Automation of pesticide-free cilantro aeroponic crops [

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text (article)

Analítica

Introduction: Aeroponics allows the possibility to grow plants in places where conventional open-field agriculture is difficult. The use of technology improves the efficiency of the process although some energy control and irrigation system solutions must be improved. Objective: Implement an autonomous power supply and an irrigation control system for pesticide-free food production. Methodology: The autonomous system was designed using MATLAB-Simulink-MPLAB tool to perform the control model and to be applied to the crop. A dsPIC was programmed for the irrigation cycle control algorithms using MATLAB-Simulink blocks. Results: The results show that the irrigation cycle and power supply of the aeroponic system help maintain uniformity of plant growth during the tests period, which allows a better development of the aeroponic crop. Conclusions: Cultivation by aeroponics reduces the use of pesticides, growing space, water consumption, and nutrients consumption. Automation in irrigation and power supply systems allows good growth in coriander, which can be evidenced by increases in the weight and volume of the test plants
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