



# plant disease

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DISEASE NOTES

## First Report of *Groundnut ring spot virus* on *Physalis peruviana* in Brazil

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*Physalis peruviana* is being incorporated into the small fruit scene in Brazil. It can be found in local markets, mainly in the cities of São Paulo and Rio de Janeiro, but has still been imported, since Brazilian production is small ([Rodrigues et al. 2009](#)). Typical symptoms of orthotospovirus, including chlorotic spots and concentric rings on the leaves, were observed on *P. peruviana* in two different crop seasons, March–October 2016 and March–October 2017, in an experimental

area located on the campus of the University of São Paulo (USP), Piracicaba, state of São Paulo. Each experimental area was composed of 126 plants. For both years, leaf extracts from 30 randomly chosen field plants were tested in plate-trapped antigen-enzyme linked immunosorbent assay (PTA-ELISA), using specific antiserum against the nucleocapsid protein of *Groundnut ringspot virus* (GRSV). The antiserum was kindly provided by Dr. Alice K. Inoue-Nagata, Embrapa, CNPH, DF, Brazil. Serological results showed an increase of virus incidence from 23% in 2016 to 67% in 2017. Total RNA extracted from symptomatic plants were used for virus detection by RT-PCR using orthotospovirus universal primers BR60 (5'-CCCGGATCCTGCAGAGCAATTGTGTCA-3'), complementary to the 3' end of the nontranslated region of the S RNA (position 1 to 15 nt), and BR65 (5'-ATCAAGCCTTCTGAAAGTCAT-3'), matching the nucleocapsid gene (N) (position 433 to 453 nt) (Eiras et al. 2001). Nucleotide sequences for five and nine amplicons of expected size (440 bp), representing samples from 2016 and 2017, respectively (GenBank accession nos. MF990006–13) showed 99% identity with corresponding nucleotide sequences of GRSV isolates from Brazil and the U.S.A. (AY380780, HQ644140). Larva and adult thrips were collected from infected plants, mounted on permanent microscope slides, and identified as *Frankliniella schultzei*, vector of orthotospovirus species. Leaf extract from symptomatic field-infected plants was mechanically inoculated on healthy plants of *P. peruviana*, which exhibited symptoms similar to those from naturally infected plants. Foliar samples of experimentally and naturally infected plants were processed to obtain ultra-thin sections, which were observed by transmission electron microscope. The presence of pleomorphic particles of 80 to 120 nm in diameter, typical of orthotospovirus, was confirmed. To our knowledge, this is the first report of the natural occurrence of GRSV in *P. peruviana*. Further field studies are necessary to determine the impact of this virus in commercial crops of *P. peruviana* in Brazil.

## References:

Section:

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