

Abstract

Bioproducts with Environmentally Low Input Suitable for Sugar beet [†]

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[†] Presented at the 19th International Symposium “Priorities of Chemistry for a Sustainable Development”, Bucharest, Romania, 11–13 October 2023.

Keywords: *Bacillus*; phytopathogens; *Beta vulgaris*

Introduction. Microbial strains can be used as raw materials in environmental bioremediation and in formulating bioproducts for agriculture [1–4]. One way to limit the effects on the environment generated by the use of synthetic pesticides in sugar beet culture consists of the use of microbial bioproducts.

Materials and methods. Microorganisms with the potential to be used for this purpose were selected from the sugar beet rhizosphere and tested in vitro and in vivo on two types of standardized phytopathogens: *Rhizoctonia* sp. and *Sclerotium* sp. [5–8]. The microorganisms that determined the highest in vitro inhibition rate of the two phytopathogens were characterized by sequencing the 16S RNA gene. In vivo tests were performed in the field on *Beta vulgaris* var. *saccharifera*.

Results and discussion. Molecular analysis showed that the microorganisms selected from the sugar beet rhizosphere belong to the genus *Bacillus*. The results obtained from in vivo tests with bioproducts made from the selected *Bacillus* strains showed that: (1) these can inhibit the effects of the diseases associated with the presence of *Sclerotium rolfsii* and *Rhizoctonia solani* up to 70%; (2) these can favor the development of sugar beet plants with an average value of 10%.

Conclusions. Certain microbial species selected from the sugar beet rhizosphere can be used to obtain bioproducts with properties of biocontrol and plant growth promotion, with low impact on environmental factors.

Author Contributions: Conceptualization, N.R. and R.Z.; writing—original draft preparation, N.R. and I.R.; writing—review and editing, R.Z., N.R., M.D. and C.M.; visualization, R.Z.; supervision, N.R. and R.Z.; project administration, N.R., R.Z. and M.D. All authors have read and agreed to the published version of the manuscript.

Funding: This work was funded by the Ministry of Research, Innovation, and Digitization, project PN 23.06.01.01, and funded by the Ministry of Agriculture and Rural Development Romania of project no. 5.1.6/17.07.2023.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data sharing is not applicable to this article.



Citation: Raut, I.; Radu, N.; Mincea, C.; Doni, M.; Zaharia, R. Bioproducts with Environmentally Low Input Suitable for Sugar beet. *Proceedings* **2023**, *90*, 4. <https://doi.org/10.3390/proceedings2023090004>

Academic Editor: Radu Claudiu Fierăscu

Published: 6 December 2023



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Conflicts of Interest: The authors declare no conflict of interest.

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