

Friend or foe: *Duddingtonia flagrans* conidia versus its crude proteolytic extract

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Using biological agents in pest management presents positive results very close to those obtained with agrochemical control, making the method viable and environmentally “friendly.” The nematophagous fungus *Duddingtonia flagrans* is a target of research in biological control due to its capacity for predatory action against nematodes. On the other hand, in biochemical control, proteases stand out for their ability to act in the catalysis of peptide bonds of proteins present in the nematode cuticle. Therefore, they are excellent targets in research, as they are fundamental in the fungal infection process. Faced with this scenario, this study aimed to evaluate the enzymatic action of the proteases produced by the fungus *D. flagrans* in controlling the model nematode *Panagrellus* sp. The fungus was isolated using the commercial product Bioverm® in Petri dishes containing Potato Dextrose Agar (BDA) in an oven at 25±1°C for seven days. Next, approximately 500 µL of a solution containing 10⁶ conidia/mL in 50.0 mL of liquid culture medium for enzyme production were added to flasks. After six days, the medium was filtered through Whatman No. 1 filter paper and centrifuged at 10,000 g for 10 min. The supernatant obtained was named cell-free crude extract. Five experimental groups were set: (1) one control group (G1) and (4) four treated groups – G2 – active crude extract; G3 – denatured crude extract; G4 – fungus, and G5 – fungus + active extract. Plates were incubated at 28 °C for 24 h, and then the larvae were recovered using the Baermann technique. The results were evaluated statistically using the t-test. A significant difference (p<0.01) was observed between the treatments (G2, G4 and G5) about the control (G1), presenting a percentage reduction of 52% (G2), 16% (G3), 46% (G4), and 77% (G5). There was no evidence of a significant difference between the control (G1) and denatured (G3) groups. The statistical evaluation also showed a significant difference (p<0.01) between the treatment (G5) and the treatments with active extract (G2) and *D. flagrans* (G4). This result corroborates the hypothesis that there was a “friendly” action between the *D. flagrans* fungus and its active crude extract, significantly increasing the nematocidal activity. Thus, in vitro compatibility between the fungus *D. flagrans* and its crude proteolytic extract is concluded, opening the door to further experiments in conditions closer to the field.

Palavras-chave: fungos nematófagos, *Duddingtonia flagrans*, extrato bruto proteolítico, atividade nematocida

Amigos ou Inimigos: Conídios de *Duddingtonia flagrans* versus extrato bruto proteolítico

Avaliou-se a ação concomitante do extrato bruto proteolítico com o fungo *Duddingtonia flagrans* sob *Panagrellus* sp. Foram montados 5 grupos experimentais: (G1) Controle, (G2) ativo; (G3) desnaturado; (G4) fungo e (G5) completo, incubados por 24h a 28°C. O teste t mostrou diferença significativa (p<0,01) entre os tratamentos (G2, G4 e G5) em relação ao controle (G1). Além de uma diferença significativa (p<0,01) entre o tratamento completo (G5) e os tratamentos com extrato ativo (G2) e *D. flagrans* (G4). Conclui-se a compatibilidade in vitro entre o fungo *D. flagrans* e seu extrato proteolítico bruto, abrindo portas para o avanço de maiores experimentos em condições mais próximas ao campo.

Keywords: nematophagous fungi, *Duddingtonia flagrans*, crude proteolytic extract, nematocidal activity

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