

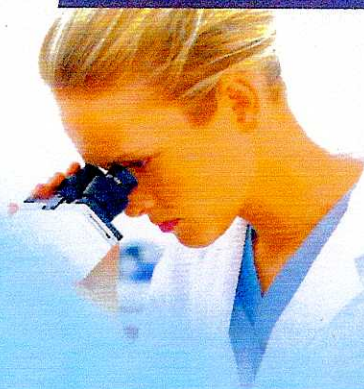
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FILAMENTOUS FUNGI IN DRINKING WATER IN RELATION TO BIOFILM FORMATION

V.M. Siqueira¹, H.M.B. Oliveira², **C. Santos**¹, R.R.M. Paterson¹, N.B. Gusmão², N. Lima¹

¹*IBB- Biological Engeneering Centre, Universidade do Minho, Braga, Portugal,* ²*Department of Antibiotics, Federal University of Pernambuco, Centre of Biological Sciences, Recife, Brazil*

The presence of filamentous fungi in drinking water has become a worthy area of investigation with various studies now being published. The problems associated with fungi remain blockage of water pipes, organoleptic deterioration, pathogenic fungi and mycotoxins. Fungal biofilm formation is a less developed field of study. It is essential to identify the isolated fungi to species which still is not done in some recent publications. We present what is known about fungi in drinking water and describe a novel system for studying fungi in biofilms established in Brazil. This involves a system where the biofilms are established in situ and can be observed directly. A system of coupons placed in sections of water pipes are employed and fungi present are observed directly within the biofilm. The devices can be employed to

- (1) mimic the real conditions of the water network and yet be straight forward to insert and handle,
- (2) be convenient for transportation and storage,
- (3) maintain the integrity of biofilms and
- (4) allow in situ analyses of the biofilms.

Fluorescence microscopy provides information on cell morphology metabolism and phylogeny. Data concerning biofilm matrix structure and architecture are provided when used in conjunction with fluorescent molecular probes. The suitability of Calcofluor White MR2 (CW) staining for morphological characterisation, FUN1 for viability and Fluorescent in situ Hybridization (FISH) for diversity studies were investigated. Some extraordinary images of the fungi were obtained using fluorescent microscopy. Further recommendations for standard methodology are provided.