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Exogenous application of dsRNA for fruit developmental improvment

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GMO has been proposed as an alternative to improve crops to: increase the yield and production volume, using fewer sources and to resist biotic and abiotic stress. However, the debate and public opinion is still divided, and the market is not ready for GMO related to food production. Interference-RNA knowledge has been used to develop spray-induced gene silencing (SIGS) for pests and diseases control. In this new technology, ectopic application of specific double-string RNA (dsRNA) provide resistance to plants to some pathogens like and verticillium that affect fruit production. Thus, it is an improvement in plant health and consequently in food production yield without using chemical compounds that has negative impact on the environment and even preventing resistant strains induction. However, in our knowledge there is no research nor applications of SIGS technology to elicit and modify plant physiology. Some authors had proven that dsRNA is locally absorbed and then translocated inside the plant, processed like small interference RNA and strikingly remains stable for 168 hours. In this work we discussed the potential use of dsRNA and miR395 interaction to targets potentially related to ethylene biosynthesis as a new engineering genetic without GMOs to delay ripening of climacteric fruits like tomato (fleshy and climacteric model fruit) which would contribute to decrease food wasting and even open new opportunities for postharvest management and agro-logistics.

Biography

Christopher Alexis Cedillo-Jimenez has completed his Bachelor's degree in Food Chemistry, Master's in Science of biosystems from molecular perspective, and a certificated Diploma for Greenhouse Engineering and now he is siding his PhD from Autonomous University of Queretaro. He is the Director of "DETAGS" (enterprise for development of ago-logistic technology) and "Motus collective" (arts, science and technology communication). His thesis work is related to genetic material that contain miRNA sequences related to ripening and developmental targets silencing to improve some qualities of fruits at plant and postharvest level.

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