

Filamentous fungi occurrence in free water and biofilms from drinking water storage tanks

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In some regions of Brazil, especially where the water is scarce, drinking water is stored in water storage tanks. This practice gives the consumer the guarantee of available water. The water storage conditions such as the exposure to hot weather when the tanks are on rooftops allow the development of microorganisms and microbial biofilms which can deteriorate the water quality and increase the risk to human health [1,2]. This study describes the filamentous fungi (FF) detected in free water and biofilms in drinking water storage tanks in Recife - Pernambuco, Brazil. Five sampling times in triplicate were performed at two distinct points. Colony-forming units (CFU) of FF fungi were determined with 0.45 µm filtration membranes using peptone glucose rose Bengal agar (PGRBA). From the 30 samples analysed a total of 1136 CFU were obtained. The water biofilms were collected from samplers consisting of polyethylene coupons, previously installed in the reservoirs. These coupons were transferred to PGRBA plates and incubated using with the same conditions described for free FF. For the in situ detection of FF in biofilms the Calcofluor White staining technique was used. This procedure demonstrated FF forming biofilms on the surfaces of the coupons. Brazilian legislation does not define limits for FF in drinking water. However considering the potential risk of fungal contamination, the data obtained in this study will contribute to developing future quantitative and qualitative parameters for the presence of fungi in drinking water distribution systems in Brazil.

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