

Biological activity of culture filtrate of the fungus *Serendipita indica* in maize (*Zea mays* L.) and bean (*Phaseolus vulgaris* L.) seedlings

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Serendipita indica is an endophytic fungus with affinity for different kinds of plant species, it can be easily cultivated *in vitro*, is capable of promoting plant growth and protects against stress. Several studies have demonstrated that the use of exudates from microorganisms, present in the medium in which they were cultivated (culture filtrate), can also produce positive effects, which are similar to the use of live microorganisms. Therefore, the aim of this work was to evaluate the effect of *S. indica* culture filtrate on the germination and the initial growth of maize and beans seedlings. The fungus was cultivated in liquid Kaefer medium for 15 days, then the mycelium was separated from the filtrate using vacuum filtration and one part was autoclaved and the other was not. Maize and bean seeds were disinfested and germinated in Petri dishes, with germitest paper moistened with 15 mL of autoclaved and non-autoclaved filtrates, at concentrations of 0, 25, 50, 75 and 100%. Kaefer medium was used as a control treatment. The plates were kept at 25° C in a light chamber and after 7 days, the percentage of germination and the fresh weight of the shoot and root were analyzed. A significant increase in the fresh weight of the maize shoot was observed in all concentrations of the autoclaved filtrate, and only in the highest concentrations (75 and 100%) of the non-autoclaved filtrate. In relation to root height and fresh weight, a significant increase was found only in high concentrations of both filtrates. There was no significant difference in root length. In beans, it was observed that with the increase in the concentration of the culture filtrate, there was a reduction in all analyzed parameters, except in relation to height, at a concentration of 25% of the autoclaved treatment, which promoted a significant increase in relation to the control. The stimulus found may result from the release of compounds from the *S. indica* fungus such as hormones, proteins or enzymes. Furthermore, autoclaving may have caused the vaporization of compounds that have a low boiling point or the breakdown of long chains of amino acids, resulting in smaller chains that may have interacted more easily with the seedlings. Therefore, the culture filtrate of the *S. indica* fungus showed promising results only for maize seedlings, and can be used as a plant growth promoter, having potential importance for agriculture.

Key words: Endophytic fungus, biofertilizer, exudates, secondary metabolites.

Atividade biológica do filtrado da cultura do fungo *Serendipita indica*

O filtrado de cultura, obtido a partir do cultivo do fungo *Serendipita indica* em meio Kaefer líquido, possui potencial aplicação como biofertilizante. O objetivo desse estudo foi avaliar o efeito biológico do filtrado em plântulas de milho e feijão. Concentrações de 25, 50, 75 e 100%, do filtrado autoclavado e não autoclavado, foram adicionadas em placas de Petri contendo papel germitest e sementes desinfestadas. Após 7 dias, observou-se diferença significativa no peso fresco das plântulas (raiz e parte aérea) e altura do tratamento autoclavado (75% e 100%). Portanto, o filtrado possui potencial de promoção do crescimento vegetal.

Palavras-chave: Fungo endofítico, biofertilizante, exsudatos, metabólitos secundários.

Acknowledge: This work was developed having support from Fundação de Amparo à Pesquisa e Inovação do Espírito Santo (FAPES) (grants TO: 007/2020 #2020-QS1DC, TO: 620/2022 #2022-N195K, TO: 297/2022 #2022-8BWPT, TO: 1145/2022 #2022-KVWRWR and TO: 919/2022 #2022-PFNLZ). ACR's laboratory was supported by CAPES, Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ), and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) grants.