



First report of *Plasmopara obducens* on impatiens (*Impatiens walleriana*) in Hungary

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In late July 2010, diseased *Impatiens walleriana* hybrid plants were found with symptoms of downy mildew in a city garden of Budapest. Stunting of plants and poor flowering, curling of upper leaves and intensive development of a white sporangiophore layer on the lower leaf surfaces were the common symptoms (Figs. 1, 2, 3). Rapid disease development caused premature leaf fall, with final collapse of the plants. Infection was 100 percent amongst about 3000 plants of different *impatiens* cultivars. However, there were some differences in the disease development among them. From the end of July ten more *impatiens* plantings were surveyed in gardens in Budapest. The mildew disease was found in all but one of the locations, with heavy infection, collapse and death of all the plants. In total about 8000 plants were found infected and then destroyed in the inspected gardens.

Microscopic examination of the mildew fungus revealed its morphological characteristics. Sporangioophores were hyaline, thin walled, emerging from stomata, and had slightly swollen bases. Branching was monopodial; smaller branches were arranged at right angles to the supporting branches, there being no apical thickening on the branchlets (Fig. 4A). Sporangia were ovoid, or almost globose, hyaline, occasionally with a single pore on the distal ends, and having short pedicels on the attached ends. Sporangia measured 17.2 (15-20) x 14.5 (12.5 – 17.5) µm. Globose oospores were common in leaf tissue, diameter 26.3 (22.5 – 30.0) µm. Haustoria in cells were pyriform (Figs. 4A, B, C, D). The disease symptoms and morphology of the causal fungus differed markedly from the characteristic features of the other downy mildew fungus reported from *impatiens*: *Bremiella sphaerosperma* O.Constantinescu (Constantinescu, 1991). On the basis of symptoms and morphology of the causal organism the pathogen was identified as *Plasmopara obducens* (J. Schröt.) J. Schröt. (syn.: *Peronospora obducens* J. Schröt, 1877 and *Rhysotheca obducens* (J. Schröt.) G.W. Wilson 1907).

P. obducens has been reported in several countries of Europe (Czech Republic, Denmark, Finland, Germany, Italy, Lithuania, the Netherlands,

Romania, Russia, Slovenia, United Kingdom), as well as in Canada, USA, Guatemala, Central Asia, China, India and Korea (Farr & Rossman, 2011; Lane et al., 2005). New European outbreaks were reported first in Germany and United Kingdom (2003/2004). Disease incidence was high in many European countries listed above, approaching 100 percent, often resulting in plant losses of more than 90 percent. Outbreaks of the disease were often seen among plants that had been grown from imported cuttings (EPPO, 2008). *Plasmopara obducens* has been recorded only once from small balsam (*I. parviflora* Dc.) in Hungary (Ubrizsy, 1965). To our knowledge, this is the first report of *Plasmopara obducens* on cultivated *Impatiens walleriana* in Hungary, causing 100 percent infection and death of plants in many *impatiens* gardens in Budapest.

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Figure 1



Figure 2



Figure 3

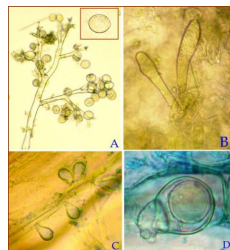


Figure 4

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