

Research Article: KS Bilgrami Best Poster Award 2015– Winner**Biochemical Responses in *Sorghum bicolor* and *Triticum aestivum* to Spot Blotch Disease and Induction of Resistance by Plant Growth Promoting Rhizobacteria****Priyanka Bhattacharjee, Jayanwita Sarkar, Arka Pratim Chakraborty, Usha Chakraborty and Bishwanath Chakraborty***Immuno-Phytopathology Laboratory, Department of Botany, University of North Bengal, Siliguri- 734 013 Darjeeling, West Bengal, India email: bncnbu@gmail.com***Abstract**

Two PGPR-*Bacillus altitudinus* and *B. megaterium* were tested to determine their efficacy in promoting induction of resistance in selected cereals (wheat and sorghum) against spot blotch. After 45 days of sowing, differences in growth rates between treated and untreated plants were evident. PGPR treated plants were challenge inoculated with *B. sorokiniana*. Disease development was computed alongwith analysis of different biochemical parameters. Increased accumulations of chitinase, β -1,3glucanase, phenylalanine ammonia lyase and peroxidase were observed in plants treated with the bioinoculants and challenge inoculated with pathogen when compared to untreated healthy plants. Application of PGPR also reduced stress signals like hydrogen peroxide and malonaldehyde in infected plants as a response to oxidative damage promoted by lipid peroxidation under elevated free radical formation. Besides plant accumulate osmolyte proline in higher concentration in sorghum plants challenged with, biochemical components such as total phenol and total soluble proteins increased in sorghum plants inoculated with *B. sorokiniana* challenged with PGPR. Accumulation of antifungal phenolics in wheat and sorghum following bioinoculant treatment and challenge inoculation with pathogen was analysed using HPLC.

Key words: Defense enzymes, *Bipolaris sorokiniana*, phenolics, PGPR, spot blotch, Sorghum, wheat

Citation: Bhattacharjee Priyanka, Sarkar Jayanwita, Chakraborty AP, Chakraborty Usha and Chakraborty Bishwanath. 2017. Biochemical responses in *Sorghum bicolor* and *Triticum aestivum* to spot blotch disease and induction of resistance by plant growth promoting rhizobacteria. *J Mycol Pl Pathol* 47 (3): 252-261.