Plasmopara Halstedii s.l. in Poland

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Plasmopara Halstedii (Farl.) Berl. et de Toni is a collective species which parasitizes on numerous representatives of the family Compositae. Although the forms classified to P. Halstedii differed rather widely as regards biology, morphology and geographical distribution, they were for a long time considered as one species. Săvulescu (1943) described two new species of the genus Plasmopara on Compositae (of the Liguliflorae subfamily): P. sphaerosperma on Tragopogon dubius and P. megasperma on Scorzonera humilis.

More recent critical investigations on this collective species have been performed by Novotelnova, who proved that Plasmopara Halstedii is a collective species including many small species differing by their physiological and morphological features as well as by their geographical distribution. She also established criteria for their classification (Novotelnova 1962). In her further papers she described seven species and 12 forms: on representatives of the tribe Astereae — 2 species and 4 forms, on Inulaceae — 1 species, on Heliantheae — 3 species and 8 forms, on Cynareae — 1 species. She kept the name Plasmopara Halstedii for the fungus on plants from the tribe Eupatorieae (Eupatorium purpureum is the type host). The diagnoses of these new taxons may be found in the following papers: Novotelnova 1961, 1963a, 1963b; in one of them (1963a) a review of all the so far described species and forms is given. Her latest work (1966) sums up all her investigations to that date.

As basis for distinguishing species Novotelnova (1962) assumed their biological specialization — their occurrence on representatives of various tribes of the Compositae family (after De Dalla Torre and Harms 1900—1907) taking into account as complementary traits their morphological particularities. When fungi differing from one another by several characters occur on plants of the same tribe, they are treated as distinct species. On the other hand, specimens occurring on closely
interrelated species and genera of hosts, and similar as regards the structure of the sporangiophores, but differing by the size and shape of the zoosporangia, are classified by the author as different forms.

In Poland only one species of Plasmopara was known so far on Compositae — P. sphaerosperma Sävul. on Tragopogon pratensis L. This species was mentioned (sub Bremia lactucae Regel) in the works of Hellwig (1897) and Schroeter (1889). In the herbarium of the Botanical Institute, the University, Wrocław, both specimens have been preserved from the following sites: Węgierki, Września county, 7. 1892, leg. Hellwig and the environs of Legnica leg. Gerhardt (published in "Schneider, Herb. Schles. Pilze" No. 410). Both these specimens fit the diagnosis of Plasmopara sphaerosperma Sävul. (1943). The mean dimensions of the zoosporangia (material from Węgierki) are 26.4×25.0μ, quotient 1.06 (Săvulescu 1943: 28.50×28.50μ, Novotelnova 1963a: 24.57×21.21μ). The branch endings in their shape resemble more those of the species Peronospora leptosperma s. l. than
of *Bremia lactucae* Regel (generally distinct thickenings are lacking, sterigmata occur by two’s or three’s; if more numerous they are arranged in the short, often irregular drepanium (Fig. 1).

The second Polish representative of *Plasmodora* on *Compositae* is the form collected by the author on *Centaurea mollis* W. K. in the Bieszczady mountain range on the area of the burnt village of Wołosate. The host occurring here in large quantities as a wild plant originates probably from the devastated gardens around the houses (Jasiwiecz 1966). The parasite on these plants belongs to the genus *Plasmodora* as shown by the monopodial bifurcation of the sporangiophores. On the other hand, they resemble *Bremia lactucae* by the branch endings which are frequently thickened like drumsticks. Sterigmata occur on these thickened parts by two to six but less regularly than in *Bremia* (Fig. 2).

The fungus discussed differs from *Plasmodora sphaerosperma* not only by the endings of its branches but also by the relatively longer unbranched stalk (4/5 to 5/6 of the whole sporangiophore as compared to 1/2 to 3/4 in *P. sphaerosperma*). However, the sporangia in both these species are very similar both in shape and size.

To the same species belong the specimens collected by Wroblew-
ski (1913, 1916) on *Centaurea mollis* in the Pokucie Carpathian range and determined by him as *Bremia lactucae* Regel (Herbarium of Botanical Institute, Polish Academy of Sciences, Cracow).

The above discussed fungus differs from the species described recently by Novotelnova and Săvulescu (known to the author only from the literature), by a greater similarity of its branch endings to those of *Bremia lactucae*. All the related species, with the exception of *Plasmopara saussureae* Novot., parasitize on representatives of other tribes of the Compositae family, thus they also differ by their biological specialization. *Plasmopara saussureae* parasitizes on *Saussurea alpina* DC. of the Cynareae tribe to which the genus *Centaurea* also belongs.

It differs, however from the fungus on *Centaurea mollis* by its much smaller sporangia (according to Novotelnova, 1963a, the dimensions of the sporangia of *P. saussureae* are 12—24×12—21 μ, mean 18,75×15,78 μ) and by the absence of *Bremia*-like distensions at the ends of the branches.

The above quoted data seem sufficient for establishing the fungus above described as a new species.

*Plasmopara centaureae-mollis* n. sp.

*Caespitulis albidis, totum tegum foliorum subtegentibus, leviter visibilibus in tomentis. Sporangiophoris 350—570 μ altis, monopodialiter ramosis, truncis 4/5—5/6 totius altitudinis, 7—12 μ crassis, basi solito non tumida; ramis primariis 3—5, rectis, saepe rectangulis, apice capitato inflatis, sterigmatis 2—6 irregulariter in tumidis extremitatibus insidentibus, 7—13 μ longis. Sporangii globosis vel late ovatis, vix papillatis, 23—30 μ longis, 20—28 μ latis, mediocriter 26.0×23.5 μ. Oosporis ignotis.*


**LITERATURE**

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Plasmopara Halstedii s. l. w Polsce

Streszczenie

W południowo-wschodniej Polsce znaleziono na Centaurea mollis W. K. przedstawiciela rodzaju Plasmopara ze zbiorowego gatunku Plasmopara Halstedii (Farl.) Berl. et de Toni. Różni się on od dotychczas opisanych drobnych gatunków P. Halstedii s. l. pod względem specjalizacji biologicznej oraz cechami morfologicznymi; opisano go jako Plasmopara centaureae-mollis Majewski, n. sp. Dotychczas w Polsce znany był tylko 1 gatunek Plasmopara na przedstawicieli Compositae — mianowicie Plasmopara sphaerosperma Săvul. na Tragopogon pratensis L.