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ERYSIPHE HELLEBORI, A NEW AGENT OF POWDERY MILDEW IN YUGOSLAVIA

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A new agent of powdery mildew in Yugoslavia, *Erysiphe hellebori* spec. nov., which parasitizes *Helleborus odoratus* L., is described and illustrated.

Fungi of the family Erysiphaceae are obligate parasites that infect a large number of plants, on which they cause diseases known as powdery mildew. The flora of Spermatophyta in Yugoslavia is rich due to favourable climatic conditions, and an analogously rich amount of parasitic fungi may be expected. However, the number of records of powdery mildews in Yugoslavia is small and mainly confined to species on cultivated plants (Marić & Kovačević, 1946; Arsić, 1961; Spasić, 1961; Mijušković, 1963; Perišić, 1970; Ristić, 1985). The composition of species, their taxonomic characteristics, and the spectrum of host plants of these fungi have been studied in a series of papers (Ranković, 1988,1999; Ranković & Čomić, 1996, 1997).

In the present paper a new agent of powdery mildew in Yugoslavia, viz. *Erysiphe hellebori,* which parasitizes *Helleborus odoratus*, is described.

MATERIAL AND METHODS

The following taxonomic characteristics of *Erysiphe hellebori* have been examined: appearance and distribution of mycelium on the surface of the infected host plant organs, diameter, shape and size of ascomata; number, size and structure of appendages; number, shape and size of ascospores. The values obtained for these characteristics are based in each case on the microscopic examination or measurement of 100 microstructures of the particular structures.

Material of the collections examined has been deposited at the Mycological Herbarium of the Institute of Biology, Kragujevac (MHIB).

Plants of the species *Helleborus odoratus* L. and *Vicia cassubica* L. were artificially inoculated with a suspension of spores of the fungus *E. hellebori,* as well as with a suspension of spores of the fungus *Erysiphe baeumleri* (Magnus) U. Braun & S. Takam. The experiment was performed in threefold repetition.

RESULTS

Erysiphe hellebori Ranković, *spec. nov.*

Differt a *Erysiphe baeumleri* appendicibus plus increbre et ornate tumosis et specifice distinctis.

Mycelia in folias, ex superficie amphilateralia, effusa vel in fragmentis griseolis (Forma 1). Hyphae vegetativae 3.5–6 µm, crassae, irregulares. Conidia non observata. Ascomata inspresa vel subgregaria, in strato myceliale immersa, globosa ad subglobosa, fusca (100–)107–124 (–130) µm

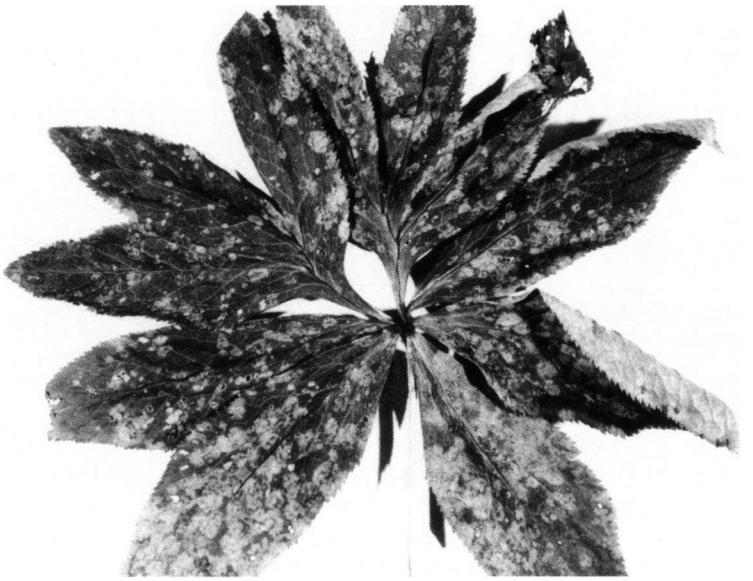

Fig. 1. Leaf of *Helleborus odorus* L. with *Erysiphe hellebori*.

diameter. Peridium pluristratosum. Cellulae polygoniae, 12–28 µm. Appendiculae 8–20 per ascoma, enatae equatorialiter ad subequatorialiter, 5–10 longiores quam ascomatis diameter, flexuosae, cum propensione curvandi in directionem unam, luteae ad basim, ad apicem hyalineae, 0–1(–2) septate, apicibus simplicibus 1–2 ramosis, apicibus non recurvis (Forma 2). Asci 5–10(–14) per ascoma, sessiles ad breve stipitati (60–)65–72(–80) × (30–)33–39(–42) µm. Ascospores (2–)4–5, ellipsoideae ad ovoideae, (18–)20–23(–24) × 10–12(–13.5) µm.

Holotypus: In foliis vivis *Hellebori odorati*, Yugoslavia, prope Knić, Sept. 1988, *B. Ranković, 2231* (MHIB).

