Variation in the Production of Leaffolder-induced and Constitutive Plant Volatiles in Two Rice Varieties in Tamil Nadu, India

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Rice (*Oryza sativa*, L.) which is cultivated in 112 countries all over the globe and consumed by 2500 million people in developing countries, faces many constraints in production. Rice leaf folder (RLF) (*Cnaphalocrocis medinalis* Guenee) has been reported as one of the most destructive pests affecting almost all rice growing areas in Asia. Currently this pest is managed by using insecticides and other management practices such as biocontrol agents to some extent. Herbivore induced plant volatiles (HIPVs) plays an important role in plant defence by attracting the natural enemies of the herbivores (Tritrophic interactions). This study was aimed to detect leaf folder induced plant volatiles in rice. HIPVs collected from healthy and RLF infested potted rice plants with three replications of varieties ASD 16 and Co 51 were analysed using Gas Chromatography – MS/MS. Both quantitative and qualitative variations of volatiles compounds (VCs) were noticed between healthy and RLF infested plants. In RLF damaged and healthy plants, had higher level of eicosane in common. It was 16 times higher in damaged ASD 16 rice plants than that of the uninfested ones. The volatile profile of rice variety CO 51, dodecane was recorded to have a higher peak difference i.e., eight times more than the healthy plants followed by eicosane with six times variation. Eicosane, a 20 carbon compound showed higher variation in the volatile composition of RLF damaged plants as compared to volatiles emitted by healthy plants. It was already reported that eicosane was one among the compounds responsible for the orientation of trichogrammatids and acted as ovipositional stimulants and increased the parasitization rate.Only nine and seven VCs are were detected in healthy ASD 16 and CO 51 rice varieties, respectively while crude volatiles from RLF – infested plants recorded 22 (ASD 16) and 16 (CO 51) compounds. Eicosane can be included in bio intensive management of rice folder in future.

Keywords: Egg parasitoid, Herbivore Induced Plant Volatiles, Infested rice plant