

Akulov O., Zghonnyk M. First record of *Geopyxis alpina* Höhn. (Pyronemataceae, Pezizales) in Ukraine // Матеріали всеукраїнської наукової конференції «Стан і біорізноманіття екосистем Шацького національного природного парку та інших природоохоронних територій» (м. Львів, 8–11 вересня 2022 р.). – Львів : СПОЛОМ, 2022. – С. 5–6.

FIRST RECORD OF *GEOPYXIS ALPINA* HÖHN.
(PYRONEMATACEAE, PEZIZALES) IN UKRAINE

Akulov O., Zghonnyk M.

V. N. Karazin Kharkiv National University, Kharkiv

e-mail: akulov@karazin.ua

Geopyxis (Pers.) Sacc. – a relatively small genus of operculate discomycetes (Pezizales, Ascomycota, Fungi), which currently includes about 30 species. It is characterized by terrestrial cup-shaped, sessile or stalked, small to medium size (up to 2,5 cm in diam.) apothecia; 8-spored nonamyloid asci, smooth, ellipsoid, ascospores without oil drops, and slender paraphyses. In a historical retrospective, this generic name has been applied to many diverse discomycetes. *Geopyxis* sensu stricto is characterized by the glabrous receptacle surface; yellow, orange to brown apothecial colors; almost smooth ellipsoid to subfusiform aguttulate ascospores without guttules when mature and straight paraphyses with yellow to orange granules when fresh (Zhuang W.-Y. & Liu C.-Y., 2006; Wang X.-H. et al., 2016).

Some representatives of the genus are pyrophilous fungi and form apothecia on burnt soil. For example, quite common species *Geopyxis carbonaria* (Alb. & Schwein.) Sacc. forms mycorrhiza with spruce roots, and its sporulation is stimulated by a forest fire. But there are many species in the genus that bear ascomata on unburned soil (Vrålstad et al., 1998).

Geopyxis alpina Höhn. (= *Geopyxis flavidula* Velen.) is the species growing in the mountains on limestone rocks, frequently along or in the middle of streams, often among mosses. It is characterized by subsessile ascomata, rather large asci 250-310 µm, and fairly long spores: 15-17 x 8-10 µm. Unlike *Geopyxis foetida* Vel., its ascomata lack an unpleasant smell (Buser, 1999; Wang X.-H. et al., 2016).

The type specimen of the species was collected in 1905 in the mountains of Austria at an altitude of 1400 m above sea level (Höhnel, 1906). Since then *Geopyxis alpina* Höhn. was registered in Europe (Austria, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, France,

Germany, Italy, Luxembourg, Norway, Poland, Slovenia, Spain, Sweden, Switzerland), Asia (China, India, Pakistan), and North America (USA). The majority of finds were made in mountainous terrain at an altitude of 1,000 to 4,300 m above sea level (Garnweidner et al., 1991; Buser, 1999; Wang X.-H. et al., 2016).

The results of the multigenic analysis showed “*G. alpina*” is the species complex that constitutes three cryptic species: *G. alpina* s. str., *G. deceptiva*, and *G. rehmii*. *Geopyxis deceptiva* is often registered on burned (rarely unburned) soil in the USA. *Geopyxis rehmii* is registered on the burned soil in coniferous forests of Poland, Kyrgyzstan, and the USA. The majority of known finds from unburned soil is *Geopyxis alpina* s. str. (Wang X.-H. et al., 2016).

Recently, some fresh specimens of *G. alpina* were collected by us on the foot of Syvulya mountain on the territory of the National Nature Park "Synyohora" (Ivano-Frankivsk region, Carpathians, Ukraine). Apothecia were formed on rocky outcrops on the bank of a mountain river, among detritus, roots of *Picea abies* (L.) H. Karst., and mosses. The collection date is August 06, 2022, altitude above 1400 m.s.l. Our find of the species is the first in Ukraine.

1. Buser P. *Geopyxis alpina* von Höhnelt // Schweizerische Zeitschrift für Pilzkunde. 1999. Vol. 77, N 1. S. 32-39.
2. Garnweidner E., Lohmeyer T.R., Marxmüller H. *Geopyxis foetida* Vel., *Geopyxis alpina* v. Höhnelt und nahestehende taxa – mehr fragen als antworten // Zeitschrift für Mykologie. 1991. Vol. 57, N 2. S. 201-214.
3. Höhnelt F. Mycologische Fragmente // Annales Mycologici. 1906. Vol. 3, N. 6. P. 548-560.
4. Wang X.-H., Huhtinen S., Hansen K. Multilocus phylogenetic and coalescent-based methods reveal dilemma in generic limits, cryptic species, and a prevalent intercontinental disjunct distribution in *Geopyxis* (Pyronemataceae s. l., Pezizomycetes) // Mycologia. 2016. Vol. 108, N 6. P. 1189-1215.
5. Vrålstad T., Holst-Jensen A., Schumacher T. The postfire discomycete *Geopyxis carbonaria* (Ascomycota) is a biotrophic root associate with Norway spruce (*Picea abies*) in nature // Molecular Ecology. 1998. Vol. 7, N 5. P. 609-616.
6. Zhuang W.-Y., Liu C.-L. A new species of *Geopyxis* (Pezizales, Pyronemataceae) with ornamented ascospores from China // Nova Hedwigia. 2006. Vol. 83. P. 177-186.