COMUNICAÇÕES

First report of *Phytophthora melonis* causing cassava wilt and root rot in Bahia State, Brazil

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Cassava (*Manihot esculenta* Crantz.) is a major source of carbohydrates for millions of people in several regions, particularly in developing countries. An important component of the low productive performance of cassava in different Brazilian regions is the occurrence of disease, such as cassava root rot (CRRD). The CRRD complex is one of the most destructive diseases worldwide and can lead to total crop failure. During 2013-2015, a survey was conducted to determine the species involved in the cassava root rot complex in Brazil, and a total of 110 isolates were obtained from different regions, which belonged to different pathogen species. In February 2014, a typical isolate of *Phytophthora* sp. (CBPPR3001) was obtained from plants in one of the maintenance areas of the Brazilian Cassava Germplasm (located at "Embrapa Mandioca e Fruticultura", Cruz das Almas, Bahia State, Brazil). Root rot symptoms consisting of soft irregular brown patches occurred on tuberous roots, with tissue collapse, bad smell, and affected plants exhibiting wilt and partial defoliation (Figure 1A). For the isolation procedure, diseased root tissue was cut into 0.5-cm pieces, washed in distilled water, soaked in a solution of 0.5% sodium hypochlorite for 3 min, placed on Petri dishes with Corn-Meal Agar (HiMedia Laboratories), added of ampicillin and rifampicin, and incubated at 25±2°C for 7 days. Sporangia were ovoid to pyriform, 27.5 to 54.7 × 20.5 to 41.6 µm, average 38.3 × 30.4 µm (n=50), with one or occasionally two papillae. Chlamydospores were spherical, 20.2 to 30.0 µm in diameter, average 25.1 µm. Pathogenicity was confirmed in detached roots and leaves inoculated by depositing 5 mm plug of V8-medium with structures of the pathogen on the wounded tissue, and ten replicates per treatment. Both were incubated in a moist chamber at 25 °C and symptoms appeared after 3 to 5 days. No symptoms were observed on negative controls inoculated with V8-medium plug. The DNA was extracted by CTAB protocol and the ITS rDNA sequence was generated with the primer pair ITS1/ITS4 (Figure 1B). The sequence (GenBank Accession No. KT211567) was used in BLAST search in GenBank and >99% similar to *P. melonis*. Phylogenetic studies were conducted based on neighbor-joining analysis and Bayesian inference for the ITS rDNA region (ITS1, 5.8S and ITS2) matched with the ex-type strain CBS 582.69 (HQ643283), with 99% similarity (*E-value = 0.0*) and 100% similarity (*E-value = 0.0*) with the isolate P12 (AY739021). *P. melonis* associated with cassava root rot was first described in 2004 in plants from Manaus (AM), Northern Region of Brazil, but this is the first report of this pathogen causing CRRD in Bahia State, where until now, only *P. dreschsleri* and *P. palmivora* had been found causing this disease. The presence of different *Phytophthora* species must be investigated since management strategies, such as resistant variety, can be different regarding the pathogen species.

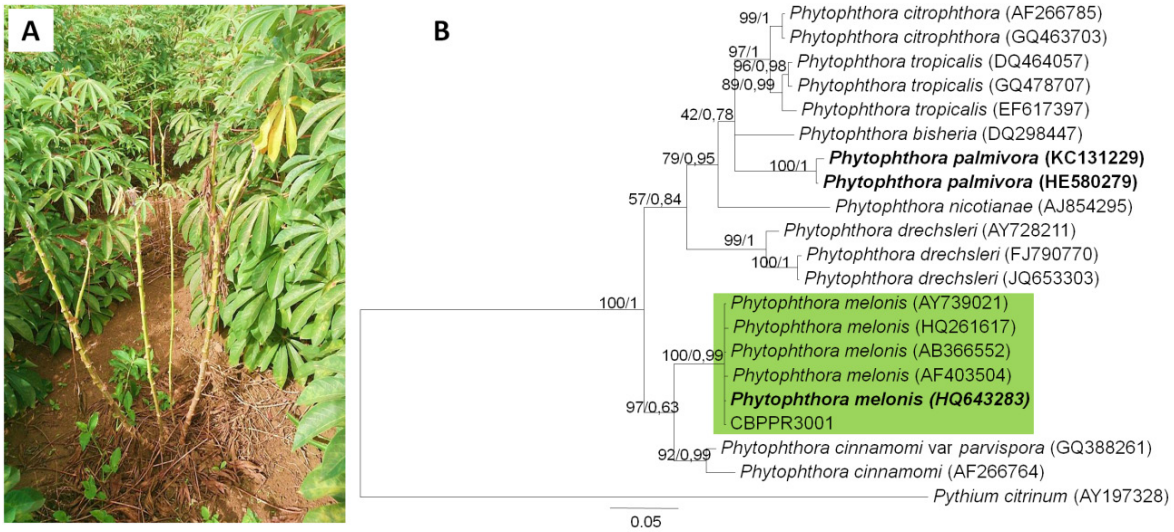

Figure 1. (A) Wilt symptom in cassava caused by *Phytophthora melonis*. **(B)** A Bayesian inference phylogenetic tree of the genus *Phytophthora* using the ITS rDNA region. Bootstrap values ≥ 40 and Bayesian posterior probability ≥ 0.5 are shown at the nodes (Neighbor Joining/Bayesian). Ex-type cultures are emphasized in bold font. *Pythium citrinum* (AY197328) was used as outgroup. The scale bar indicates the number of expected changes per site. Isolate beginning with "CBPPR" is from this study.