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Impact Assessment of Biostimulants on the Tomato (Var.Pusa Rohini) Crop Yield and Quality Under Ambient and Polyhouse conditions

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The agricultural production of the world is confronted with numerous obstacles. By 2050, an additional 70 percent of food will be required to feed the predicted 2.3 billion people. Crop yields, on the other hand, are not keeping pace with increased food demand. By the end of the century, it is anticipated that India would lose 50% of its vegetable production due to rising temperatures. Tomatoes are the second most important vegetable crop in the world and they are more susceptible to any change in climatic condition. Selection of crop variety according to climate and planting time, application of growth regulators are some of the adaptation measures for changing climatic conditions. For field experiment, different biostimulants such as Moringa leaf extract (MLE), Aloe vera leaf extract (ALE), *B.subtilis*, *T.harzianum* and their combination (BT) combination were tested. Their role in physiological attributes of tomato crop was tested under two different conditions, one under ambient and another under polyhouse condition by applying these treatments thrice at different crop growth stages. The impact of PGPM's and PDE's on electrolyte leakage (EL) and relative water content (RWC) revealed that our treatments enhanced growth under different conditions. The lower EL and higher RWC obtained in PGPM treated seedlings may be due to maintenance of plant water status under stress condition by increased root water uptake and nutrient uptake facilitated by PGPM. When plants undergo stress their membrane integrity will be lost, hence increased RWC and reduced EL indicates that the plant had survived the stress with the application of these bio stimulants PGPM and PDE.

Keywords: Biostimulants, PGPM, PDE, Tomato, Quality

Biography:

Anita Chaudhary is a microbiologist and studies microbial diversity, plant microbe interaction for mitigation and adaptation under climate change conditions. During her professional career, she has carried out the vulnerability assessment of different regions on the basis of soil physical, chemical and biological indices. She has also focused on the waste management such as distillery effluent and flyash amendments in agriculture soils. She has around sixty published papers in the field of waste management and plant microbe interactions. She was awarded American Society of Microbiology Indo-US Science and technology (IUSSTF) professorship and worked at the Michigan State University and Arizona state University and has been IUSSTF fellow. She has been on the panel of different reviewing and monitoring committees of science and technology.

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