

**PATHOGENICITY, REPELLENCY, AND PERFORMANCE OF
STEINERNEMA CARPOCAPSAE FOR GERMAN COCKROACH
POPULATION MANAGEMENT**

A. G. APPEL AND E. P. BENSON

Department of Entomology, Auburn University, Auburn, Alabama U.S.A.

Nematode, *Steinernema carpocapsae* (Weiser), impregnated pads enclosed in a moisture retaining station were evaluated in field and laboratory experiments with the German cockroach, *Blattella germanica* (L.). In continuous exposure tests without harborage, LT₅₀s ranged from 2.06 to 12.64 d for 0.5×10^6 nematodes and 10^6 nematodes, respectively. LT₅₀s determined with Ebeling choice boxes were 2.5- to 8.4-times greater than those from the continuous exposure tests. Relative repellency, measured as the mean percent of live cockroaches in the light side of the choice box, was greatest for stations with 0.5×10^6 nematodes (6.65%) and least (3.70%) for stations containing 2×10^6 nematodes. A performance index (PI) that combined choice box repellency and mortality data indicated that stations containing 2×10^6 nematodes had the greatest potential for field effectiveness. Laboratory studies were also conducted to determine the degree of vertical transmission of nematodes from females through the ootheca to the developing embryos. Fully formed ootheca were not penetrated by nematodes while attached to the female or when removed. Incompletely formed oothecae were, however, penetrated by the nematodes and the eggs or embryos killed. In 1991 and 1992 field studies in infested apartments, stations containing 2×10^6 nematodes significantly reduced German cockroach trap catch in infested apartments.