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Poster Communication Abstract – PH.27

MICROALGAE BASED PLANT BIOSTIMULANTS FOR SALT STRESS TOLERANCE IN TOMATO PLANTS

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The poor quality of irrigation water is one of constraints that affects the yield and quality of horticultural products. Several strategies have been developed to reduce the harmful consequences to crops by using excessive water salinity, especially in the Mediterranean area. An eco-friendly approach to increase food safety and sustainable crop production is the use of agricultural biostimulants. These are any substance or microorganism applied to plants with the aim to enhance nutrition efficiency, abiotic stress tolerance and/or crop quality traits, regardless of its nutrients content. In the recent years, microalgae have rising increasing interest not only as biofactories to produce high value molecules but as part of sustainable agriculture. However, little is known about the effects of the interaction between microalgae and horticultural crops. In this context, we evaluated the biostimulatory effects of microalgae extract from a Chlorophyceae species on tomato plants growing at two salinity levels. The foliar application of microalgae based biostimulants at the two lower doses increased the yield and the fruit compared to untreated plants. In addition, the content of Na and Cl in leaf was significantly reduced. Net photosynthetic rate, stomatal conductance and transpiration rate were significantly affected in NaCl solution growing plants and treated by microalgae biostimulants. In conclusion, the green freshwater microalgae extract applied to NaCl stressed tomato plants has increased the tolerance to the stress salinity.