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Study the Effect of Salinity Stress on Plant Growth

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Abstract:*Salinity is a major stress limit growth and productivity of plants in many areas of the world due to increasing use of good quality of water for irrigated and soil salinization. Plant accommodates or sufferance to salinity stress involves composite physiological characteristic, metabolic progressions and molecular or gene complex. An inclusive understanding on how plants respond to salinity stress at different levels and an integrated attitude of combining molecular tools with physiology and biochemical techniques are authoritative for the developmental varieties of plants in salt-affected areas.*

Keywords: Microbiome, Plant Growth-Promoting Bacteria, etc.

I. INTRODUCTION

Salinity affects plant growth by ionic toxicity, osmotic stress, hormonal imbalance, the reduction in nutrient mobilization, and the production of reactive oxygen species Therefore, salinity causes wilting, drying, and death of plants. Salinity stress induced osmotic stress tolerance mechanism in plants. Salinity leads to build up of Na in soil, consequently lowering the soil water potential as compared to water potential of plant cells. This leads to reduced water uptake by plants and eventually causes cellular dehydration. Salt stress is the accumulation of excessive salt contents in the soil which eventually results in the inhibition of crop growth and leads to crop death.

Salinity affects production in crops, pastures and trees by interfering with nitrogen uptake, reducing growth and stopping plant reproduction. Some ions (particularly chloride) are toxic to plants and as the concentration of these ions increases, the plant is poisoned and dies.

II. METHODOLOGY

The method of Salinity stress on plant growth: Ion transport, Biosynthesis of osmoprotectants, Nitric oxide, Synthesis of polyamines, Hormone modulation and Activation of antioxidant enzymes. Salinity composes stress by damaging ionic and osmotic balances in plants. Osmotic stress caused by increasing the amount of salt in soil, decreases the amount of water that plant use and as a result physiological drought occurs. After these conditions, ionic stress occurs in the plant with deterioration of plant ion balance. Na and Cl ions which increases in medium with ionic stress, get in competition with essential nutrients such as K+, Ca2+, Mg2+ lead to nutrient deficiency in plant. While the direct effect of salinity is osmotic and ionic stresses, deteriorations in structure and synthesis of toxic components composes secondary effect.

III. LITERATURE REVIEW

Salt stress occurs as a result of excessive salt accumulation in the soil and the plant cannot take water it needs with roots. Salt stress affects plants by toxicity caused by osmotic stresses and ions. As a result of these effects, some negative changes occur in plants.

The severity of the soil salinity needs to be determined in order to make informed decisions on best cropping practices. Salinity is a major threat to modern agriculture causing inhibition and impairment of crop growth and developmental. The conducted study on every senior plant is not able to tolerate long time mean salinity stress while in short time they show positive responses like root length.

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IV. RESULT AND DISCUSSION

Differential response of non- mycorrhizal and mycorrhizal plants under salt stress. Accumulation of salt in soil creates competition for nutrient uptake and transport. This leads to imbalance of the ionic composition of plant, thereby affecting plant's physiological traits. AMF increase the volume of soil explored by plant roots, upregulate several cation transporters, leading to improved nutrient uptake, and also maintains ionic homeostasis. Salinity lowers soil water potential causing cellular dehydration due to decrease in water uptake. Am negates this effect by mediating accumulation of osmolytes and also improve plants water status by improving root hydraulic conductivity. Salinity induces oxidative stress due to imbalance in ROS generation and the quenching activities of antioxidants. and known to improve both enzymatic and non- enzymatic antioxidant systems of plants. Photosynthesis is also negatively affected by salinity. AM has a positive effect on photosynthesis under salt stress. Overall, AMF improve the performance of plant under salt stress.

V. CONCLUSION

We discuss how to suit the concussion of salinity on different attribution, such as relative growth rate, water relations, transpiration, transpiration use productivity, ionic relations, photosynthesis, replicative, yield and yield elements. We also intimate some recommendations to help with the selection of appropriate experimental systems, imposition of salinity stress, and obtaining and analysing relevant physiological data using proper indications. We demonstrate how these indications can be used to determine dependence amongst the proposed characteristic to determine which habit are the most important developer to salinity resistance. Salinity resistance is composite and include many genes, but development has been made in studying the appliances underlying a plant's response to salinity.

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