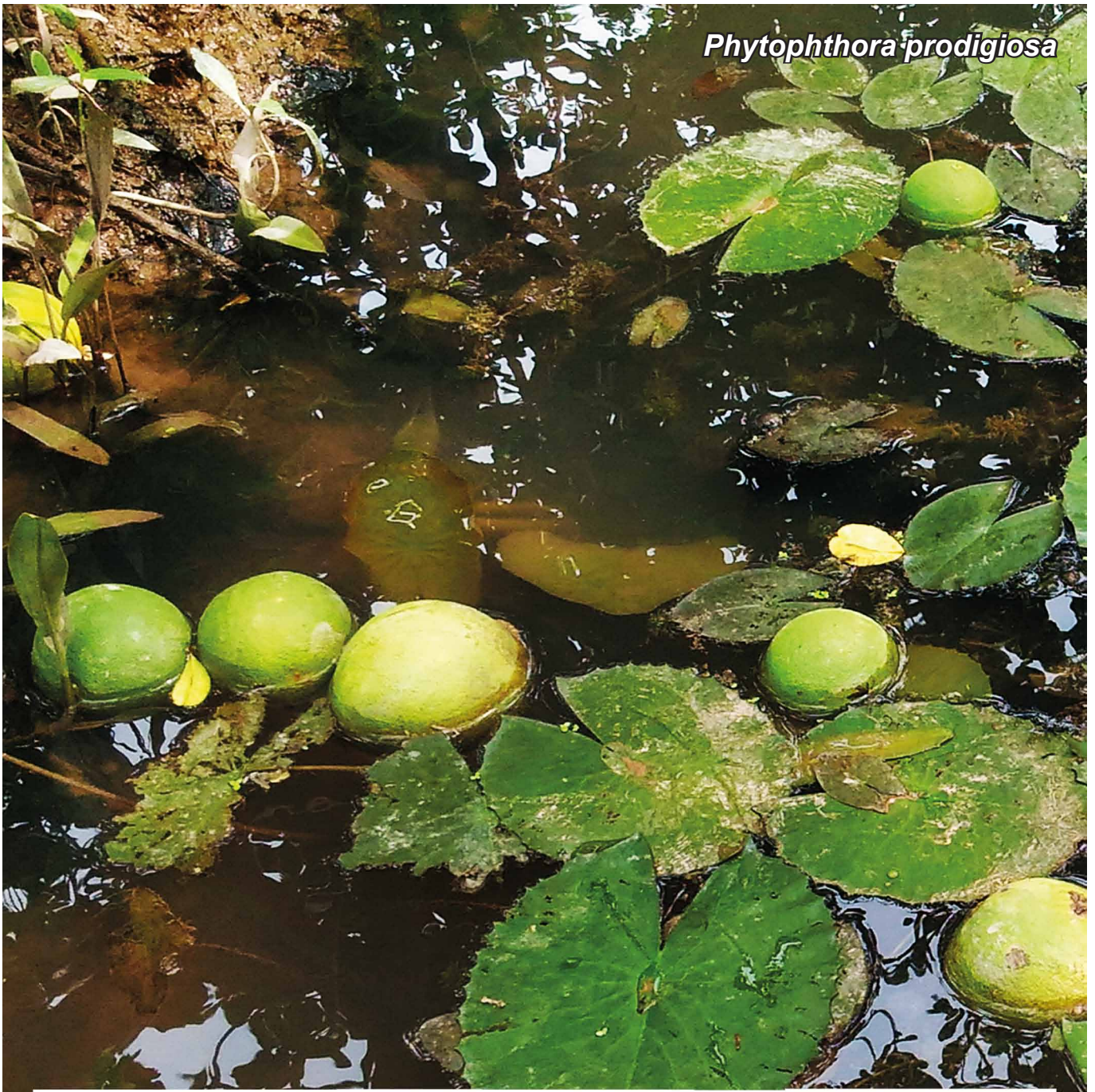


*Phytophthora prodigiosa*





Fungal Planet 616 – 20 June 2017

## *Phytophthora prodigiosa* Cacciola & M.V. Tri, *sp. nov.*

**Etymology.** Name refers to the bizarre (*prodigiosum* in Latin) and unusual shape of the hyphal swellings.

**Classification** — *Peronosporaceae*, *Peronosporales*, *Peronosporomycetes*.

**Sporangia** produced on V8-agar (V8A) flooded with both distilled water and non-sterile soil extract (Jung et al. 2017), were non-caducous, ovoid to obpyriform, and non-papillate; average size of sporangia was  $45 \times 32 \mu\text{m}$  (overall range  $30\text{--}50 \times 19\text{--}34 \mu\text{m}$ ) with a mean length/breadth ratio of 1.4. *Sporangia* proliferated internally in both nested and extended way. *Chlamydozoospores* of variable size ( $20\text{--}48 \mu\text{m}$ ), globose to obpyriform, sometimes laterally attached. Catenulate, elongated to globose *hyphal swellings*, often with a bizarre shape, were abundantly formed on V8A. *Gametangia* not produced in single culture or in dual cultures with A1 and A2 mating type tester strains of *P. nicotianae* and *P. citrophthora* (Puglisi et al. 2017). Minimum, optimum and maximum temperatures for growth were 12 °C, 32 °C and 36 °C, respectively. Radial growth rate on V8A in the dark at 32 °C was  $6.5 \pm 1.4 \text{ mm/d}$ .

**Culture characteristics** — A rosaceous colony growth pattern was produced on V8A and PDA.

**Typus.** SOUTHERN VIETNAM, Vinh Long province, Mekong Delta region, from *Citrus grandis* (syn.: *C. maxima*) fruit, 2012, A. De Patrizio & G. Magnano di San Lio (holotype PF6e, culture ex-type PF6e = CBS 135138, ITS and COI sequences GenBank KC875840 and KT366918, MycoBank MB820797).

**Additional specimens examined.** SOUTHERN VIETNAM, Vinh Long province, Mekong Delta region, from *Citrus grandis* fruits, 2012, A. De Patrizio & G. Magnano di San Lio, nine isolates; Dong Thap, Mekong Delta region, from Mandarin / Volkamer lemon roots, five isolates.

**Notes** — Phylogenetically (phylogenetic tree reported in Puglisi et al. 2017; supplementary figure in MycoBank), *Phytophthora prodigiosa* resides in *Phytophthora* major Clade 9 and shows many morphological characteristics corresponding to the original description of *P. insolita* (Ann & Ko 1980). The major difference between the two species is the sterile breeding system of *P. prodigiosa*, whereas *P. insolita* is homothallic. In nature, *P. prodigiosa* was found associated with brown rot of pomelo (*C. grandis*) fruit fallen to the ground or floating on water as well as on rotten rootlets of citrus trees (Puglisi et al. 2017).

**Colour illustrations.** Typical habitat for the recovery of *P. prodigiosa*; persistent, non-papillate ovoid sporangium; obpyriform, persistent sporangium; sporangium with internal nested proliferation; sporangium with internal nested and extended proliferation; globose, small, sessile chlamydozoospores; irregularly shaped hyphal swellings. Scale bars = 10  $\mu\text{m}$ .

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