangered species in the Franche-Comté region of France (Stoltze and Pihl 1998, Sugny et al. 2013).

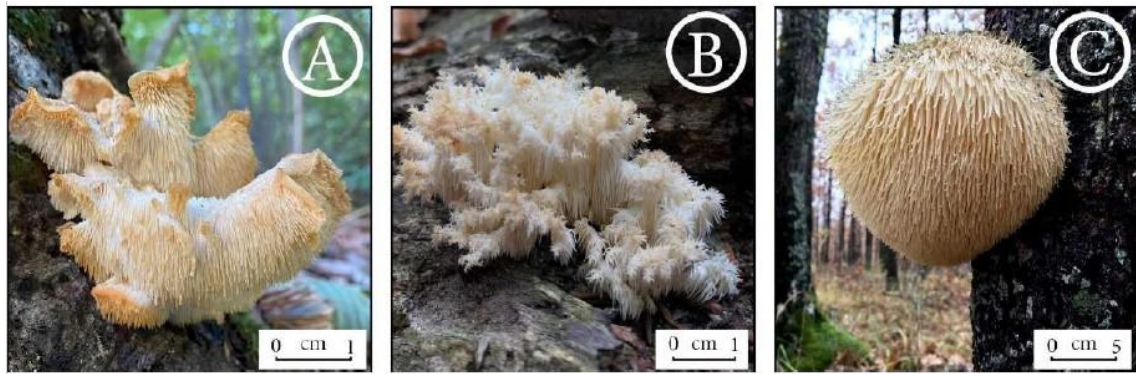


Fig. 2. Species of *Hericium* recorded for the first time in Kosovo. A – *Hericium cirrhatum*, B – *H. coralloides*, C – *H. erinaceus* (photos *in situ*: A, B – Q. Ramshaj, C – B. Fetiu).

Hericium coralloides (Scop.) Pers.

On 1st of November 2019, the species was recorded in Gërmia Park nature reserve (42°15'53.5" N, 20°53'41.5" E), located northeast of Prishtina, at an altitude of 850 m a.s.l. It was found on a living *Fagus sylvatica* L. tree in a beech forest (Figs. 1, 2B). The reference specimen, RQPC 2019/308, was collected by Q. Ramshaj and B. Fetiu, with identification confirmed by Q. Ramshaj and M. Karadelev. *Hericium coralloides* usually grows on European ash (*Fraxinus excelsior* L.) and various species of *Quercus*, *Acer* and *Betula* (Crockatt 2008). The species has a different conservation status in Europe. It is considered a near threatened species in North Macedonia, Armenia, Denmark, Bulgaria and Estonia (Nanagulyan 1997, Stoltze and Pihl 1998, Gyosheva et al. 2006, Karadelev and Rusevska 2013, Saar et al. 2019). In Croatia, it is categorized as an endangered species, while in Serbia it is strictly protected (Tkalčec et al. 2008, Ivančević et al. 2012).

Hericium erinaceus (Bull.) Pers.

The species was found on 21st of September 2022 within the boundaries of the Blinaja Protected Landscape Area located 15 kilometers west of the town of Lipjan, in the east-central part of Kosovo (42°40'21.1" N, 21°12'42.9" E) (Figs. 1, 2C). It was recorded at an elevation of 740 m a.s.l., on a living tree of pubescent oak (*Quercus pubescens* Willd.). The specimen, as RQPC 2022/607, was collected by B. Fetiu and identified by Q. Ramshaj and M. Karadelev. *Hericium erinaceus* is rarely found in Eastern Europe and mainly grows on the trunks of dead trees in temperate beech and oak forests. Due to the gradual disappearance of its habitats, this species is included on the red lists of 15 European countries (Bohlin and Gràcia 2004, Govaerts et al. 2011). It is considered an endangered species in Albania, Bulgaria and Croatia (Gyosheva et al. 2006, Tkalčec et al. 2008, Karadelev 2014) while in Armenia, the Czech Republic, Romania, North Macedonia and Alsace (France) it is classified as rare or vulnerable (Nanagulyan 1997, Tănase and Pop 2005, Holec and Beran 2006, Muller et al. 2014, Karadelev et al. 2021). In Serbia the species is categorized as strictly protected (Ivančević et al. 2012) while in Slovakia it is listed as a species of lower risk (Lizoň 2001).

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