AE Space Herbs: The Future in Aeroponics

Battisti, Marco (School: Istituto Superiore "Enrico Fermi")

Pollution, lack of arable lands and low global water availability are some of the many problems the farming process faces nowadays. To solve these problems, two solutions are suggested: hydroponics and aeroponics. Hydroponics deals with plant growth using water enriched with nutrients and minerals as substrate. In aeroponics, plant roots are continuously or discontinuously kept in a particular environment, which is saturated with an aerosol of nutrients. Two experimentations were conducted, comparing hydroponics and aeroponics. In both the data analysis does not reveal wide differences between the two cultivation strategies, which are essentially equivalent. A new experimentation is being done in parallel on: aeroponic, hydroponic and traditional, trying to observe the differences in term of growth and active ingredients concentration. The prototype proposed is aeroponics based. It is a valid alternative to traditional cultivation: it enables to save 65% more water choosing aeroponics respect to hydroponics; it limits the use of chemical fertilizers that can, in large amounts, damage plants and fruits or can lead to aquifers contamination. The innovative open structure design optimizes the growing space because it is inspired to vertical farming, so it increases areal productivity. A solar panel provides the energy required by the system. This concept saves soil, water and energy; it also respects the environment, since it does not require pesticides, removing any chance of contamination in the final product. It will make the difference in places where water and arable lands are lacking, thanks to its extreme water economy and its soil-less design.

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