

The microalgae strain bank ATHU-AL at the University of Athens (NKUA)

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Microalgae and especially nanoplankton algae constitute one of the most important primary production components in all aquatic ecosystems. Lagoons, transitional ecosystems, and extreme aquatic habitats contain a unique set of diverse physical-chemical characteristics that affect the composition of the indigenous bio-communities. Microalgae from such environments show remarkable adaptability within a range of environmental conditions (e.g., salinity, temperature, and light), which in turn affect algae taxonomy and ecology. We present the process that was used to isolate, identify, and live preserve strains that belong to microalgae species of taxonomic, ecological, and commercial interest from coastal areas of Greece. More than 100 strains have been isolated and preserved as small-scale cultures in a strain bank under the name ATHU-AL that is housed in the Department of Ecology and Systematics, Faculty of Biology (University of Athens, NKUA). The preserved strains include

representatives of the classes Chlorophyceae, Chlorodendrophyceae, Bacillariophyceae, Trebouxiophyceae, and Haptophyceae that were collected from several locations (e.g., Messolonghi, Epirus, Saronikos Gulf, and Samos Island), and also cyanobacteria from some extreme habitats in Greece, including caves and thermal springs. All of the strains were isolated by applying micropipette single-cell isolation and/or multiple dilution and are maintained in small-scale unialgal cultures, in steady conditions culture chambers. The strain bank cultures are renewed on a monthly basis under sterile conditions in order to serve as a live stock for species identification purposes under a polyphasic approach, using both classic and modern (e.g., molecular and biochemical) techniques. The strain bank ATHU-AL is being enriched constantly, allowing not only taxonomic and phylogenetic studies on selected algal strains, but also applied phycology research and potential commercial applications development.