



Real-time assays for detection of *Phytophthora* spp. and identification of an *avr3a* gene variant

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Abstract

A study was carried out for identification and detection of *Phytophthora* spp. from soil and plant samples, collected from Solanaceous crops in Egypt and Italy. The samples were screened with specific and universal primers of *Phytophthora* 18S, ITS1–ITS2 and 28S regions, followed by PCR product sequencing. The *Phytophthora* spp. detected were *P. infestans* (Egypt) and *P. parasitica* (Italy). A molecular beacon probe was also developed based on the *avr3a* gene of *P. infestans* to detect a variant associated with virulence traits. The probe was suitable for *avr3a* allele identification from *P. infestans* and also from *P. parasitica* PCR products.

Keywords *avr3a* · ITS · Molecular beacon · *Phytophthora infestans* · *Phytophthora parasitica* · Virulence