NACE CODE A01

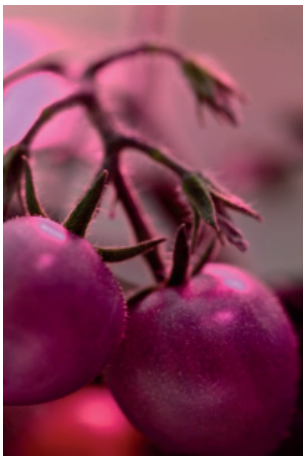
CONTAINMENT STRUCTURES FOR GROWING PLANTS IN HYDROPONIC CONDITIONS AND WITH MULTISPECTRAL LED LIGHT SOURCE

Innovations and Benefits - This technology uses advanced agronomy techniques (based on modular "ad hoc" structures for the growing of high density / m2 plants and reduced use of fertilizers and water in the absence of treatments with pesticides.

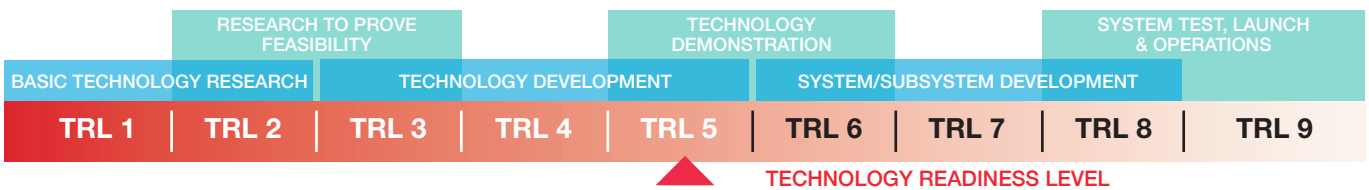
Use - The rapidly expanding world demographic framework which estimates that the threshold of 9 billion individuals will exceed towards the middle of the current century and a total potential cultivated area of approximately 41.4 million square kilometers (which cannot increase due to adverse anthropogenic and climatic factors) imposes solutions to diversify and optimize the yields per hectare of primary production. It therefore becomes necessary to be able to cultivate in all conditions, so as to make any surface cultivable, keeping the sustainability parameters set. A line of research is active in the field of soilless cultivation (hydro-aeroponics) of plants that are at the same time safe food and source of principles with a pharma / nutraceutical effect. With the support of the BIOxTREME Project (co-funded by ASI) our researchers are studying the impact of these different growing conditions on productivity. The research proposes alternative lighting sources to sunlight (LED lighting), the use of efficient air treatment systems and the development of innovative substrates and cultivation methods to encourage the quantitative-qualitative increase in production. For this "precision agriculture" guided by advanced sensors and inspired by the cultivation conditions that occur in an environment comparable to that of the ISS space station, it is important to study how to reduce the use of water (closed-cycle hydroponic crops) and chemical (precision fertilization) by avoiding the use of pesticides to obtain products suited to a healthy diet.

Applications and ongoing Activities - The proposed technology is addressed to:

- Small and medium-sized enterprises in the hydroponic crops and fertilizers sector (For example, Adriatica Spa and Agrofill, Player-group)
- Small and medium-sized enterprises of ready-to-use fresh vegetables (fourth range agri-food products)
- Small and medium-sized enterprises in the field of nutriceutics (active ingredients used as food supplements)
- Small and medium-sized enterprises in the field of the pharmaceutical-cosmetic industry (extracts with coloring, healing, soothing, anti-aging properties ect.)



Use of LED lamps; 2) Micro-Tom fruit (Solanum lycopersicon) "bio-fortified" dwarf tomato for the production of anthocyanin-type antioxidants (purple pigment) - BIOxTREME Project



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