

Fungal volatile organic compounds: emphasis on their plant growth-promoting

Abstract

Fungal volatile organic compounds (VOCs) commonly formed bioactive interface between plants and countless of microorganisms on the above- and below-ground plant-fungus interactions. Fungal-plant interactions symbolize intriguingly biochemical complex and challenging scenarios that are discovered by metabolomic approaches. Remarkably secondary metabolites (SMs) played a significant role in the virulence and existence with plant-fungal pathogen interaction; only 25% of the fungal gene clusters have been functionally identified, even though these numbers are too low as compared with plant secondary metabolites. The current insights on fungal VOCs are conducted under lab environments and to apply small numbers of microbes; its molecules have significant effects on growth, development, and defense system of plants. Many fungal VOCs supported dynamic processes, leading to countless interactions between plants, antagonists, and mutualistic symbionts. The fundamental role of fungal VOCs at field level is required for better understanding, so more studies will offer further constructive scientific evidences that can show the cost-effectiveness of ecofriendly and ecologically produced fungal VOCs for crop welfare.