EXPERIMENTAL INFECTION OF BEDFORD'S GRAY RED-BACKED VOLE WITH *TRICHOSTRONGYLUS AXEI*

Kazuhiro TAKIMOTO

Department of Parasitology,
Faculty of Veterinary Medicine,
Hokkaido University, Sapporo 060, Japan

The susceptibility of Bedford's gray red-backed vole, *Clethrionomys rufocanus bedfordiae*, and the large Japanese field mouse, *Apodemus speciosus ainu*, to *Trichostrongylus axei*, a nematode parasite of ruminants was investigated and compared with that of the Mongolian gerbil, *Meriones unguiculatus*. The gerbil is known to be able to serve as a laboratory host for *T. axei*. The influences of host sex and age, and the gastrointestinal helminth fauna of *C. rufocanus bedfordiae* on the establishment, growth and reproduction of *T. axei* were also analyzed. It was found that *A. speciosus ainu* was refractory to *T. axei* infection. In contrast, the establishment and growth of *T. axei* in *C. rufocanus bedfordiae* was found to be as good as that in the gerbil. Gravid female worms were recovered from the stomach of *C. rufocanus bedfordiae* 21 days after infection with 1,000 third stage larvae of *T. axei*. However, a very low recovery rate (0–6.0 %) was observed in *C. rufocanus bedfordiae* and few worms were recovered after day 21 post-infection. Excretion of *T. axei* eggs in the feces of *C. rufocanus bedfordiae* was transient.

No significant difference in the intensity of *T. axei* infection was seen between hosts of different sex and age, but the individual parasitic burden varied remarkably. Greater numbers of *T. axei* larvae, adult worms and gravid female worms were recovered from animals with concurrent infection with gastrointestinal helminths such as *Trichuris* sp. and *Heligmosomum* sp. This finding suggests that priming by *Trichuris* sp. and *Heligmosomum* sp. may help in the establishment of *T. axei* in *C. rufocanus bedfordiae*.