

Use of RAPD and ISSR Markers in Detection of Genetic Variation among *Colletotrichum falcatum* Went Isolates from South Gujarat India

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Abstract : The present research work aims at finding genetic differences in the genomes of sugarcane red rot isolates *Colletotrichum falcatum* Went using Random Amplified Polymorphic DNA (RAPD) and interspersed simple sequence repeat (ISSR) molecular markers. Ten isolates of *C. falcatum* isolated from different red rot infected sugarcane cultivars stalk were used in present study. The amplified bands were scored across the lanes obtained in 15 RAPD primers and 21 ISSR primers successfully. The data were analysed using NTSYSpc 2.2 software. The results showed 80.6% and 68.07% polymorphism in RAPD and ISSR analysis respectively. Based on the RAPD analysis, ten genotypes were grouped into two major clusters at a cut-off value of 0.75. Geographically distant *C. falcatum* isolate cfGAN from south Gujarat had a level of similarity with Coimbatore isolate cf8436 presented on separate clade of bootstrapped dendrograms. First and second cluster consisted of five and three isolates respectively, indicating the close relation among them. The 21 ISSR primers produced 119 distinct and scorable loci in that 38 were monomorphic. The number of scorable loci for each primer varied from 2 (ISSR822) to 8 (ISSR807, ISSR823 and ISSR15) with an average of 5.66 loci per primer. Primer ISSR835 amplified the highest number of bands (57), while only 16 bands were obtained by primers ISSR822. Four primers namely ISSR830, ISSR845, ISSR4 and ISSR15 showed the highest value of percentage of polymorphism (100%). The results indicated that both of the marker systems RAPD and ISSR, individually can be effectively used in determination of genetic relationship among *C. falcatum* accessions collected from different parts of south Gujarat.

Keywords : *Colletotrichum falcatum*, ISSR, RAPD, Red Rot

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