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# *Usnea balcanica* Bystr. – a new *Usnea* species in Poland (*Ascomycota*, *Parmeliaceae*)

SUMMARY

*Usnea balcanica* Bystr., a new species in Poland, was collected in the Roztocze National Park in 1962. It grew on a branch of an old beech, in a light beech forest, in the Obrocz reserve. This very rare species is known so far only from the mountain forests of the Balkan Peninsula (11).

**Keywords:** *Usnea balcanica*, the lichens of Poland, Roztocze National Park

STRESZCZENIE

*Usnea balcanica* Bystr., nowy dla Polski gatunek porostu, został zebrany przez Bystrka na terenie Roztoczańskiego Parku Narodowego w 1962 r. Brodaczka bałkańska rosła na konarze sędziwego buka w widnym lesie bukowym w rezerwacie Obrocz. Jest to gatunek bardzo rzadki, znany dotychczas tylko z górskich lasów Półwyspu Bałkańskiego (11).

**Słowa kluczowe:** *Usnea balcanica*, porosty Polski, Roztoczański Park Narodowy

## INTRODUCTION

In the middle of the 20th century, species from the genus *Usnea* were common organisms occurring worldwide from the polar regions (mainly the *Neuropogon* subgenus) to tropical zones.

In Eurasia and North America, they occurred mainly in mountain and boreal forests and old deciduous and mixed forests (e.g. Białowieża Primeval Forest, Central Roztocze) as well as mixed forests of the lower montane zone in the Carpathians. They grew mainly on tree bark as well as wood and, only few species, on a rock substrate. In a world monograph (38), Motyka mentioned 451 species from the genus *Usnea.* Since that time, approximately 150 new species of the genus *Usnea* have been described, also through taxonomic verification conducted with modern research methods. This was facilitated by the available herbarium specimens. One of the richest collections of the genus *Usnea* representatives is the herbarium of the Department of Botany and Mycology UMCS, Lublin, Poland. The collection created by Professor J. Motyka comprises tens of thousands of specimens collected in thousands of localities in different geographic zones of the globe. The collection was completed by e.g. Rydzak, Sulma, Fabiszewski, Tatarkiewicz, and Bystrek. Many specimens were collected by foreign lichenologists. Many publications and reports have been prepared based on studies of materials gathered in the Lublin Herbarium (LBL-L). These include the floristic studies by Bystrek et al. and Rydzak (44), taxonomic papers (3, 7, 8, 9, 11), and regional-scale studies from e.g. the Lublin region (22) and the Świętokrzyskie Mountains (31). Data on the occurrence of the *Usnea* spp. in Poland were published by Motyka in 1962 (43). Data on its occurrence in Poland in the second half of the 20th century have been provided in many publications by other authors (e.g. 4, 5–7, 12–31, 33, 34, 36, 37 45, 46, 49, 50). The descriptions of the habitats indicate that *Usnea* spp. colonised in Poland mainly branches and dying twigs in mature coniferous, mixed, and deciduous forests. They were found on roadside trees as well as those growing along riverbanks and in midforest clearings. Several species grew on wood (e.g. old fences and walls of buildings in forest settlements). Epiphytes formed their own associations, e.g. *Usneetum comosae* and *Usneetum dasypogae*, and significantly contributed to formation of other associations, e.g. *Evernietum divaricatae* and *Lobarietum pulmonariae* (e.g. *Usnea ceratina* as a companion species) and associations of the order *Parmelietalia physodo-tubulosae*. A peculiarity of the mixed forest in lowland Poland was the widespread occurrence of species that were listed as rare species by Motyka, e.g. *Usnea cavernosa, U. ceratina*, *U. glabrata*, *U. florida, U. faginea, U. prostrata*, and *U. rugulosa*.

## MATERIAL

The *Usnea balcanica* was described as a new species to science by Bystrek in 1994 (11) based on a specimen collected in 1986 by Murat Murati. This specimen grew on an old fir tree in a fir forest on the Korytnik mountain slope in Mitrowica Kosowska (Kosovo, former Yugoslavia). The holotype is stored in the lichen herbarium of UMCS in Lublin – LBL-L 1344.

