Sixth Article (Considered single- common with another outside the specialization- published).

Article title	**Acquired Resistant Motivated by Salicylic Acid Applications on Salt Stressed Tomato (*Lycopersicon esculentum* Mill.).**
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Abstract

Osmotic stress severely limits plant growth, agricultural productivity and the plant defense system against the plant pathogens. Tomato plants were treated with NaCl solution at concentrations of ٠, ٤٠, ٨٠ mM and then sprayed with ٠.٥ mM salicylic acid (SA). Results revealed that, salt stress plants especially at the highest level significantly reduced growth parameters and yield. While, exogenous application of SA promoted growth and yield and counteracted the salt stress-induced growth inhibition of salt stressed plants. The improvement in photosynthetic pigments, total soluble proteins, total soluble carbohydrates, total proline, total phenols and leaves relative water content were associated with SA application. On the other hand, salt treatment significantly reduced photosynthetic pigments and leaves relative water content, while significantly increased total soluble proteins, total soluble carbohydrates, total proline, total phenols and electrolyte leakage. Moreover, when the DNA of the treated and non treated plant was subjected to PCR amplification using proline specific primers. The PCR product (٤٧٠bp) were sequenced and the sequence analysis revealed that the amplified gene was proline protein gene with identity ١٠٠% when compared *Hevea brasiliensis* proline-specific permease-like protein gene and amino-transferase (aat) gene. Moreover, the DNA nucleotide sequences obtained from the non treated tomato plants showed the same sequence and no mutation was observed. It can be conclude that salicylic acid applications induced the plant defense system to resist the dreadful effects of salt stress via the epigenetic.