

## **A modification of existing methods of sample collection in the fungal analysis of water**

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Multiannual water analyses for fungi have invariably indicated the presence of microfungi in surface waters used for bathing. Existing methods of water sample collection are based on the isolation, counting and identification of microfungi comparable to microbiological studies conducted simultaneously and in co-operation with the Provincial Sanitary and Epidemiological Station in Olsztyn.

The modified method was used in a recent study of bathing water from four lakes found within, and to the south, of Olsztyn. Samples were taken twice a month, from July to September 2015. A single water sample was 20 L. In total, 24 samples were collected: six samples from each water body. The filtration and concentration of surface water was conducted in co-operation with the Municipal Institute of Hygiene of the National Institute of Public Health, National Institute of Hygiene, Warsaw. The analysis was conducted according to ISO 15553:2006, using a Filta-Max xpress (IDEXX) automated elution station. Following centrifugation, a sample of 10 mL was obtained, of which 1 mL was later subject to analysis for fungi. From each such sample, 100 µL was transferred into Sabouraud broth, and five drops were collected (20 µL, 'one drop method') and planted into Sabouraud agar. The macrocultures were then incubated at a temperature of 37° C for 24–72 hours. During the second day of incubation, microfungi appeared in 13 out of 24 drops. Both yeast-like fungi (eight drops) and molds (five drops) were found.

Further diagnostics were carried out according to standard methods used in laboratories specializing in fungal analysis. Microscopically, the isolated yeast-like fungi showed changes in the pseudomycelium cell structure. The water sample collection method presented here is accurate and offers reliable results, providing low filtration pressure is used to maintain cell viability.