

The occurrence of protozoan parasites *Neospora caninum* and *Toxoplasma gondii* in raccoons (*Procyon lotor*)

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Neospora caninum and *Toxoplasma gondii* are closely-related obligate tissue-dwelling Coccidian parasites of medical and veterinary importance. However, their life cycles involve different definitive carnivorous hosts: felids for *T. gondii*, and dogs, dingoes, coyotes and grey wolves for *N. caninum*. Both parasite species can use a wide range of intermediate hosts. The raccoon is the largest of the procyonid family, it has a body length of 40 to 70 cm and a body weight of 3.5 to 9 kg. The original habitats of the raccoon are deciduous and mixed forests, but due to their adaptability they have extended their range to mountainous areas and coastal marshes. Raccoons come from North and Central America. The animals have been imported to Europe as fur-bearing animals, but have since spread across Europe due to escapes and deliberate introductions. Until now, the presence of *N. caninum* and *T. gondii* in raccoons has not been confirmed in Europe. Presented study was undertaken to determine the occurrence of these parasites in raccoons using immunological and molecular methods. The samples (muscle fluid and brain) were collected in 2015 from 33 raccoons. Seventeen samples were collected from the Czech Republic and 16 from Poland. Commercially available ELISAs were used to detect anti-*Neospora* and anti-*Toxoplasma* antibodies in muscle fluids. Molecular analysis was carried out on DNA extracted from brain tissue using specific primers TGR1E1/TGR1E2 to amplify the 191bp region of *T. gondii* DNA. The Np6/Np21 primers were used to amplify the 337 bp DNA fragment for *N. caninum* detection.

Immunological tests found that antibodies to *N. caninum* were detected in 12.1 % (4/33). Three positive samples were obtained in Czech Republic and one in Poland. Anti-*T. gondii* antibodies were detected in 6.1% (2/33) of examined samples. Both positive samples came from Poland.

PCR confirmed the presence of *T. gondii* DNA in 11 of 32 examined animals. Five animals were obtained from Poland and six from the Czech Republic. PCR did not confirm the presence of *N. caninum* in any of the analyzed samples. The presence of *T. gondii* was confirmed by both methods in only one raccoon. Although the number of animals used in the study was not large, the results indicate that both parasites are present in raccoons. Future studies are recommended on a larger number of this animal species, which will provide more accurate results on the prevalence of both parasites in raccoons.