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ABSTRACT BOOK

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ARTHROSPIRA-BASED BIOSTIMULANTS AND THEIR EFFECTS ON DIFFERENT PLANTS

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ABSTRACT

In recent years, microalgae are emerging as excellent candidates for the production of biostimulants due to the high content of bioactives that positively affect plant growth and abiotic stress tolerance, and to the possibility of cultivating them in controlled systems, thus obtaining products with high and reliable quality compared to other feedstocks. However, a better standardization of the product does not necessarily imply a reproducibility of the effects on multiple plant species as, due to their metabolic diversity, different plants may have different sensitivity thresholds for the bioactive molecule(s). *Arthrospira* is one of the most studied microalgae for biostimulant production and several *Arthrospira*-based products are already on the market. In the present work, data obtained in several trials, in which extracts and hydrolysates prepared from the same *Arthrospira platensis* biomass have been applied to different plant species, are examined to detect differences in plant responses to treatments. The tested plants are among the most cultivated leafy (lettuce and basil) and fruit (tomato and vine) crops in Italy. Our results show that the effectiveness of the same *Arthrospira*-based biostimulant on plant yield varies in relation to the plant species and the doses applied and is enhanced in plants subjected to abiotic stress. This suggests that extensive agronomic studies are needed to deepen our basic knowledge of the effects of microalgae-based biostimulants on different plant species in order to enhance their biostimulant effects and develop tailored products adapted to specific crops and environments.

Keywords: Microalgae, biostimulants, *Arthrospira*, plant yield.

BIOGRAPHY



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BSc degree in 2013 in Agricultural Sciences and Technologies at the University of Florence. MSc degree in 2017 in Plant and Microbial Biotechnology at the University of Pisa. Since 2013 collaboration with F&M (Fotosintetica & Microbiologica S.r.l.) on isolation and characterization of microalgal and cyanobacterial strains and in the maintenance of the F&M algae culture collection. Currently Post-Doc Researcher at the Department of Agriculture, Food, Environment and Forestry (DAGRI) of the University of Florence, in the group led by Prof. Mario Tredici, working on the use of microalgae and cyanobacterial strains for the development of new biostimulants.