Fluorescent *Pseudomonas* spp.: A Putative Bio Control agent against Wheat Pathogenic Fungi

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Abstract—*Tilletia indica, plant-pathogenic fungi which cause 'Karnal bunt in wheat' was first reported in 1930 near Karnal, India. This disease develops in the growth phase by the spreading of microscopically small spores of the fungus (teliospores) being distributed by the wind. The present treatments were reported to reduce teliospores germination but chemical fungicide, the biological control has gained momentum in the recent years due to the emergence of fungicide resistance in pathogens. Practicing crop rotation may help to control the pathogen, but its effect is questionable since T. indica can survive upto 4 years in the soil.*

The present study focuses on the variety of promising properties of Pseudomonas fluorescens isolates which make it a better bio control agent. Different gram positive and gram negative bacteria were tested against wheat pathogenic fungus, T. indica for their growth inhibitory effects. The growth of T. indica was measured every 7th, 14th and 50th days. The results indicated that P. fluorescens inhibited the growth of T. indica by 82.5%. The secondary metabolites extracted from the bacteria were also tested for their antagonistic activity against T. indica. Pseudomonas sp. has many traits that make them well- matched as PGPR and thus can be used as growth promoting bacteria. The production of hydrogen cyanide, antifungal metabolites, hydrolytic enzymes, iron- chelating siderophores and other fungicidal potentials from the bacteria, makes it an effective bio-fungicide against phytopathogenic fungi.

Thus, these promising potentials of P. fluorescens obtained from the present study may be commercially formulated as effective biocontrol agent for the management soil-borne fungal pathogen of wheat.

Keywords*: Karnal bunt, Tilletia indica, bio control, wheat, Pseudomonas fluorescens.*