

Construction of a plant for processing the waste originated during the production of olive oil in the municipality of Baena in Córdoba, Spain

José Ramón Perán González, Baena. 2009.

LIFE05 ENV/E/000292

Summary

Olive oil production is one of the main economic activities in the southern European countries: Spain, Italy, Greece and Portugal. However, the extraction process generates a non biodegradable and phytotoxic waste, which is a source of pollution. In spite of the introduction in the nineties of improved separation systems, which decrease the necessary quantity of water and the liquid waste generated, there are still the problems of toxicity and final management of the waste.

The goal of this project is **the construction of a plant for processing the waste** originated during the production of olive oil in the municipality of Baena in Córdoba, Spain.

There will be three steps:

- Quick separation of solid compounds
- Evaporation-condensation processes
- Concentration

Waste generated by the 2-phase separation methods (well-known as alperujo) has caused serious economic and environmental problems in the last years. The traditional systems of separation in three phases give two kind of wastes: alpechín (liquid waste) and orujo (olive cake or olive pomace). Years ago, the treatment of alpechín was a problem (only partly) solved by the introduction of the separation systems in two phases. These systems produced a residue that was a mixture of alpechín and orujo (alperujo) and solved the problem of the alpechín treatment. This matter was one of the biggest economic and environmental inconveniences (in particular for the orujeras - extraction companies-, which were responsible for the alperujos management).

In the last years, several efficient solutions for the alpechín treatment have been found but the change again to the 3-phase traditional system to produce olive oil, it was not feasible from an economic point of view.

Olivewaste proposes the design and installation of a 3- phase system, which will be able to treat the waste (alperujo, alpechines and washing waters) coming from the process of virgin olive oil production. This system will not imply big investments or the renovation of the whole industrial system of production, which would be very difficult and expensive for the olive mills. The processing plant will be used for the waste management of the olive mills. These enterprises will transport their residues (alpechines and alperujos) to the plant, where they will be treated and transformed into different by-products: orujo (olive pomace), water for irrigation and solid and liquids fertilizers.

In order to carry out the project, the following focus is proposed:

To carry out a preliminary study to determine which olive mills could be benefited from this project. Approaches like the geographical proximity or the production volume will be taken into account.

Taking into account the foreseen volume of wastes, the process will consist of the design and development of different prototypes for the separation, evaporation and

concentration stages. Some studies for the installation of a predictive-adaptive software system will be made. The aim of these studies will be improving the efficiency of this technology of processed waste.

The pilot plant will be built and an olive mill will be selected to carry out some tests of management capacity for these residues. This will allow us to have an evaluation and an answer of the process being able to introduce the necessary changes in the pilot plant to improve it. The testing and demonstration activities of the capacity for processing this waste will be carried out along different olive oil campaigns.

Finally, an economic study will be carried out to determine the exploitation and maintenance costs of the pilot plant. This will allow to establish the dues to be paid for the olive oil producers, who will use these facilities in a near future.

Several activities for the dissemination of the project results will be carried out. The beneficiary and the partners will design and carry out a plan for the continuous dissemination of the most important results. Means used will be scientific papers, bulletins, leaflets, web page, conferences, CD-ROM's, on-line forums, etc.

A definition of synergies with the normative for the olive oil waste management will be studied. All the available information and legislation related to the waste management coming from the virgin olive oil production will be gathered. Measures concerning the current and future policies related to the olive oil waste management will be suggested in this task. Stakeholders will be identified in order to broaden and deepen the applicability of the project output.