


First Report of *Phytophthora palmivora* Causing Bud Rot on Palmito (*Bactris gasipaes*) in Ecuador

M. E. Ordoñez, D. A. Jácome, C. B. Keil, and R. J. Montúfar, Pontificia Universidad Católica del Ecuador, Escuela de Ciencias Biológicas, Quito, Ecuador; and **T. A. Evans**, Department of Plant and Soil Sciences, University of Delaware, Newark 19716.

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ABSTRACT

Palmito (*Bactris gasipaes* var. *gasipaes* Kunth), the only native domesticated palm in the Neotropics, is used for its fruit, wood, and also for heart of palm. Ecuador is the largest exporter of palmito, with approximately 16,000 ha cultivated in 2009, representing 57% of the world's market ([Montúfar and Rosas 2013](#)). During two visits in February and May 2014 to palmito farms in the province of Santo Domingo de los Tsáchilas in western Ecuador, scattered plants with bud rot symptoms were observed. The affected plants showed chlorotic spear leaves, with necrosis inside the base of the stem on the meristematic tissue and tested positive for *Phytophthora* spp. using ImmunoStrip tests (Agdia Inc. Elkhart, IN, USA). Infected meristem tissue was baited on surface sterilized papayas and kept between 20 to 25°C for 7 days ([Torres et al. 2010](#)). Infected papaya tissue was then plated on half-strength V8-PARPH selective medium ([Ferguson and Jeffers 1999](#)) and incubated at 25°C in the dark. Isolates had white fluffy mycelium on V8 agar. Sporangia averaged 29.68 µm in diameter, 50.59 µm in length, with 4.75 µm long pedicels, which coincide with species description of *Phytophthora palmivora* (Butler) Butler ([Elliot et al. 2004](#)). Identification was confirmed by the sequence of the ITS region of rDNA (GenBank Accession No. KU170143), using ITS4/ITS6 primer combination which had 100% coverage and identity to *P. palmivora* (GenBank Accession No. KJ755111) through BLASTn analysis. Four isolates were recovered

that had identical ITS sequence. Koch's postulates were conducted by inoculating 25 three-month-old palmito seedlings in a screen house, with 0.5 ml of a 30,000-zoospores/ml suspension of an equal mix of two isolates by injection into the apical meristem. An additional 25 seedlings were inoculated with sterile distilled water as controls. Bud rot symptoms were observed 7 days after inoculation on 20 plants. No symptoms appeared on controls which had negative immunostrip tests for *Phytophthora* spp. The pathogen was reisolated from symptomatic plants as described above and identified by microscopy and ITS sequencing, completing Koch's postulates. This is the first report in Ecuador of *P. palmivora* causing bud rot in palmito, and a new host for the pathogen. Diseases on other hosts grown in Ecuador including African oil palm (*Elaeis guineensis*), cacao (*Theobroma cacao*), coffee (*Coffea arabica*), pineapple (*Ananas comosus*), avocado (*Persea americana*), and papaya (*Carica papaya*) are known to be caused by *P. palmivora*. As these crops are often grown in close proximity to palmito, it is important that research on the etiology, epidemiology, and management of this disease be carried out immediately.

References:

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