### SHORT DIAGNOSIS OF THE SPECIES

Thallus pale green or light green, up to 60 cm long, pendulous, submonopodially branched, in the form of a single, clearly thicker branchlet profusely and irregularly fruticose; holdfast conspicuous, shortly blackened, slightly dilated. Secondary branchlets with varied thickness and length, the shortest protruding, longer ones arcuate, the longest loosely pendulous and anisotomically fruticose. Main branchlets up to 2-mm diameter, cylindroid, irregularly transversely cracked, irregularly flattened, and unevenly segmented. Cortex smooth, slightly shiny, with low warts; cortex up to 50 µm thick, medulla white, up to 350 µm thick, solid, white axis. Warts only on braches with fruiting bodies; fruiting bodies numerous, large, ca. 1 cm diameter, terminate branch growth, varied length cilia on the thallus, absence of soralia, K–, PD–, C–, KC+lut.

Upon the taxonomic verification of the specimen described in this paper, which was collected by Bystrek, in the Obrocz reserve in Central Roztocze in 1962 and deposited in the Herbarium of the Department of Botany and Mycology UMCS, Lublin, Poland (LBL-L 1345). This lichen grew

on the bark of an old beech in the association *Fagetum carpaticum* and was initially identified by Bystrek as *Usnea faginea* Mot.

Currently, the authors have identified this specimen as *Usnea balcanica*. This is a new species in the lichen biota in Poland.

Fig. 1. *Usnea balcanica* Bystr. (3x smaller).

Fig. 2. *Usnea balcanica* Bystr., thallus fragment (slightly magnified).

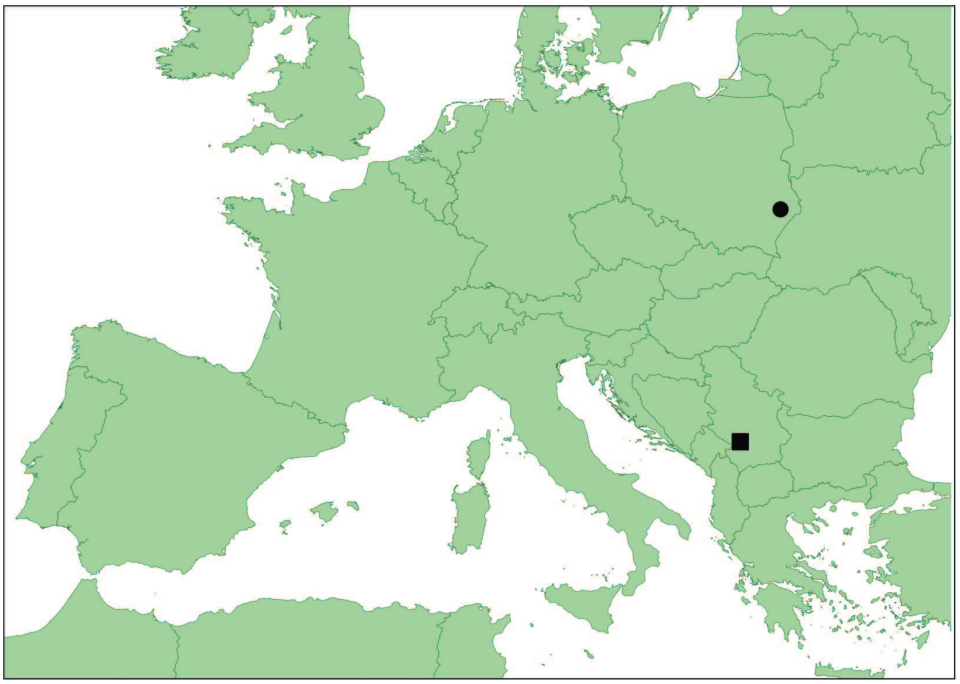

Fig. 3. Known localities of *U. balcanica* Bystr.: n – *locus classicus*, l – new locality in Roztocze.

## DISCUSSION

The second half of the 20th century was a period of mass extinction of *Usnea* representatives caused by an increase in the concentration of gaseous pollutants in the air. All species were included in the the Red List (31, 32). In lichen indication tables, they are regarded as bioindicators of clean air (4). Simultaneously, they are indicators of forest naturalness.

Investigations of herbarium materials, in particular such rich collections as those established by J. Motyka, have great importance for assessment of changes in the lichen biota. It is probable that this collection comprises representatives of yet undescribed species, e.g. *Usnea balcanica*. Perhaps through examination of undescribed herbarium collections, e.g. of Sulma from the Czywczyńskie Mountains or Rydzak from Białowieża Primeval Forest, new information about the localities of *U. balcanica* and other rare species of genus *Usnea* will be provided.

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