

PHYTOPLANKTON SURVEY OF “BARRINHA” LAGOON (MIRA –PORTUGAL)

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Abstract

This work reports a one year survey (October 2008 to October 2009) where limnology and plankton data from Barrinha lagoon (Mira-Portugal - 40° 27' 22" N, 8° 48' 7" W) were analyzed. This lagoon shows peculiar geochemical features being one of the few places in Portugal where the freshwater bivalve *Anodonta cygnea* can be found. This study consisted on monthly collections of water samples, with identification and quantification of the planktonic communities found in the water. Physical-chemical parameters of the water were also analyzed (temperature, dissolved oxygen, conductivity, pH, nitrites, nitrates, ammonia) as well as organic and inorganic particles and bacteria in the water. The importance of plankton and of phytoplankton in particular is unquestionable; it is the base of the food chain, source of oxygen and can also be used as bio-indicator of water quality. A total of 75 taxa of plankton were identified in the water samples, being 71 of phytoplankton and 4 of zooplankton. The most abundant taxon was Chlorophyceae with 30 taxa (abundances vary from 25% to 75%), then by Bacillariophyceae with 20 taxa (abundances vary from 10% to 75%), followed by the Cryptophyceae represented dominantly by only one genus the *Cryptomonas* (abundances vary from 10% to 35%) and Cyanophyceae 10 taxa (which reach up a maximum of 7.5% of total abundances of phytoplankton). Among the zooplankton, that was always very scarce, the Protozoa were the main group found. In term of physical-chemical parameters of the water the data were quite uniform except in the end of summer, in this period the lagoon begins to show some signs of eutrophication: decay of nutrients concentration, organic and inorganic particles, followed by oxygen depletion, which favours a simple algae to growth (*Cryptomonas*) in detriment of all other species of plankton, that in this period reach its minimums. *Escherichia coli*, Enterococci and total aerobic mesophilic (TAM) microorganisms were identified and quantified in the water, their abundances change throughout the year, their occurrence are human correlated and they give a good scenario about the water quality in the habitat.