



Detection, Enumeration and Viability Evaluation of Giardia Cysts in Water Samples Using Flow Cytometry

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Abstract:

Giardia lamblia is a protozoan parasite known to be an important waterborne pathogen. The faeco-oral transmission of the parasite leads to the presence of its cysts in the environment. *Giardia* cysts are abundant in surface water worldwide. Knowledge of the prevalence of *Giardia* cysts in water resources is important for controlling its transmission. The present study was designed for detection of *G. lamblia* cysts, its seasonal variability, count and viability assessment in water supplies of Assiut University Hospitals and Faculty of Medicine; using flow cytometry. Forty eight water grab samples (20 liter per sample) were collected from water supplies of the faculty and hospital's buildings from inlet, outlet and tanks during winter and summer 2014. All water samples were subjected to filtration, elution and concentration followed by flow cytometry. *G. lamblia* cysts were detected in 14 water samples with detection rate of 29.2%. The highest rate of positive samples was recorded in winter. The mean cysts number was 1066.3 cysts/L in summer and 837.1 cysts/L in winter. The percent of viable *G. lamblia* cysts reached 6.2% in summer and 5.75% in winter with insignificant difference. The results of the present study reflected the need for more efficient methods adapted by the water treatment facilities in this locality for controlling the quality of drinking water. The results demonstrated the benefit of flow cytometry as a rapid and simple method for evaluation of *Giardia* cysts in water samples

Keywords:

Giardia cysts, Water, Flow cytometry, Egypt.

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