

Title: MORPHOPHYSIOLOGICAL CHARACTERIZATION OF DIFFERENTS BIOTYPES OF *Moniliophthora perniciosa* SUBMITTED TO DIFFERENTS CARBON SOURCES AND OXIDATIVE STRESS

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Abstract:

The fungus *Moniliophthora perniciosa* is the causative agent of witches' broom disease, one of the most important disease in cacao, responsible for losses up to 90% culture production mainly in Brazil. This basidiomycete, due to its adaptation to different conditions, managed to colonize various host plants contributing to their genetic variability that can be characterized in biotypes by grouping each strain to its host. *Moniliophthora perniciosa* has four biotypes, which three will be analyzed in this work: the C biotype, which affects the Malvaceae family (including cocoa); L biotype, in climbing lianas and S biotype in Solanaceae family. These biotypes differ in their pathogenic to the host, distribution in nature, appearance in culture and genetic diversity. In this work, it was sought to morphological and physiological answers to pathogens already studied with the C biotype to compare with L and S biotypes and find explanation that might substantiate the host specificity for each biotype. The biotypes were submitted to growth on the culture media CPD (2% glucose, 2% peptone), CPG (2% glycerol, 2% peptone) and MPG (2% glycerol, 0.5% peptone) and observed the profiles mycelium development. The biotype C mycelium on CPD media has obtained better growth than on CPG and MPG media in the 7th day, however, after 14 days the mycelium grown in MPG reaches the edge of the Petri dish before the mycelium grown in other media, demonstrating a better adaptation of this biotype on this media while had its lowest growth in CPG. The L biotype had a very similar growth in CPD and CPG medias and had a reduced growth in MPG evidencing that this biotype is not very demanding as the carbon source, because its growth is related to the nitrogen source. The S biotype had an insignificant growth in CPD media until the 21st day, reasonable growth in CPG and considerable growth in MPG, showing the preference of S as the carbon source as the nitrogen concentration. This data can elucidate the specificity of each host of different biotypes. Also the resistance profiles to oxidative stress by hydrogen peroxide were delineated. The same resistance profile was observed in biotypes C and S, although biotype L had a higher resistance to the action of hydrogen peroxide.

Key-words: biotypes, *Moniliophthora perniciosa*, mycelial growth, resistance

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