ISSN 1517-6770

Revista Brasileira de
ZOOCIÊNCIAS
8(2): 212, dezembro 2006

Estudo da ecologia da infecção de nematóides entomopatogênicos *Heterorhabditis riobravus* e *Steinernema carpocapsae* (Rhabditida, Heterorhabditidae, Steinernematidae) em *Alphitobius diaperinus* (Coleoptera, Tenebrionidae)

Júlio César Rocha Costa[1] & John Furlong[2]

[1] *Programa de Pós-Graduação em Ciências Biológicas: Comportamento e Biologia Animal, Universidade Federal de Juiz de Fora, MG.costajcr@pop.com.br*
[2] *Orientador, Embrapra Gado de Leite.john@cnpgl.embrapa.br*

Abstract. Study on the infection ecology of the entomopathogenic nematodes *Heterorhabditis riobravus* e *Steinernema carpocapsae* (Rhabditida, Heterorhabditidae, Steinernematidae) on *Alphitobius diaperinus* (Coleoptera, Tenebrionidae). The bird confinement system is a solution for many problems, but it causes others, such as the propagation of diseases and the accumulation of organic matter (feces). The coleopteran *Alphitobius diaperinus* (Panzer, 1797) is one of the most common plagues on farms of cut, provoking great sanitary and economical problems. So, the present work had the main objectives: determine the virulence of NEPs to larvae, pupa and adults of *A. diaperinus* in three different kinds of substrata in laboratory; evaluate the infection and consequent host death, relating it to its respective dosages and lethal periods; determine the average production of the NEP species inside the larvae of *A. diaperinus* and *G. mellonella*, and, finally, demonstrate the possible changes of some morphometric aspects of the youthful infectives emerging from each host species. The results indicated that both *H. riobravus* and *S. carpocapsae* presented potential to infect all of the development stages of *A. diaperinus* analized; and that the I Js of *S. carpocapsae* were more efficient against larvae and adults of *A. diaperinus* than the I Js of *H. riobravus.* When we compare the treatments with the two species of nematoids constituted of adult individuals in the sawdust + ration substratum, we verify that the DL_{50} and DL_{90} of I Js of *S. carpocapsae* corresponded respectively to only 54,18% of DL_{50} and to 40,34% of DL_{90}, found for the treatment involving the nematoid of the species *H. riobravus*. About *A. diaperinus* larvae and the nematoids *H. riobravus*, the lowest TL_{50} (1,1598 day) and TL_{90} (1,9782 day) were observed in the earth substratum, whose inoculum was the highest dosage applied to this stage (1.600 I Js). The same occurred in the treatments involving pupa. Of all the treatments involving the *A. diaperinus* larvae and *S. carpocapsae*, the lowest TL_{50} and TL_{90} registered were observed in the earth substratum, in the inoculum of 200 I Js. The same also happened in the treatments which involved adult individuals exposed to 800 I Js of *S. carpocapsae*, in the same kind of substratum. There was a significant difference between the production averages of the I Js of the two species of NEPs obtained from the larvae of *G. mellonella*. As to the production averages registered for the two species of nematoids, using the *A. diaperinus* larvae as host, significant differences were not observed between them. From the averages of CCT (total body length) and of LCT (total body width) of the I Js of *H. riobravus* and *S. carpocapsae*, multiplied in both host species, significant differences were observed between them. Thus, the anatomic characteristics of the host species, analyzed as a "resource" for the parasite, may provoke considerable morphometric changes in their populations.

Keywords: substrata, lethal dosage, lethal periods, multiplication, morphometry.