

Melampsoridium hiratsukanum (Uredinales), a new species for Poland

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Melampsoridium hiratsukanum S. Ito was found on leaves of *Alnus incana* for the first time in Poland. Its description, illustration and distribution are given.

Key words: *Melampsoridium hiratsukanum*, Uredinales, fungi, distribution, Poland.

INTRODUCTION

Parasitic fungi react to changes of the natural environment by altering their range, virulence or attacking new hosts. This is most distinct among the powdery mildews (*Erysiphales*), which prefer sunny, dry and hot places and infect new plants by continuous migration (Kochman 1973, Salata 1985, Muleńko 1993). Uredinales are not over-susceptible to such fluctuations, but it is possible to find among them species in places in which they have not occurred so far. An example of such a fungus is *Melampsoridium hiratsukanum* S. Ito. This pathogen was recorded on numerous representatives of the genus *Alnus* in Asia and on the whole American continent. In Europe it was found in Scotland and Ireland and probably in Finland and Italy (Majewski 1977). In 1996 and in 1997 it infected leaves of *Alnus incana* and *A. glutinosa* in Estonia and Finland (Kurkela et al. 1998), and in 1999 was found on *Alnus incana* in Poland.

DESCRIPTION

Melampsoridium hiratsukanum S. Ito is a heteroecious species. States O and I occur on representatives of the genus *Larix*, whereas states II and III on *Alnus* spp. In Poland only uredinal state has been found.

Uredinia on the underside of leaves, initially covered with epidermis and peridium, dusting a little when broken, orange-yellowish. The inner wall of peridium cells thicken from 2.3 to 4.6 μm , ostiolar cells with a spine – 23–46 μm in total length. Urediniospores ellipsoidal or broadly ovoid, cell wall 1–2 μm thick and wholly echinulate, measures: 23–28 \times 9.2–11.5(–13.8) (Fig. 1).

A detailed characteristics of all spore states of this species is presented by Majewski (Majewski 1977, acc. to Hiratsuka 1936). The measures of urediniospores given by him are a little bigger: 21–34.3 \times 10.4–18 μm .

Material examined: on *Alnus incana* (L.) Moench – Cisna (the Bieszczady Mts.), riverine bush, 17.08.99; environs of Jastarnia (Hell Peninsula), pine forest, 11.09.99 (Fig. 2).

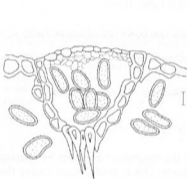


Fig. 1. Uredinium cross-section of *Melampsoridium hiratsukanum* bar = 10 μm .



Fig. 2. Distribution of *Melampsoridium hiratsukanum* in Poland.

Notes: Besides *Melampsoridium hiratsukanum* S. Ito on alder leaves, another species – *M. alni* (Thüm. ex Tranzsch.) Diet. has also been described. These fungi differ first of all in the length of urediniospores and their surface structure. *M. alni* spores are smooth at the top and larger than urediniospores of *M. hiratsukanum*, and their measures are 27–47 \times 9–18 μm (Majewski 1977). From infection experiments Roll-Hansen and Roll-Hansen (1981) reported that *M. alni* is conspecific with *M. betulinum* Kleb. occurring on birch. Genetic and morphological studies carried out by Kurkela et al. (1998) showed distinct differences between *M. hiratsukanum* and *M. betulinum*.

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REFERENCES

- Hiratsuka N. 1936. A monograph of the *Pucciniastraceae*. Mem. Tottori Agricult. Coll. 4 (1-9): 1-374.
- Kochman J. 1973. Fitopatologia. PWRiL. Warszawa.
- Kurkela T., Hanso M., Hantula J. 1998. *Melampsoridium* sp. on alder leaves. Proc. First. IUFRO Rusts of Forest Trees WP Conf., 2-7 Aug. 1998, Saariselkä, Finland Finnish Forest Research Institute, Research Papers 700: 131-134.
- Majewski T. 1977. Flora Polska. Grzyby (*Mycota*) 9: *Uredinales* I. PWN. Warszawa-Kraków.
- Muilenko W. 1993. Interesting collection of powdery mildews (*Erysiphales*) from Tatra and Roztocze National Parks in 1992. Polish Bot. Stud. 5: 83-87.
- Roll-Hansen F., Roll-Hansen H. 1981. *Melampsoridium* on *Alnus* in Europe. *M. alni* conspecific with *M. betulinum*. European Journal of Forest Pathology 11: 77-87.
- Salata B. 1985. Flora Polska. Grzyby (*Mycota*) 15: *Erysiphales*. PWN. Warszawa-Kraków.

Melampsoridium hiratsukanum (*Uredinales*) – gatunek nowy dla Polski

Streszczenie

Praca zawiera opis *Melampsoridium hiratsukanum* – nowego dla Polski gatunku z rzędu *Uredinales* występującego na liściach *Alnus incana*. Jest to gatunek znany z Azji i Ameryki, natomiast w Europie notowano go tylko w Irlandii, Szkocji oraz prawdopodobnie w Finlandii i we Włoszech. W 1996 i 1997 roku patogen ten masowo pojawił się w Estonii i Finlandii, a w 1999 r. został znaleziony również w Polsce.