

**MODULAR SYSTEM FOR THE PASSIVE TREATMENT OF DOMESTIC WASTEWATERS TO BE USED IN AGRICULTURAL IRRIGATION**

<i>Offering Organization:</i>	Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C.
<i>Type of Organization:</i>	Public Research Center
<i>Development Stage:</i>	Pilot Level
<i>Desired Relationship:</i>	<ul style="list-style-type: none"> <li>- Technological research and development financing (technological partner)</li> <li>- Specialized application tests</li> <li>- Creation of a new company (Joint Venture) for the commercialization of the products outlined herein</li> <li>- Licensing of patents</li> </ul>
<i>Sector:</i>	Environment
<i>Area of knowledge:</i>	Domestic wastewater treatment
<i>Key words:</i>	Passive treatment , wastewater, anaerobic filter , wetland

**DETAILED DESCRIPTION:**

*Problem to be solved:*

There are many available domestic wastewater treatment technologies, however many require high capital and operating costs; thus many options are not feasible for wastewater treatment in towns with less than 2500 inhabitants. Furthermore, few low-energy wastewater treatment systems with removal efficiencies higher than 80% have been developed.

*Solution:*

The invention consists in a system and process for the passive treatment of domestic wastewaters, which is integrated in a sequential manner by three treatment steps.

*New and Innovative Aspects:*

The invention consists in a system and process for the passive treatment of domestic wastewaters, which is integrated in a sequential manner by three treatment steps, each one with specific characteristics: a septic tank for removing the settling and floating matter; an anaerobic filter for degrading the organic matter; artificial wetland of subsurface flow for removing the residual organic matter and nutrients (phosphorus and nitrogen). The system treatment of the present invention has an efficiency for removing the organic matter measured as Oxygen Biochemical Demand (OBD) and Oxygen Chemical Demand (OCD) higher than or equal to 90%, which results in a treated water with a quality complying with the official standard for being reused in agricultural irrigation according to the NOM-001-SEMARNAT-1996 or in public service according to the NOM-003-SEMARNAT-1997.

**TECHNICAL CHARACTERISTICS:**

The treatment system for domestic wastewater consists of:

- Septic tank for removal of sediment and floating matter.
- Filter for anaerobic degradation of organic matter.

- Removal of Phosphorus and nitrogen containing organic material.

*Main advantages derived from its utilization:*

- Minimal investment and operational costs compared to conventional treatment plants.
- It uses domestic and commercial materials.
- Little training is needed to operate the system.
- The system ensures compliance with NOM-001- ECOL-1996.
- Water quality obtained allows its use in landscape or agricultural irrigation.

*Applications:*

- System for treating domestic wastewater.

**INTELLECTUAL PROPERTY**

- Patent Application: MX/a/2010/014332

**ABOUT THE OFFERING ORGANIZATION**

<i>Presentation:</i>	El Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C. (CIATEJ) is a public research center that belongs to the national technology development and innovation network, the National Council for Science and Technology (CONACyT). CIATEJ is focused on the agricultural, food, health, and environmental sectors with an emphasis on the application of innovative biotechnology.
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