

CANINE GEOHELMINTHS IN DIGANA AND PUSSELLAWA AREAS IN KANDY DISTRICT: INVESTIGATION WITH SPECIAL REFERENCE TO ANCYLOSTOMA SPP.

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Geohelminths are intestinal parasitic worms that infect humans and animals and are transmitted through contaminated soil. The prevalence of geohelminths is higher in tropical and sub-tropical regions due to favourable soil temperature and soil moisture conditions. Zoonotic geohelminths in domesticated animals like dogs and cats can cross the species barrier to infect humans by ingesting eggs or penetrating infective larvae. The objective of the present study was to investigate geohelminths in dog faeces contaminating the soil in Digana and Pussellawa areas in the Kandy District, with particular reference to *Ancylostoma* spp., taking soil temperature variations into account. Faecal samples collected from free-roaming dogs in Digana (n=22) and Pussellawa (n=22) town areas were analysed using the modified salt flotation technique followed by microscopy and molecular analysis. Soil temperature data from the sampling sites were also collected simultaneously during sample collection using a soil thermometer. Of all dogs sampled, 93.2% were positive for geohelminths. Eggs of *Ancylostoma* spp., *Strongyloides* spp., and *Toxocara canis* were identified from both locations. *Toxascaris* spp. and *Trichuris* spp. were only observed in Digana, whereas *Capillaria* spp. and *Uncinaria* spp. were observed only in Pussellawa. Prevalence and faecal egg counts (FECs) of geohelminths were considerably higher in Digana (28-31 °C) compared to that in Pussellawa (18-21 °C). *Strongyloides* spp. had a significantly high prevalence (40.9%, p=0.004) and FEC (8.015±20.2, p=0.006) in Digana compared to Pussellawa (prevalence=4.5%; EPG=0.455±2.1). *Ancylostoma* spp. reported the highest overall prevalence of 93.2% and the highest overall FECs (115.6±145.4). Amplicons (*ITS1-5.8S-ITS2*) of the expected size for *A. caninum* (427 bp), *A. tubaeforme* (170 bp) and *A. ceylanicum* (268 bp) were produced from five, seven and one of the samples analysed, respectively. This signifies the first molecular identification of *A. ceylanicum* and *A. tubaeforme* in dogs in Sri Lanka, although both species were detected in humans earlier. These findings suggest that free-roaming dogs in Digana and Pussellawa can be a source of zoonotic helminthiasis in urban communities. The low soil temperatures in Pussellawa may affect the development of infective larvae in the soil, thereby reducing the prevalence of zoonotic helminthiasis among free-roaming dogs.

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