Polymerase chain reaction based detection of chilli anthracnose disease

N. Imjit, C. Rattanakreetakul, R. Pongpisutta

Acta Horticulturae 973: 199-206: 2013.

Abstract

A polymerase chain reaction (PCR) was investigated to evaluate an anthracnose disease, caused by *Colletotrichum* species, in chilli fruit produce. Amongst tested primer sets of ITS1/ITS4, COL1/COL2, and Cg/f-Int/ITS4, the COL1/COL2 primers were used for amplification of the specific internal transcribed spacer region of all tested *Colletotrichum* species (*C. acutatum, C. capsici*, and *C. gloeosporioides*, with a specific band of 460 base pairs. DNA of *Fusarium* sp., when used as a negative control, was not amplified by the primers. However, in a study of sensitivity of anthracnose disease fungal detection, *C. gloeosporioides* was detected at a low level of 1,000 conidia on chilli leaf and fruit. This PCR-based method was able to detect a diseased chilli fruit that was inoculated with a mycelial disc 2 days before symptoms appeared. An estimation of percent anthracnose disease in chilli fruit produce, prepared by mixing healthy and diseased fruits, showed that at 25% disease contamination by weight PCR detection was successful.