

An Innovative New Way to Recycle Water from Olive Oil Processing

A project funded by the EU has struck upon a novel way of recycling the water used to wash olives prior to being processed into oil in a plan which may save the industry up to 90% of its water usage.

The project is named ALGATEC II and has produced its first prototype plant in Spain at the University of Huelva. The scheme is the brainchild of five cooperating companies from Spain, Germany and Italy, who have received financial backing from the EU's Seventh Framework Programme for Research and Technological Development.

ALGATEC II focuses solely on how best to optimise and recycle the vast quantities of water that are used in olive oil production, with the ultimate gain of saving the environment considerable waste.

Problems of Olive Oil Wastewater

Traditionally, olive oil factories are required to use around 50 litres of water to thoroughly clean every 100kg batch of olives.

The process washes off dirt and bacteria from the olives, but also simultaneously absorbs some of the polyphenols found on the fruit. Though polyphenols are actually beneficial to humans, large quantities of them can wreak damage on the environment. As such, water used to clean the olives has become contaminated by the polyphenols and cannot be disposed of easily.

Disposal methods normally involve leaving the wastewater to evaporate in stagnant ponds, which cause a whole host of problems. Not only does stagnant water attract insects and provide them with a breeding ground, but it also causes unpleasant stench. Furthermore, the rate of evaporation is often painfully slow, meaning that the ponds have to be emptied manually to make way for the new olive wastewaters, since capacity is at a premium.

How Does ALGATEC II Work?

ALGATEC II aims to circumvent these problems by treating the water so that it can be used again. This is achieved by pumping the wastewater into a photobioreactor. Here, tiny microorganisms absorb the polyphenols, before the water is run through two membrane filters.

These processes effectively remove all trace of pollutants, thus rendering the water suitable for washing more olives... again and again and again.

Of course, the level of microorganism growth needs to be sustained throughout the year, and not just in summertime when temperatures are warm.

To this end, the team have developed solar panels which will trap the sunlight throughout the day and convert it to heat energy to raise temperatures in the photobioreactors, thus sustaining the precious microorganisms.

In this manner, the olive oil facilities will be able to re-use the same water on multiple occasions and cut down on the amount of fresh water they consume by up to 90%.

Sensible Wastewater Strategies

This latest incentive is just part of a growing global consciousness of our need to conserve water. Earlier this year, a like-minded paper manufacturing company from Holland pioneered new technology which resulted in more efficient wastewater strategies. The article Improved Wastewater Treatment Process by Use of an Online TOC Analyser discusses the benefits of the new technology in more detail.

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