STALKED PROTOZOA IDENTIFICATION BY IMAGE ANALYSIS AND MULTIVARIABLE STATISTICAL TECHNIQUES

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Protozoa are considered good indicators of the treatment quality in activated sludge systems as they are sensitive to physical, chemical and operational processes. Therefore, it is possible to correlate the predominance of certain species or groups and several operational parameters of the plant. This work presents a semi-automatic image analysis procedure for the recognition of the stalked protozoa species most frequently found in WWTP by determining the physical, morphological and signature data and subsequent processing by discriminant analysis and neural network techniques. Physical descriptors were found to be responsible the largest identification ability and the crucial *Opercularia* and *V. microstoma* micro-organisms identification provided some degree of confidence to establish their presence in WWTP.