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Abstract Book

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insect pest as compare to leaf extract of *C. citrinus* but problems have highlighted the need for alternative biocontrol agent for chemical residue free consumable crop, although bio-pesticide (leaf extract of *C. citrinus*) was not at par with synthetic pesticide (Endosulfan) but its non-hazardous and biodegradable nature for eco-friendly pest management approach gave them more attention for integrated pest management.

IPM2 P34. Isolation, identification and characterization of *Trichoderma* spp. as a bio-control agent against black rot disease of *Allium cepa* (Onion)

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Aspergillus niger is a plant pathogen causing diseases in several plants including onion (*Allium cepa* L.). Onion black rot caused by *A. niger* is a very common disease in onion growing areas of Latur district, Maharashtra. The present investigation was carried out in an attempt to isolate various strains of *Trichoderma* spp. from collected soil samples of different locations of Latur district and to evaluate their potential asa bio control agent against *A. niger*. Accordingly, three *T. Harzianum* species viz., Th-1 (Murud), Th-2 (Renapur) and Th-3 (Savewadi) were isolated and identified through cultural and micro morphological studies from black rot infected soil habitats of onion crop. Seed treatment method is used in field study to evaluate potential ability of *T. Harzianum* isolates against black rot disease of onion. In field trial, Th-2 exhibited higher black rot disease control (60.68 %) followed by Th-1 (48.93 %) and Th-3 (42.74 %) over control. Moreover to this, seed treatment with a spore suspension of *T. Harzianum* significantly increased seed germination percentage, seedling growth and seedling vigor Index over control. Significant increase in per cent GP & SVI was obtained inTh-2 (GP= 25.46 % and SVI= 88.78%) followed by Th-1 (GP= 21.13% and SVI= 61.06%) and Th-3 (GP= 16.19 % and SVI= 49.39 %) over control. Thus, bio control agents such as *T. harzianum* can be easily isolated from soil habitats of onion crops and be used not only to control onion black rot disease but also to increase seed germination and seedling vigour.

IPM2 P35. *Bt* soybean does not affect feeding behavior of red-banded stink bug *Piezodorus guildinii* (Hemiptera: Pentatomidae)

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Bt soybean represents 13% of the global area sowing with this crop. Although the presence of Cry1A(c) expressed in Bt soybean efficiently controls different lepidoptera pests, the effect on non-target arthropods is of concern. Piezodorus guildinii is a major soybean pest throughout the Americas. It is known that Bt crops are not effective for its control, while sub lethal effects are unknown. This study aims to determine the effect of Bt soybean on P. guildinii feeding behavior. Assessment was performed by comparing DM59i (RR) and DM5958iPRO (RR/Bt INTACTATM) varieties, using an AC-DC electrical penetration graph (EPG) to record female adult feeding waveforms during 15h. Means of different waveform parameters for each

treatment (RR or RR/Bt) were analyzed by generalized linear models and Kruskal-Wallis (P-valor >0,05): number of waveform events per insect (NWEI), waveform duration per probe (WDPI) and per insect (WDI), WDPI standard deviation (WDPI SD), WDPI coefficient of variation (WDPI CV) and waveform duration within the total recorded period (PRT). Differential feeding behaviors were only detected between the pathway phase (stylet penetration deep into plant tissue) at WDPI, WDPI SD, WDI and PRT, which could be associated to morphological differences between the varieties and not to the presence of Cry1A(c) endoprotein. Food ingestion on leaves, stems and pod, salivation on pod and non-probing phases did not differ between treatments. These results suggest that RR/Bt soybean does not affect the feeding behavior of red-banded stink bug; therefore, its action thresholds would be the same as those used in non-Bt varieties.

IPM2 P36. Fungicidal activity of the herbicidal compound, glyphosate against blast disease on glyphosate-resistant transgenic rice

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Rice is the second most widely grown cereal used to feed more than 60% of the world's population. Biotic factors such as weeds and diseases are among the major production constraints in rice. Among the diseases, rice blast caused by a filamentous fungus, Magnaporthe oryzae is a threat in rice cultivation and alone is responsible for approximately 30% productivity losses globally which is sufficient to feed 60 million people. Similarly, weed infestation aggressively competes with rice for natural resources and applied agro-input. Among the weed management options, glyphosate (N-phosphonomethyl-glycine) is widely used non-selective, systemic herbicide to control annual and perennial weeds. It specifically inhibits the shikimate pathway enzyme, 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS), involved in the biosynthesis of aromatic amino acids and other essential secondary metabolites conserved among plants, fungi, oomycetes, and bacteria. Hence, this opens a new window to establish the role of glyphosate as a fungicidal compound against disease on glyphosate resistance transgenic crop. In this study, the role of glyphosate as a fungicide on the glyphosate-resistant transgenic rice plant (OsmEPSPS) was explored. The minimum inhibitory concentration of glyphosate on Magnaporthe oryzae in vitro was 80 mM. Glyphosate applied either as prophylactic or curative sprays on over-expressed OsmEPSPS glyphosate-resistant transgenic rice plants reduced blast severity that was comparable to tricyclazole - a well-known blasticide used in rice farming. The glyphosate-based simultaneous management of weed as well as blast disease in the rice cultivation will be a novel and integrated crop management approach to improve the rice yield and productivity.

IPM2 P37. Novel insecticide molecules to manage brown plant hopper in rice

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The brown planthopper (BPH), *Nilaparvata lugens* (Stal) (Hemiptera: Delphacidae) is an important pest causing considerable damage to rice crop in Kharif (wet) season in Telangana, India. Of-late, BPH population has shown increasing trend in the region because of injudicious and indiscriminate application of insecticides and cocktail mixtures of two or more insecticides with other agrochemicals like bio-products by farmers. Hence, there is need to identify new insecticides with due recognition to ensure ecological safety and