



# First report of *Olpidium virulentus*, *O. bornovanus*, *O. brassicae* on cucumber in Sardinia, Italy

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Received: 16 December 2019 / Accepted: 24 June 2020 / Published online: 8 July 2020  
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**Keywords** *Olpidium* spp. · Root rot · Cucumber

In the summer of 2019, in an area in North-Sardinia near Alghero, the cultivation of cucumber (*Cucumis sativus* L.) was subjected to significant losses in yield and quality due to the spread of symptoms represented by root rot and vine decline. Similar symptoms had been observed on watermelon in Sardinia (Italy) in 2018, by two different species of *Olpidium*: *O. virulentus* and *O. bornovanus* (Sahtiyanci) Karling (Schianchi et al. 2019). In the infected area (around 2000 m<sup>2</sup>) almost 60% of the plants showed collapse's symptoms. Five symptomatic plants of cucumber (cv. Marketmore) were sampled in order to identify the causal agent. The roots section were disinfected with 2% of sodium hypochlorite and rinsed several times before placing them on Potato Dextrose Agar (PDA) and Water Agar (WA).

After 1 week of incubation at 25 °C, *Rhizoctonia* sp. and *Macrophomina phaseolina* were identified from PDA plates, while resting spores of *Olpidium* spp. were identified from roots section cut with scalpel and grown on WA. Pathogenicity test was conducted with the baiting technique by growing cucumber plants in soils collected near the roots of symptomatic plants and in a sterilized soil, used as a negative control. Plants grown in infested soil showed roots browning, foliage chlorosis followed by plant wilt after 40 days. Twelve plants were used in each thesis. Baited roots were analysed directly under microscope for the presence of *Olpidium* spp. by using morphological identification methods. Stellate

resting spores referred to as *O. virulentus* and smooth-walled resting spores referred to as *O. bornovanus* were observed in diseased roots. Neither disease symptoms nor *Olpidium* spores were observed from the plants grown in sterilized soil. For molecular analysis, DNA was extracted from cucumber roots, following the protocol described by Aljanabi and Martinez (1997) and tested by multiplex PCR, using specific primers, in order to confirm the presence of *Olpidium* spp. as described by Herrera-Vásquez et al. (2009). PCR amplification products, corresponding to *O. bornovanus* (977 bp), *O. virulentus* (579 bp) and *O. brassicae* (204 bp), were detected. To our knowledge, this is the first report of *O. bornovanus*, *O. virulentus* and *O. brassicae* occurrence on cucumber in Italy.

## References

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