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Bacterial volatile organic compounds– A new insight for sustainable agriculture

D.G. Panpatte, Y.M. Shukla, H.N. Shelat and Y.K. Jhala

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ABSTRACT: Plant growth promoting rhizobacteria (PGPR) shows positive effect on plants by increased nutrient acquisition and protection of plants from biotic and abiotic stress. One of the mechanism for elicitation of induced systemic resistance (ISR)/induced systemic tolerance (IST) and plant growth promotion in the absence of physical contact includes volatile organic compound (VOC) emissions form PGPR. In this article, we reviewed the recent progress made by research into the interactions between PGPR VOCs and plants, focusing on VOC emission and their role in plant growth promotion and inducing tolerance against biotic and abiotic stress. Taken together, these studies provide further insight into the biological and ecological potential of PGPR-VOCs for enhancing plant self-immunity and/or adaptation to biotic and abiotic stresses in modern agriculture.

Key Words: PGPR, ISR, IST, Volatile organic compounds, self-immunity, stress**.**