chemistry proceedings

MDPI

Abstract

The Influence of Strigolactone Analog and Mimetic on *Trametes versicolor* †

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† Presented at the Priorities of Chemistry for a Sustainable Development, PRIOCHEM—17th Edition, Bucharest, Romania, 27–29 October 2021.

Keywords: strigolactones; SL analogs; signaling molecules

Strigolactones (SLs) are apocarotenoids, belonging to carotenoid-derivative metabolites that include other phytohormones, signaling molecules, and volatile compounds [1]. The appearance of strigolactones can promote the development of fungi and the establishment of symbiosis (a "cry for help") [2]. In order to study the SLs' effect on biological processes, model compounds were designed and prepared. These SL analogs should have a simpler structure, but almost the same bioactivity as natural SLs [3]. In this study, we tested the bioactivity of a strigolactone analog and a new mimetic on the structural development of Trametes versicolor. We also tried to identify the influence of these SLs on phosphatase synthesis. For cultivation methods, we used a PDA medium following the standard procedure, which includes preparation, inoculation and an incubation at 28 °C. After 5 days, we observed the colony appearance of Trametes versicolor. We inoculated other plates with the selected strain on different media, which contain different solutions of SLs incorporated in agar medium. After 3 days, the developed fungal colonies were observed. The observations were focused on the diameter and number of hyphae. Statistical analysis was applied to the data using SPSS. Phosphatase activity was performed to determine the potential of Trametes versicolor to solubilize TCP on PVK agar supplemented with different concentrations of SLs. The responses of the tested fungal strain to compound SL mimic 5 were relatively similar to the response of GR24. For both controls (water and acetone agar), the formation of lateral branches was the same as in the treatments. The presence of these compounds in the culture media appears to slightly inhibit the growth of T. versicolor. The phosphate solubilization of T. versicolor had no activity, either in treatments or in control, after 3 days of incubation. Our results suggested that the SL mimic compound ha the same effect as GR24, with no effect on the structural development of the fungul strain. The selected strain was not capable of mobilizing TCP in PVK agar after 3 days of incubation.

Author Contributions: Conceptualization, I.-A.B. and F.O.; methodology, I.-A.B. and F.G.; software, B.T.; validation, B.T., I.-A.B. and F.O.; formal analysis, B.T.; investigation, I.-A.B., E.G. and F.G.; resources, F.O.; data curation, D.C.-A.; writing—original draft preparation, I.-A.B.; writing—review and editing, D.C.-A.; visualization, E.G.; supervision, F.O.; project administration, F.O.; funding acquisition, F.O. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the NO Grants 2014–2021, under Project RO-NO-2019 540 STIM 4+, contract no. 14/2020.

Institutional Review Board Statement: Not applicable.

Citation: Bala, I.-A.; Trică, B.; Georgescu, F.; Georgescu, E.; Constantinescu-Aruxandei, D.; Oancea, F. The Influence of Strigolactone Analog and Mimetic on *Trametes versicolor*. *Chem. Proc.* **2022**, *7*, 28. https://doi.org/10.3390/chemproc2022007028

Academic Editors: Mihaela Doni, Zina Vuluga and Radu Claudiu Fierăscu

Published: 8 March 2022

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

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

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