

## “Construction and optimization of immobilizer cellbioreactor for treating edible olive waste water”

The environmental pollution is a constant threat, which unfortunately causes great concern for the consequences to the ecosystem.

The continuing global increase of population in combination with the constantly evolving industrialization, led to ecological imbalance and to gradual degradation of our natural resources. The biggest victim of this ecological imbalance, might be the water.

Special attention has been given to the industrial wastewaters, which are still thrown unprocessed to the surface acceptors or to the sensitive aqueous acceptors.

The produced liquid waste from the processing of the edible olives is a major problem in Greece, because they are considered as toxic pollutants since they are discharged to surface acceptors without any pre-treatment.

The liquid waste may contain different toxic minerals, organic compounds and dissolved harmful gases.

Due to the large quantities, produced daily by industrial activity, they enrich surface water and groundwater with a variety of harmful pollutants, harmful both for human health and the aquatic flora but also for fauna, disrupting soil productivity and the entire ecosystem.

As the environmental regulations become more and more stringent, the chosen treatment methods should meet all legal requirements (legislation 145116), combining low treatment cost per m<sup>3</sup> treated waste, and simplicity of use.

High organic load and pH, as well as high concentration of phenolic substances make it difficult to process them. Phenol, together, with various xenobiotic compounds, are perhaps, the most common infectious agent present in the chemical process industries. Their existence, even in small concentrations, create clusters with metal ions from other industrial activities, which now correspond to carcinogens.

Because of their water-soluble nature, one easily understands that they can be recruited into the food chain.

In this project, a laboratory-scale bioreactor of immobilized biomass, continuous flow, using native aerobic micro-organisms, which will be taken from an existing waste treatment unit (design and construction by P.Tycheros –A.Chatzis C.O, [www.t-x.gr](http://www.t-x.gr)) has been constructed for the treatment of waste water of table olives of Halkidiki.