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First Report of Root and Basal Stem Rot Caused by *Phytophthora cryptogea* and *P. inundata* on Dwarf Banana (*Musa acuminata*) in Italy.

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Keywords:

The genus *Musa*, family *Musaceae*, including bananas and plantains, originated in Southeast Asian and western Pacific regions. Dwarf banana (*Musa acuminata* Colla) is an evergreen perennial wild ancestor of the cultivated banana, distributed mainly on margins of tropical rainforests. In Sicily (southern Italy) it is cultivated for edible fruit and as an ornamental plant. During the summer of 2015, in an ornamental nursery in eastern Sicily ten out of forty mature plants of Dwarf banana grown in soil showed symptoms of leaf chlorosis, wilt and sudden collapse of the entire plant associated with root and basal stem rot. Two *Phytophthora* species (52 and 48% of the isolates, respectively) were consistently recovered from rotted roots and stems on a selective medium (Masago et al. 1977). Pure cultures of both species were obtained by single-hypha isolates. The first species formed on potato dextrose agar (PDA) slight petaloid colonies and grew between 2 and 30°C, with an optimum of 25°C. On V8 juice-agar (V8A) it produced persistent, ovoid to obpyriform (l/b 1.5) non papillate, internally proliferating sporangia. All isolates were A1 mating type and formed oospores and amphigynous antheridia with A2 reference isolates of *P. cryptogea* and *P. drechsleri*. The second species formed stellate colonies on PDA, grew between 5 and 35°C, with an optimum of 28°C and on V8A produced non-papillate, ovoid to obpyriform sporangia (l/b 1.3) with internal proliferation. Isolates failed to produce oospores with A1 and A2 testers of *P. drechsleri*. Analysis of ITS regions of rDNA using the ITS 4 and ITS 6 primers for DNA amplification (Van Tri et al. 2015) revealed 100% similarity between dwarf banana sequences deposited in GenBank (Accessions KX853521 and KX853523) and several reference isolates of *P. cryptogea* and *P. inundata* from GenBank, respectively. COI fragments (Accessions KX853520 and KX853522), amplified according to Robideau et al. 2011, revealed 100% similarity with reference isolates of *P. cryptogea* and *P. inundata*, respectively. The first species was identified as *P. cryptogea* (CBS 141725 and CBS 141726) and the second one as *P. inundata* (CBS 141727 and CBS 141732) Pathogenicity of the deposited isolates of both species was tested separately, by

transplanting 20 1-year-old seedlings of dwarf banana (5 per isolate) in pots filled with infested soil (Salamone et al. 2011). Five control plants were transplanted in pots containing non infested soil. All plants were maintained in saturated soil for 48 h after transplanting and then grown at 24 to 28°C in greenhouse under natural light, and watered once a week. The inoculated plants developed symptoms of root and crown rot within four weeks. Control plants remained healthy. *P. cryptogea* and *P. inundata* were reisolated solely from symptomatic plants. Reports of *Phytophthora* spp. on monocots (Erwin and Ribeiro, 1996) are not frequent; most probably soil waterlogging may have been a predisposing factor. To our knowledge this is the first report of *Phytophthora* sp. on dwarf Banana worldwide.

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