

Detection of *Giardia intestinalis* DNA in environmental water and soil samples collected from the Pomerania Province and the Warmia-Masuria Province, Poland using Real-time PCR and nested-PCR

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Giardia intestinalis is a cosmopolitan protozoan parasite frequently involved in human parasitic gastroenteritis throughout the world. Transmission of the *G. intestinalis* cysts to humans occurs mainly by ingestion of contaminated water. So far, epidemiological data from Poland concerning occurrence of this parasite in the environment is fragmentary.

The aim of the study was to estimate occurrence of the DNA of *G. intestinalis* in environmental samples of water and soil collected in the period 2012–2014 from the provinces of Pomerania and Warmia-Masuria, Poland.

In total, 187 samples were investigated, including 140 soil samples originated from kitchen gardens, yards and sand-pits and 47 water samples from surface water reservoirs and wells. Dispersive forms of parasites were recovered from collected material using flotation with ZnSO₄ solution (soil samples) followed by filtration with an Envirochek capsule filter (water samples). For specific detection of *G. intestinalis*, Real-time PCR and nested-PCR assays based on the 18S rRNA gene of *G. intestinalis* were used. The DNA of *G. intestinalis* was found in 16/140 (11.4%) and 7/140 (5 %) soil samples using Real-time PCR and nested-PCR, respectively, and in 3/47 (6.38 %) water samples using both methods.

The results of this study indicate that both investigated environmental matrices, water and soil, are contaminated with the DNA of *Giardia intestinalis*, which shows a potential threat for humans.

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