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MODULATION OF PHOSPHOROUS UPTAKE AND STORAGE IN PLANT BY HUMIC SUBSTANCE UNDER LOW P CONDITION.

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RESUMEN. Phosphate is a well-known limiter of plant growth due to its low availability in tropical weathering soils. To cope with the low availability of soil phosphate, plants have evolved numerous strategies to optimize Pi acquisition from soil solution by nutrient sensing mechanism of root and distribute it to different organs and subcellular compartments. A number of researches on plant mechanism of adaptation to low phosphorus fertility has been studied in recent years, and their alterations as plant reaction to severe condition has been observed morphologically, physiologically and biochemically. Humic substances increase the solubility of P compounds and consequently make bioavailability available. Nevertheless, the information on the effect of humic substances on the P nutrition at the molecular level has been little known. The aim of our project is to observe the plant reaction to the interaction with the humic substance under the condition of low P content. Our research structure was observation of the phyto-hormonal effect of humic substance treatment under phosphate deficiency on plant growth. The tomato seedlings was treated or not with a solution of humic acids (4 mM C L⁻¹ CaCl₂ 2 mM) with different concentration of phosphate (100 µM and 0 µM as NaHPO₄). Later, the change of plant reaction to the treatment has been observed in mainly three following aspects ;(1) of plant roots and biomass weight, (2) in distribution of P compounds in roots and leaves, (3) and, in the gene expression of P transporters which has high affinity.