Brief Report on

Journal Club Presentation by

Department of Agriculture,

Integral Institute of Agricultural Sciences and Technology (IIAST)

Integral University, Lucknow

The Journal club session was organized on 26th of April, 2024, at 10:00 A.M., in the Board Room by the Department of Agriculture, Integral Institute of Agricultural Sciences and Technology. Mr Rameez, Ph.D. Research Scholar of the Department of Agriculture, IIAST, diligently delivered a comprehensive presentation. He presented a research paper entitled "Biochemical defenses of rice against Bipolaris oryzae increase with high atmospheric concentration of CO2" published in the journal "Physiological and Molecular Plant Pathology (Elsevier)" with an impact factor of 2.7. This study places a significant emphasis on the hypothesis that due to the increase in the atmospheric CO2 concentration, the plant defenses against pathogens get also enhanced. To test this hypothesis, some defense responses, including those of the antioxidant system, were quantified at different time points of the *B. oryzae* pathogenesis in rice leaves of two cultivars grown in an environment with 400 or 700 PPM of atmospheric CO2. Mr Rameez emphasized that if Rice plants cultivated under 700 ppm atmospheric CO2 concentration presented a reduction in the progress and severity of the brown spot disease (*Bipolaris oryzae*), through the enhancement of biochemical defense mechanisms. Plants exposed to 700 ppm of CO2 had higher activity of the enzymes superoxide dismutase, catalase, ascorbate peroxidase, peroxidase, poly-phenoloxidase and chitinase, and increased phenolic compounds and lignin concentration, independent of the rice cultivar. Therefore, the lower severity values of the disease were related to changes in the development of the lesions as a result of the defense responses, which were stimulated in the rice plants by the increase of CO2 concentration.

Prof. Saba Siddiqui, the Head of the Department of Agriculture at IIAST, Integral University, took the stage and addressed the audience and encouraged students to actively utilize the platform as a valuable resource for gaining knowledge. The presentation ended with a vote of thanks delivered by Dr. Faria Fatima. The entire program was conducted under the guidance and supervision of Prof. (Dr.) Mohd Haris Siddiqui, the Dean of the Faculty of Agricultural Science

and Technology and Prof. Saba Siddiqui, the Head of the Department of Agriculture at IIAST. The event was successfully organized as was engaged by more than 30 students and led by the coordinators Dr. Suhail Ahmad Khan and Dr. Shipra Yadav.

Glimpses of the journal club