

Nematodes of the Cockroach

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Leidynema appendiculata and *Hammerschmidtella diesingi* are common parasites of the American cockroach, *Periplaneta americana*. They are easily teased from the hindgut, are large enough (2 mm), to see with the unaided eye, and are excellent specimens for examining internal anatomy. Demonstrating their presence to students adds an interesting dimension to the study of cockroaches in a zoology laboratory, provides a context in which to discuss symbiosis, and introduces the subject of human parasitism since these nematodes are oxyuroid relatives of the human pinworm, *Enterobius vermicularis*.

After anesthetizing the cockroach by cooling, remove the head, legs, and wings. Open the abdomen and expose the digestive tract in a dissecting dish containing insect saline. Remove the section of the tract between the gizzard (which is easily recognized) and the anus, and place it in a watch glass of saline. Tease open the hindgut and observe with a stereoscopic microscope. Nematodes will be readily visible as they migrate out of the gut. By placing the nematodes on a microscope slide, adding a coverslip, and examining with a compound microscope, internal anatomical features are readily seen.

A list of several older references which provide diagrams of these nematodes along with three recent articles are:

- Adamson, M. L., A. Buck, and S. Noble. 1992. Transmission pattern and intraspecific competition as determinants of population structure in pinworms (Oxyurida: Nematoda). *Journal of Parasitology*, 78:420–426.
- Adamson, M. L. and S. Noble. 1992. Structure of the pinworm (Oxyurida: Nematoda) guild in the hindgut of the American cockroach, *Periplaneta americana*. *Parasitology*, 104:497–507.
- . 1993. Interspecific and intraspecific competition among pinworms in the hindgut of *Periplaneta americana*. *Journal of Parasitology*, 79:50–56.
- Cheng, T. C. 1973. *General parasitology*. Academic Press, New York, 965 pages.
- Chitwood, B. G., and M. B. Chitwood. 1974. *Introduction to nematology*. University Park Press, Baltimore, Maryland, 334 pages.
- Smyth, J. D. 1976. *Introduction to animal parasitology*. Halsted Press, John Wiley and Sons, New York, 466 pages.