Current Headlines

Return to News & Community Home

New System Of Wastewater Treatment Could Reduce Size Of Treatment Plants By Half

8/13/2007

Granada, Spain — A group of researchers from the University of Granada have come up with a wastewater treatment system which has three clear advantages with respect to systems currently used: it is possible to obtain cheaper water of a higher quality, it considerably reduces the size of treatment plants (by more than half) and it minimizes the resulting mud production.

José Manuel Poyatos Capilla, researcher from the Department of Civil Engineering of the University of Granada, is the main responsible for this work, which has been directed by professor Ernesto Hontoria García, director of the Superior Technical Engineering School of Roads, Channels and Ports of the UGR. Research of Mr Poyatos is particularly interesting if the current global drought is taken into account, as well as the lack of space many municipalities have when the number of inhabitants grows, which makes it impossible to enlarge their water treatment plants.

Mr Poyatos has used a new technology based on membrane bioreactor systems which makes it possible to shorten the water clarification process (by which active mud is separated), eliminating the stage known as "secondary decanting." The structure of every plant currently has four stages: pre-treatment, primary decanting, biological reactor and secondary decanting. A tertiary treatment can also be added whenever water is used for irrigating.

An advantageous system

Research carried out at the UGR could reduce the size of the biological reactor between 40 and 60%, and would completely eliminate secondary decanting. "In the future – explains the researcher –- we could even suppress the primary decanting stage." In exchange, scientists from Granada have included a "biological processes" section in their wastewater treatment plant, which could make it possible to separate water from active mud by a membrane filtration process.

This researched and optimized system makes it possible to treat a larger flow of water in a smaller purifier, “and its building would involve a less expensive construction.” Installation is therefore much cheaper than installation of plants with tertiary treatment, and it also makes it possible to use the water immediately after it has been biologically treated.

The work of José Manuel Poyatos, which has been partly carried out at the University of Cranfield (England), is the first with these characteristics carried out in Spain. Results of his research have been published in prestigious journals such as 'Journal of Environmental' and 'Microbiology&Biotecnology', and they were also presented at the Ibero-american Congress on Membrane Science and Technology. They will be soon presented at two international congresses of the IWA (International Water Association).

SOURCE: Universidad de Granada

Forward This Article To An Associate