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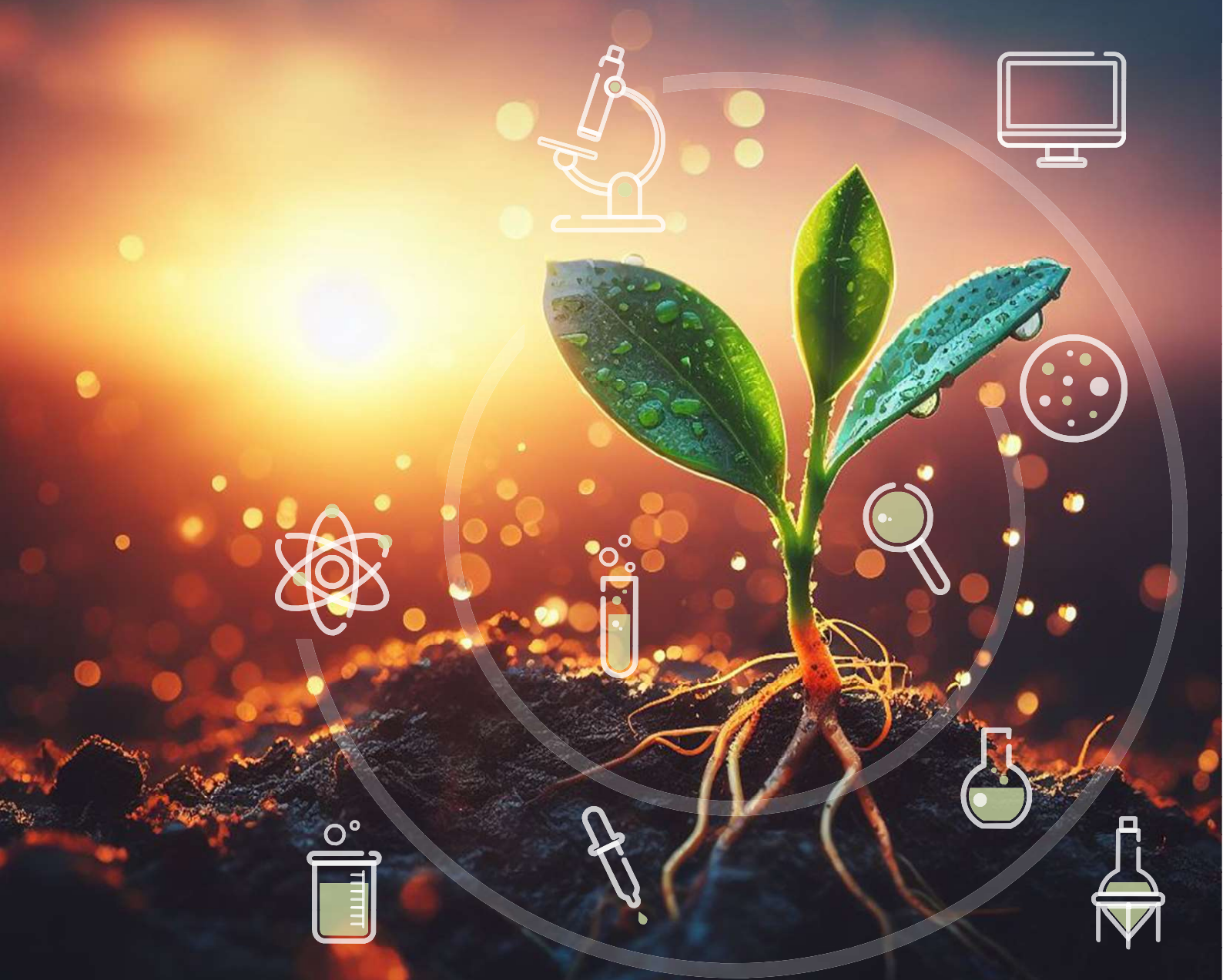

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How Can Microbial Resources Contribute to a Sustainable Agriculture and Food Security?

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Abstract

In the present work, it is discussed how microbial resources can contribute to sustainable agriculture and food security. For this purpose, contextualization of the importance of agriculture for human consumption and the need to have food for all will avoid, at the same time, the deterioration and greater segmentation of natural ecosystems. To achieve this ambition, it is discussed what roles microbial resources, preserved *ex-situ* in culture collections or *in-situ*, such as microbes-plants interactions (holobiontes) and soils microbiomes, play as well as in the participation in resolving, in part, the great societal challenges facing by the societies and the Earth. Alignments with the goals of sustainable development of the United Nations, as well as regional policies such as the "European Green Deal" serve as terms of reference to present possible solutions and paradigm shifts towards a more circular economy based on microbiological processes. The Microbial Resource Research Infrastructure (MIRRI) Strategic Research and Innovation Agenda for 2021-2030, with the *motto* of "microbial resources for a green, healthy and sustainable future", intends to anticipate major trends and opportunities for the valorisation of microbial resources and current examples will be given. It is concluded that the role of microorganisms and microbiomes is a treasure yet to be explored and that it is urgent to integrate them into innovative solutions for a brighter and sustainable future, including more intelligent and resilient agriculture activities, and food security.

Keywords: Food security; Intelligent and resilient agriculture; Microbial resources; Microbiomes; SDGs.

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