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EDITORIAL

Unlocking the Microbiome: Harnessing its Potential for Healthy Environment

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In recent times, the world has been facing several challenges like the food crisis, environmental stresses, energy shortage, environmental pollution, climate change, decreased crop production, pesticidal pollution, animal, and human health issues, *etc.* To find out the sustainable solution for these key issues, the microbiome is playing a game changer role throughout the world due to its presence everywhere. Several studies on microbiome and involvement of key technologies (Omics tools and Next generation sequencing platform) have proved its high potentials. Microbiome consists of an intricate community of bacteria, archaea, fungi, viruses, and some of the microscopic eukaryotic organisms that can occupy diverse environments, from the human gut, to soil, to even the atmosphere [1, 2].

Understanding microbiome is required to harness its full potential ranging from plant growth, biocontrol, biopesticide production, bioremediation of pesticides, and biofuel production. Research efforts exploring the plant microbiome using comprehensive metagenomics and multi-omics have rapidly expanded, thereby facilitating characterization of

microbiome dynamics, composition, variation, and function of maintaining plant health under abiotic and biotic stress conditions. Such studies increase our understanding of the microbiome's impact on physiological processes, and how plants boost the human immune system and further enable a shift from correlation to causation, with emerging insights into how this data can be utilized for sustainable environmental development. To capture advances in this growing area, this issue is launched to attract the researchers to contribute to below-mentioned sub-themes [3, 4].

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