Mycelium on both sides of the leaves superficial, effused or in gray patches, evanescent (Fig. 1). Vegetative hyphae 3.5–6 µm wide, irregular. Conidia not observed. Ascomata scattered or subgregarious, immersed in the dense mycelial layer, globose to subglobose, brown, (100–)107–124(–130) µm in diameter. Peridium multilayered, composed of polygonal cells of 12–28 µm in diameter. Appendages 8–20 per ascoma, arising equatorially to subequatorially, 5–10 times as long as the ascomatal diameter, flexuous, with a tendency to turn towards one direction, yellowish at the base, hyaline at the apex, 0–1(–2) septate, apex simple to 1–2 times dichotomously branched, tips not recurved (Fig. 2). Asci 5–10(–14) per ascoma, sessile to short-stalked (60–)65–72(–80) × (30–)33–39(–42) µm. Ascospores (2–)4–5, ellipsoid to ovoid, (18–)20–23(–24) × 10–12(–13.5) µm.

Habitat & distribution — Found on *Helleborus odoratus* L. in the vicinity of Knić and Čačak, Sept. 1988, and Jastrebac, Sept. 1997; rare.

Ranković (1999) recorded *Microsphaera* spec. on *Helleborus odoratus* from Yugoslavia. *Erysiphe hellebori* resembles *E. baeumleri*, from which it differs in the more frequently and regularly branched appendages. Furthermore, *E. hellebori* and *E. baeumleri* are biologically distinct.

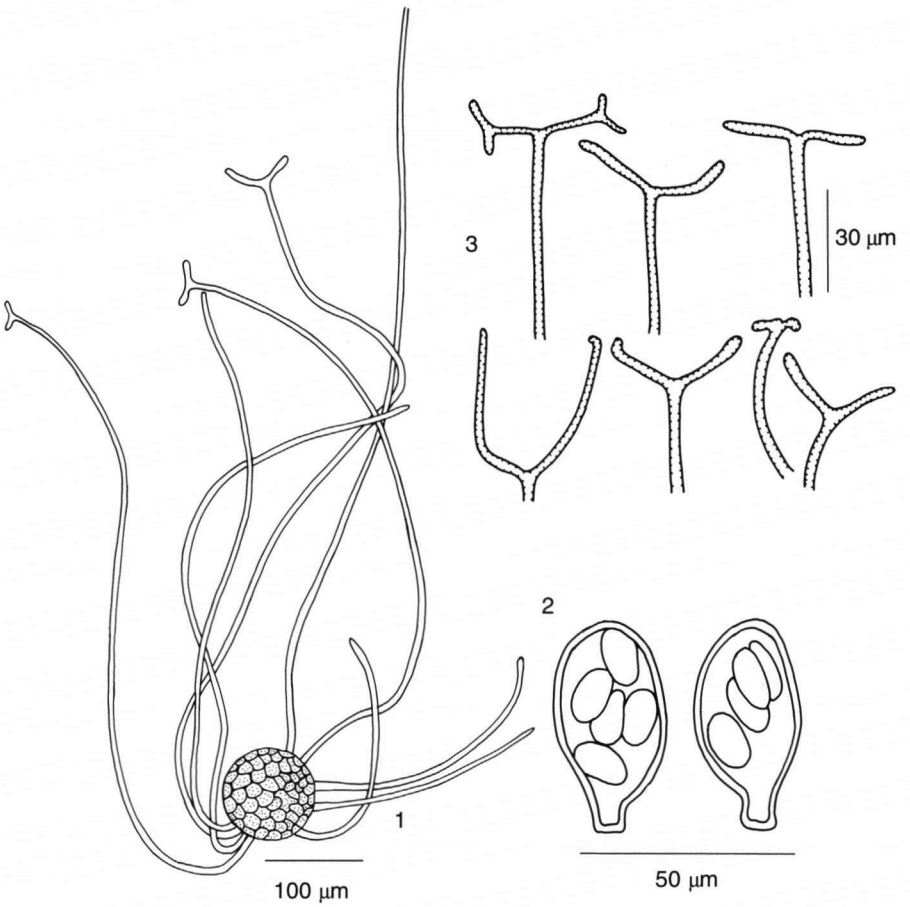

Fig. 2. *Erysiphye hellebori* spec. nov. 1. Ascomata; 2. asci with ascospores; 3. appendages.

Artificial inoculation of *H. odorus* plants with spores of *E. hellebori* gave positive results, whereas results of inoculating *Vicia cassubica* plants with spores of this fungus were negative in all variants. In contrast to this, artificial inoculation with spores of *E. baeumleri* gave negative results on *H. odoratus*, but positive results on *V. cassubica*. It can be concluded that *E. hellebori* and *E. baeumleri*, in addition to morphological differences, also differ with regard to their biological specialization, i.e. they parasitize different plant species belonging to different families.

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