

Research Article: PP Singhal Memorial PI Industries Award 2016 – Runner**Combined Application of Fungicide Tolerant *Pseudomonas fluorescens* and Reduced Dosage of Azoxystrobin for the Management of Rice Blast****Manjunath Hubballi**

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Abstract

Twenty isolates of *P. fluorescens* were isolated and identified based on morphology and amplification of ITS region. Ten foliar fungicides and twenty *P. fluorescens* isolates were evaluated for the inhibitory action against *P. oryzae* and among these azoxystrobin and *P. fluorescens* PF9 exerted maximum inhibition. Further, fungicide azoxystrobin was compatible with *P. fluorescens* PF9. The interaction between azoxystrobin and *P. fluorescens* for arresting the growth and sporulation of *P. oryzae* was found to be synergistic. In addition, Gas Chromatography Mass Spectrum (GCMS) analysis of the effective isolate of *P. fluorescens* PF9 revealed seven antimicrobial biomolecules. Increased activity of the enzymes viz., peroxidase, polyphenol oxidase, catalase, phenylalanine ammonia-lyase, β -1, 3-glucanase and phenol content were observed in the rice seedlings when treated with the azoxystrobin 125 g a.i. ha⁻¹ in combination of *P. fluorescens* against rice blast disease. Further, native PAGE analysis of the rice seedlings treated with azoxystrobin 125 g a.i. ha⁻¹ in combination of *P. fluorescens* revealed an additional isoform. The efficacy of azoxystrobin at different dosages in combination with *P. fluorescens* was tested under field conditions using two most susceptible varieties Co39 and ASD 19 at two locations and was observed that the treatment azoxystrobin 125 g a.i. ha⁻¹ plus *P. fluorescens* (0.2 %) recorded the least incidence of leaf and neck blast disease. The interaction of azoxystrobin and *P. fluorescens* for suppressing leaf and neck blast was categorised as additive in both the locations. Further, yield was also increased in the above treatment.

Key words: Defense enzymes, GCMS, *Pseudomonas*, *Pyricularia*

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