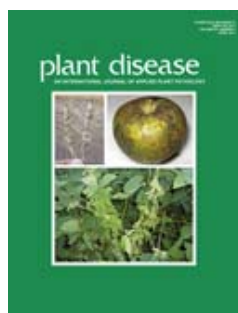


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[Home](#) > [Plant Disease](#) > [Table of Contents](#) > [Abstract](#)[Previous Article](#) | [Next Article](#)

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Page 491

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Disease Notes

First Report of *Plasmopara obducens* on *Impatiens walleriana* in Serbia

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In May 2010, *Impatiens walleriana* plants with single or double flowers that were showing symptoms resembling those of downy mildew were collected in a greenhouse in the vicinity of Mionica, Kolubara District, Serbia. Diseased plants were severely stunted, with mild inconspicuous mottling and yellowing on the upper surface of the leaves. The lower surface of the affected leaves was completely covered with distinctive thick, white fungal-like growth. Symptomatic leaves wilted very quickly and premature leaf fall was common, leaving plants with only a few of the youngest leaves and no or few and poorly developed flowers. Disease incidence was extremely high, approaching 100%, and wilting and collapse of affected plants was very rapid, resulting in losses of more than 90%. White downy growth developing on leaf undersurfaces consisted of hyaline, thin-walled sporangiophores with monopodial branching and numerous, ovoid and hyaline sporangia. Apical branchlets of sporangiophores were at right angles to the main axis, with no apical thickening. Downy mildew of *impatiens* can be caused by *Plasmopara obducens* or the less known *Bremiella sphaerosperma*. The two can be differentiated on the basis of symptomatology and morphology of sporangiophores (1). The absence of well-defined spots on the infected *impatiens* leaves and straight sporangiophores indicated that the pathogen was *P. obducens*, which was further supported by molecular identification. Total DNA was extracted directly from plant tissue with a DNeasy Plant Mini Kit (Qiagen, Hilden, Germany) following the manufacturer's instructions, and the 5'-end of the nuclear DNA coding for the large ribosomal subunit (LSU rDNA) was amplified by PCR using primers NL1 and NL4 (3). Each PCR amplification yielded two bands estimated at 800 and 650 bp, respectively. A representative isolate, 28-10, was sequenced and 727 bp of the larger band (GenBank Accession No. HQ246451) were found to be identical with *P. obducens* isolate (AY587558) from the United Kingdom. The sequence was almost identical with those of three *P. obducens* isolates deposited in NCBI GenBank: EF196869 and AY035522 differed from it by one base pair and FJ787308 by two base pairs. The sequence (HQ223336) of the smaller band was identical to that of three *Impatiens* accessions (AY727936, AF479154, and AY056515). Pathogenicity tests included inoculation of young *I. walleriana* plants by spraying with a sporangial suspension. The

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inoculated plants were kept in experimental chambers at 20°C and 80 to 90% relative humidity, and downy mildew symptoms were observed after 13 to 15 days. To our knowledge, this is the first report of downy mildew of *I. walleriana* caused by *P. obducens* in Serbia. So far the presence of *P. obducens* was recorded in Bulgaria, the Czech Republic, Denmark, Finland, Lithuania, Romania, Russia, the United Kingdom (2), and recently in Norway (4). Thorough inspection would be needed to determine the distribution and incidence of *P. obducens* on impatiens in Serbia both indoors and outdoors. Impatiens is one of the most popular ornamentals in Serbia and intensive and increasing production may be seriously endangered by the presence of *P. obducens*.

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