Report
on
Guest Lecture on The Contribution of Plant-Associated Microorganisms in Pest Control
Organized by
Department of Agriculture
September 15, 2022

The Department of Agriculture at the Integral Institute of Agricultural Science and Technology (IIAST) organized a guest lecture aimed at sharing insights into the latest advancements in agriculture and raising awareness about emerging trends in the field. On September 15th, 2022, Department of Agriculture had the honor of hosting Dr. V.K. Singh, Senior Scientist in Plant Protection at KVK, Sitapur I, for an enlightening guest lecture on "The Role of Plant-Associated Microorganisms in Pest Management." Sir was warmly welcomed by Dr. Saba Siddiqui, the department head. Dr. Siddiqui encouraged attendees, including students, scholars, researchers, and academicians, to engage in the program, which promised to offer valuable insights into both traditional agricultural practices and the potential transformative impact of modern approaches.

The lecture began by introducing the diverse communities of microbes, including bacteria, fungi, and viruses, that naturally inhabit the rhizosphere, phyllosphere, and endosphere of plants. Dr. Singh explained how these microorganisms can engage in mutualistic relationships with their plant hosts, providing a range of growth promotion and defensive services. He highlighted several mechanisms by which beneficial microbes contribute to pest control.

Dr. Singh discussed innovative applications of using microbial inoculants, DC extracts, and microbe-derived biochemicals as more sustainable alternatives to reduce reliance on conventional chemical pesticides and fumigants. Specific examples included using Bacillus and Trichoderma strains against soil-borne diseases, applying *Pseudomonas* for controlling foliar pathogens, and the potential of insect-specific viruses and fungi as biocontrol agents. He emphasized that these often provide long-lasting, broad-spectrum protection when integrated with organic soil amendments.

Challenges discussed included maintaining microbe-inoculant viability, achieving consistent field performance, formulation for commercial scale-up, risks of non-target effects, and regulatory hurdles. Dr. Singh stressed the need for deeper understanding of plant-microbiome dynamics tailored to different crops and environments.

Overall, it was an extremely insightful lecture showcasing the immense, yet underutilized, potential of beneficial plant-microbe relationships for sustainable pest management. Students gained valuable knowledge about cutting-edge research in this field that could revolutionize the future of crop protection globally. The lecture concluded with a lively Q&A discussion of industry efforts at commercializing microbial inoculants, intellectual property considerations, combining microbiome applications with other IPM tactics, and the importance of interdisciplinary collaborations between microbiologists, plant scientists, entomologists and regulatory agencies.

Addressing the audience, Dr. Saba Siddiqui, Head of the Department of Agriculture at IIAST, Integral University, emphasized the importance of utilizing such platforms for knowledge acquisition. She highlighted the significance of research discussions within these forums. The lecture concluded with a vote of thanks delivered by Dr. Faria Fatima. The guest lecture was meticulously organized by the members of the RAWE committee, including Dr. Malik Mobeen, Mr. Nadeem Khan, Dr. Faria Fatima, Dr. Khalid Habib, Dr. Sunil Kumar, and Dr. Ayush Bhushan, under the guidance of Prof. Mohd. Haris Siddiqui, Dean of the Faculty of Agricultural Science and Technology, and Dr. Saba Siddiqui, Head of the Department of Agriculture.

Glimpse


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