

## The Environment Friendly Root-Zone Method

The Root-Zone Method for wastewater treatment is a technology that follows the processes of nature and minimizes the repercussions into the environment. The method is based on the collaboration of "plants - soil - microorganisms" that contribute to the complete cleaning of wastewater.

The method has been implemented by **Rhizotechniki** successfully at a production unit for catering and restaurant products in the Athens suburb industrial area. This Root-Zone system treats not only the unit's wastewater but also the kitchen solid remains and processed liquids (oils, sauces, cream and milk remains). The qualitative changes of the inorganic and organic charge of wastewater have been studied at the entry and at the outlet of the treatment unit of the artificial wetland. An important degradation of organic charges has been noted, even from the first months of operation, which is reflected in the high rate of COD reduction at 88% and BOD5 at 92%. A reduction of the nutritious elements  $\text{NO}_3^-$ ,  $\text{NH}_4^+$ ,  $\text{NO}_2^-$  and  $\text{PO}_4^-$  has been observed at 29%, 57%, 24% and 51% respectively.

These results confirm the excellent function of this environmental friendly wastewater treatment system, the product of which can be used for irrigation purposes. Furthermore the humification product from the kitchen remains is an excellent fertilizer for the factory's vegetable garden.



**Root-Zone plant with humificated kitchen remains in a catering industry, Athens, Greece 2011**

The Root Zone plant method features many advantages. It is a sustainable operation that acts as a self-regulated system with no external energy input and no sludge production. The system humificated primary sludge, saving 90% of operational costs and eliminating 99,9% of harmful bacteria such as *E. coli* and *Salmonella*. The system also maintains  $\text{CO}_2$  capture and carbon storage, with more than 50 years of operational duration and operational stability in fluctuations on wastewater volume and concentration. ■