

Bio réacteur aérobie compact pour le traitement des effluents typiques d'agro-industries méditerranéennes

Compact aerobic bioreactor for treatment of typical Mediterranean agribusiness effluents

J-M CARDOSO DUARTE

INETI

Departamento de Biotecnologia

Unidades de Monitorização e Ecotoxicidade

Estrada do Paço do Lumiar, 22

1649-038 Lisboa

Portugal

Email : jose.duarte@ineti.pt

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COMPACT AEROBIC BIOREACTOR FOR TREATMENT OF TYPICAL MEDITERRANEAN AGRO-INDUSTRIES EFFLUENTS

J.M.Cardoso Duarte¹*, A. Ferreira², M. Mateus¹, A. Eusébio¹ and E. Almeida-Vara¹

¹INETI, Departamento de Biotecnologia, Unidade de Monitorização e Ecotoxicidade, Estrada do Paço do Lumiar, 22, 1649-038 Lisboa, Portugal

²TECNIA Lda., Torres Vedras, Portugal

**Corresponding author: J. M. Cardoso Duarte (jose.duarte@ineti.pt)*

Wine and olive oil industries are the two most typical and important Mediterranean industries

and have associated a large negative environmental impact as a result of the volume and characteristics of the corresponding effluents and solid wastes. The pollution load of these effluents is such that they cannot be discharged directly to municipal wastewater treatment plants when available. Also the volume of effluents changes with the production process, time of the year and water management in place requiring that alternative technological solutions are sought for these type of effluents.

Often the local where these production units are located makes space availability the limiting factor for the design of the treatment process. Many of these places are also built in flooding areas. Therefore vertical reactors are often the only solution for these situations. However new technical solutions are needed to avoid the use of gigantic reactors and ensuring at the same time good oxygen transfer rates. To solve this problem a new type of reactor based on the jetloop principle, was designed, tested and scaled up and the adapted microbial flora was studied. This concept was first developed for the treatment of wineries effluents (EC LIFE Program - Project 96ENV/P/00602/INDW: A new reactor system for solving wineries effluent environmental impact) and is now being applied to the treatment of Olive oil mills effluents (EC INCO Program - Project ICA3-CT-1999-00010: Mediterranean usage of biotechnological treated effluent water).

The bio-treatment achieves COD removals of 80-90% depending on the hydraulic load and has shown very high efficiency and productivity. These results demonstrate the importance of this system for pollution abatement facilitating the application of more traditional technologies to the resulting effluent or for its discharge in municipal plants.

Keywords: jet-loop reactor; winery effluents; olive oil wastewaters; aerobic treatment.