

## Endophytic and pathogenic isolates of the cacao fungal pathogen *Moniliophthora perniciosa* (Tricholomataceae) are indistinguishable based on genetic and physiological analysis

T.G. Lana<sup>1</sup>, J.L. Azevedo<sup>1</sup>, A.W.V. Pomella<sup>2</sup>, R.T.R. Monteiro<sup>3</sup>, C.B. Silva<sup>4</sup> and W.L. Araújo<sup>4</sup>

<sup>1</sup>Departamento de Genética, Escola Superior de Agricultura “Luiz de Queiroz”, Universidade de São Paulo, Piracicaba, SP, Brasil

<sup>2</sup>Almirante Cacao, Itajuípe, BA, Brasil

<sup>3</sup>Centro de Energia Nuclear na Agricultura, Universidade de São Paulo, Piracicaba, SP, Brasil

<sup>4</sup>Laboratório de Biologia Molecular e Ecologia Microbiana, NIB, Universidade de Mogi das Cruzes, Mogi das Cruzes, SP, Brasil

Corresponding author: W.L. Araújo

E-mail: welingtonluiz@umc.br

Genet. Mol. Res. 10 (1): 326-334 (2011)

Received June 28, 2010

Accepted January 5, 2011

Published February 22, 2011

DOI 10.4238/vol10-1gmr895

**ABSTRACT.** We evaluated the genetic and physiological variability of *Moniliophthora perniciosa* obtained from healthy and diseased branches of cacao (*Theobroma cacao*) plants. The diversity of the isolates was evaluated by RAPD technique and by studies of virulence and exoenzyme production. The genetic variability of endophytic and pathogenic *M. perniciosa* was evaluated in association with pathogenicity assays. RAPD analysis showed eight genetic groups, which were not related to plant disease status (healthy versus diseased branches). Isolates from cacao were included in three groups, excluding isolates from other host plants. Pathogenicity and enzyme analysis showed that the virulence of the isolates is not

related to exoenzyme production. This is the first evidence that *M. perniciosa* colonizes healthy parenchymatic tissues, showing that endophytic behavior may occur in this species.

**Key words:** Cacao; Genetic variability; RAPD; Witches' broom; Exoenzymes