

Infection risk from dog feces in Switzerland: *Neospora caninum* and other intestinal apicomplexan parasites

Heinz Sager¹, Christine Steiner Moret¹, Norbert Müller¹, Daniela Staubli¹, Marco Esposito¹, Gereon Schares², Michael Hässig³, Katharina Stärk⁴, and Bruno Gottstein¹

¹Institute of Parasitology, Vetsuisse Faculty, University of Bern, Switzerland

²Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Wusterhausen, Germany

³Vetsuisse Faculty, University of Zurich, Switzerland

⁴Swiss Federal Veterinary Office, Switzerland

Abstract

The protozoan parasite *Neospora caninum* is one of the most important abortifacient organisms in cattle worldwide. The dog is known to act as definitive host although its potential role as infection source for bovines still remains to be elucidated. In the present study, 249 dogs were coprologically investigated in monthly intervals over a period of one year. A total of more than 3'000 fecal samples was tested by the flotation technique. Among these *Sarcocystis* sp. (6.1%), (*Cysto*)*Iso*spora sp. (4.5%) and *Hammondial/Neospora*-like oocysts (0.7%) were the most prominent protozoan parasites. Calculation of the yearly incidence for *Hammondial/Neospora*-like oocysts resulted in the surprisingly high value of 9.2%. Farm dogs exhibited a significantly higher

incidence for these parasite stages than urban family dogs. Further differentiation by species-specific PCR gave negative results for *N. caninum*, *Hammondia heydorni* and *Toxoplasma gondii* in all *Hammondial/Neospora*-like oocyst-containing samples. One reason may be the low oocyst density found in most fecal samples, which did not permit to carry out PCR under optimal conditions.

In the *Neospora*-ELISA a seroprevalence of 7.8% was determined using more than 1'000 serum samples collected from dogs randomly selected by veterinarians among their clinical patients. Again, farm dogs exhibited a significantly higher prevalence than urban family dogs. Although the seroprevalence can not be correlated with intestinal infection, it appears as indicator for frequent exposition to the parasite.