

Development of a computer visualization program for the taxonomic identification of Free Living Amoebas (FLAs).

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Free Living Amoebas (FLA) are unicellular eukaryotic microorganisms belonging to the Kingdom Protista widely found in nature, but which, despite most of them living freely in the environment, they have some facultative opportunistic parasite genera, such as *Naegleria* spp. and *Acanthamoeba* spp. causing infections associated with the Central Nervous System (CNS) whose rapid progression leads patients to death in a short period of time. Morphological analyzes carried out today are not optimized, based on microscopic identification with the taxonomic guide Page (1988), which hinders the efficient classification of the samples. Therefore, we are developing a computer visualization program based on taxonomic keys described on the Page's guide to be available to the community for future taxonomic identification of FLA. The morphological characteristics of the different amoebas are ordered for the creation of a software for multidimensional data visualization based on parallel coordinates, called Page's Visualization Tool (PVT).

In parallel to the PVT development, we have investigated the presence of FLA species along 5 sites of the Rio Monjolinho in the city of São Carlos, SP employing molecular techniques and phylogenetic classification of the sequenced rDNA target gene fragments.

The limnological analysis identified the impact of urbanization on the water course. The coupled molecular and morphological based methodology enabled us to obtain an appropriate FLA description in which pathogenic (*Naegleria*, *Acanthamoeba* and *Vermamoeba*) and non pathogenic (*Filamoeba*, *Vanella*, and *Stenamoeba*) genera were

isolated and characterized. Thus, it has been possible to obtain an environmental overview of the dispersion of these microorganisms in the region, contributing, together with the PVT, to the optimization and complementation of future research on the subject.