

Molecular analysis of *Bipolaris sorghicola* infecting *Sorghum bicolor* in India using Inter Simple Sequence Repeats (ISSR) Markers

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Abstract—*Bipolaris sorghicola* (Lefebvre and Sherwin) is a well known and economically important seed-borne pathogen with specific sorghum (*Sorghum bicolor* [L] Moench) host. Thirty-two isolates derived from different geographical area of sorghum growing places in India. The molecular characterization using inter simple sequence repeat (ISSR), which revealed differences along with geographical origin clustering of various *B. sorghicola* isolates which otherwise could not be revealed through conventional characterization. Out of 20 ISSR primers screened, 8 primers gave very good reproducibility banding patterns. One hundred per cent of polymorphic bands were recorded. The polymorphism information content (PIC) values ranged 4.57 to 8.79 in ISSR markers studies. Mean number of bands (253.3), arithmetic mean of expected heterozygosity H_n (0.34), marker index (MI) (5.94) and resolving power (RP) (15.83) were the value detected with ISSR markers. ISSR marker genetic similarity coefficient was ranged from 22.0 to 89.1% among all the strains. The least similarity difference (22.0%) observed between DQDS-8 and DQDS-32 strains collected from Maharashtra state i.e. central zone and Haryana state i.e. North-western plain zone, respectively. The highest similarity difference observed between DQDS-28 and DQDS-29 strains (89.1% with bootstrap value 99%) collected from Andhra Pradesh state i.e. south zone. To best of our knowledge, this is a first report of genetic characterization of *B. sorghicola*. Hence, use of ISSR marker systems would be more sensitive and reliable in characterizing genetic variability in *B. sorghicola* strains.