BIOTECHNOLOGY-2011
doi:10.4172/jpb.1000240

OMICS Group Conferences
Accelerating Scientific Discovery

World Congress on
Biotechnology

Development of a Pcr-Based diagnostic assay for detecting *Bipolaris oryzae*, the brown spot fungus in rice

Archana B, UdayaShankar A C, ChandraNayaka S, Niranjana S R, Mortensen C N, Lund O S and Prakash H S

Bipolaris oryzae is the common causal agent of brown spot in rice (*Oryza sativa L.*), and infection by this fungal pathogen results in severe yield losses. A polymerase chain reaction (PCR) based diagnostic assay was developed to detect *Bipolaris oryzae*, the brown spot fungus in rice. Universal primers ITS1 and ITS4 were used to obtain the rDNA sequence of the available *B. oryzae* isolates of diverse geographic origins of India. Species-specific primers were designed based on B. oryzae ITS sequence data obtained in the present study and in comparison with other *Bipolaris spp., Curvularia spp., Drechslera spp. and Exserohilum spp*. in NCBI database. The specific primers designed were employed to amplify DNA in PCR from a total of 171 isolates of *Alternaria spp., Bipolaris spp., Curvularia spp., Drechslera spp., Exserohilum spp*. and *Magnaporthe oryzae*. The species-specific primers BoVf and BoVr were used in the detection of B. oryzae that amplified a 275 bp fragment from the DNA of all B. oryzae isolates but not the DNA from other species. The primer was also used to detect *B. oryzae* in rice seed and successfully amplified the predicted size of the DNA fragment in the infected material. PCR detection of as little as 100 ng μl^{-1} to 1 fg µl-1 of *B. oryzae* DNA was possible. The method described here requires one day for completion, compared to 10 days required for the cultural method.