

**BEHAVIORAL RESPONSES OF
ROOT-KNOT AND RENIFORM NEMATODES
TO ALGINATE PELLETS CONTAINING
NEMATOPHAGOUS FUNGI**

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Abstract

The responses of *Meloidogyne incognita* race 3 (root-knot nematode) and *Rotylenchulus reniformis* (reniform nematode) to calcium alginate pellets containing hyphae of the nematophagous fungi, *Monacrosporium cionopagum*, *M. elliposporum*, and *Hirsutella rhossiliensis* were examined using cylinders (38-mm-id, 40 or 72 mm long) of sand (94% < 250 µm particle size). Sand was wetted with a synthetic soil solution (10% moisture - 0.06 bar water potential). A layer of 10 or 20 pellets was placed 4 or 20 mm from one end of the cylinder. After 0, 3, or 13 days, nematodes were put on both ends, on one end, or in the center; nematodes were extracted from 8-mm-thick sections 1 or 2 days later. All three fungal pellets strongly repelled root-knot second-stage juveniles (J2). Repulsion of the reniform nematode was less pronounced. Aqueous extracts of all pellets and of sand in which fungal pellets had been incubated were repellent, but acetone extracts redissolved in water were not. Freeze-dried aqueous extracts retained repellency, indicating the active component(s) was highly polar or ionic and non-volatile. The primary ionic species present in the aqueous extract were Ca⁺⁺ and Cl⁻; these ions were not significantly repellent at the concentrations measured within extract. Injection of CO₂ (20 µl/minute) into the pellet layer attracted J2 and increased fungal-induced mortality, indicating that attractants can be used to increase biological control efficacy.