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Analysis of the expression of the SIMYB gene during the reproductive development of tomato (*Solanum lycopersicum*)

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Statement of the Problem: In tomato, the development of the fruit is a highly regulated process at the genetic level that can be negatively affected by changes in environmental conditions, mainly humidity and temperature. The knowledge of the molecular mechanisms that control the setting and development of the fruit is very important to identify improvement targets for this crop. Plant development processes are often controlled by networks of regulatory genes that encode transcription factors. In a previous work of the laboratory, a transcription factor type MYB (SIMYB) was identified whose expression is induced in androsterile tomato plants whose ovaries develop in the absence of pollination, giving rise to fruits without seeds (parthenocarpic). By expression analysis, it was determined that this gene is expressed only in developing flowers.

Methodology & Theoretical Orientation: The *in situ* hybridization technique is very suitable to obtain information about the expression patterns of genes in plants, also, express promotor of SIMYB with GUS gene in *Arabidopsis* could reveal the potential of these genes as a biotechnological tool.

Findings: Involved primary research with the expression pattern of a gene on the floral structure of *Solanum lycopersicum* and *Arabidopsis thaliana* in the laboratory of Dr Concha Gómez-Mena. Our results show that the messenger of this gene is located in the sporogenic tissue of the anther, in the developing titles and in the transmission tissue of the pistil. On the other hand, transgenic *Arabidopsis* pSIMYB::GUS lines have been obtained that show a 2kb sequence of the SIMYB gene promoter capable of directing the expression of the GUS reporter gene to anther and style tissues.

Conclusion & Significance: One important conclusion of this research is this gene could regulate male and female meiosis.

Biography

Jose Linares Master Degree in Molecular and Cell Plant Biotechnology at the Polytechnic University of Valencia. A biologist at National University of San Marcos (UNMSM), specialized in genetics and plant biotechnology. Experience in Scientific Research and Intellectual Property (patents and plant varieties); development of research projects related to the characterization of plant genetic diversity at the cellular, biochemical and genetic level; Knowledge of laboratory techniques (cytogenetic, biochemical and molecular biology, microbiology, genetic engineering). Working about four years as a Consultant of Intellectual Property related to plant biology.

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