Serodiagnosis of *Parelaphostrongylus tenuis* and *Elaphostrongylus cervi* in red deer (*Cervus elaphus*)

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The development of a serodiagnostic test for deer protostrongyle nematodes is a direct response to the ban imposed on the import of red deer (*Cervus elaphus*) into Canada from New Zealand and the perception that such deer may be infected with *Elaphostrongylus cervi*, a worm that has not been reported from mainland Canada. Because *E. cervi* is closely related to *Parelaphostrongylus tenuis*, a worm common in white-tailed deer (*Odocoileus virginianus*) in New Brunswick, this latter species was used initially to develop the protocol for a sensitive and reliable serodiagnostic test using an enzyme-linked immunosorbent assay (ELISA).

Adult *P. tenuis* were homogenized in 0.01 M phosphate-buffered saline. The solution was centrifuged and the supernatant, containing the soluble proteins, was retained for use as the antigen. Serum from white-tailed deer, known to be infected with *P. tenuis* (adult worms being recovered from the meninges of the brain), was tested with the antigen prepared above and all showed high absorbency readings between 1.4 and 1.9 at 405 nm using an ELISA. Serum from five fawns, reared in captivity without any opportunity to become infected with *P. tenuis*, was also tested and gave low readings between 0.1 and 0.3. The remaining two fawns were each experimentally infected with 20 *P. tenuis* L3. Serum was tested at three intervals in the eight months prior to infection and gave low readings. Post-infection readings remained low (0.3) until 75 dpi when the readings increased (1.4) indicating the presence of worm-specific antibody in the infected animals. Three guinea pigs were also experimentally infected with 20 *P. tenuis* L3. Using the ELISA above, only one showed a positive test result and one sub-adult *P. tenuis* was recovered from the animal at necropsy. No worms were found in the other guinea pigs at necropsy.

Red deer (42) and guinea pigs (15) have been variously infected with *E. cervi, Muellerius capillaris* and *Dictyocaulus viviparus* to determine the degree of cross-reaction and, by using the Western blot technique, to identify proteins specific to *E. cervi* alone. These will be used to develop not only a sensitive serodiagnostic test, such as has been developed for *P. tenuis*, but also a specific serodiagnostic test for *E. cervi*. The results to date are promising but the work is not yet complete.