

Genetic diversity of *Blastocystis* spp. in the human population of the Olsztyn area

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Blastocystis is a common unicellular enteric protist of human and non-human hosts. It can be found in both healthy and symptomatic humans throughout the world. Currently, 17 subtypes (STs) have been described, with ST1–ST9 infecting humans. The aim of the study was to determine the prevalence of *Blastocystis* subtypes a population in the Olsztyn area, and to compare the sensitivity of microscopy, PCR and ELISA methods.

A total of 259 stool samples were collected from volunteers in Olsztyn and analysed at the laboratory in the Department of Medical Biology. The volunteers completed anonymous questionnaires pertaining to their social status, health condition, and other factors. Samples were divided into three parts: 1) directly from each fresh stool sample, a wet mount with Lugol's iodine staining was prepared for microscopic detection of *Blastocystis*; 2) the second part was fixed in SAF and the *Copro*ELISA *Blastocystis* test was used for the detection of *Blastocystis* antigen in the human fecal sample; 3) the third part was fixed in 70% ethanol for PCR analysis using *Blastocystis*-specific primers targeting the SSU rDNA gene. DNA sequences were analyzed and edited using FinchTV.

From 259 fecal samples, only 17(6.6%) were identified as *Blastocystis* positive by microscopy. According to the *Copro*ELISA *Blastocystis* test 67(25.8%) of 259 samples contained parasite antigens. Of these 67 samples, only 31(46%) were positive by PCR. *Blastocystis* DNA was found in 31(12%) persons. *Blastocystis* occurred mostly in women (25/31[81%]), in persons living in urban areas (21/31[68%]), and in individuals aged 41–60 years old (13/31[42%]). Among *Blastocystis*-positive samples, six subtypes were found: ST1, ST2, ST3, ST4, ST6, and ST7. The most prevalent subtypes were ST3 (10/31[32,2%]) and ST1 (9/31[29%]). ST6 and ST7 occurred in only 1 and 2 persons, respectively. The molecular method appeared to be the most sensitive and specific in determining the presence of *Blastocystis*. This work is the first molecular study and subtyping of *Blastocystis* in Poland.