

**PROCESO DE TRATAMIENTO DE VINAZAS
VINASSE TREATMENT PROCESS**

<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>	Laboratory
<i>Desired Relationship:</i>	<ul style="list-style-type: none"> – Technological research and development financing (technological partner) – Specialized application tests – Creation of a new company (Joint Venture) for the commercialization of the products outlined herein – Licensing of patents
<i>Sector:</i>	Environmental
<i>Area of knowledge:</i>	Water Treatment
<i>Key words:</i>	Tequila, Treatment, Physiochemical, Biological, Vinasse

DETAILED DESCRIPTION:

Problem to be solved:

The availability of technology for treating wastewater such as vinasse from the production of tequila, mescal, and/or the like is minimal. There are very few studies reporting systems or processes capable of treatment efficiencies with results above 90%, and even fewer comply with the official Mexican regulations in relation to the discharge of wastewater into the environment.

Solution:

The integration of a treatment process as a solution for the purification of wastewater resulting from distilled spirits.

New and Innovative Aspects:

The process consists of four stages: Physiochemical treatment, advanced anaerobic biological treatment, natural tertiary treatment that utilizes artificial wetlands, and disinfection; these guarantee greater than 95% removal efficiency of organic matter as measured by BOD or COD. The quality of the treated water allows for it to be discharged into the municipal sewage system, bodies of water (rivers, streams, lakes, and ponds), or utilized as water for direct agricultural irrigation.

TECHNICAL CHARACTERISTICS:

The vinasse treatment process consists of the following steps:

- Physiochemical pretreatment that consists of the measured addition of chemical agents to facilitate the phenomenon of sedimentation and removal of some of the suspended solids from the vinasse.
- Advanced biological treatment in an upflow anaerobic sludge reactor bed which will transform the soluble and particulate organic matter (COD and BOD₅) into biogas (CO₂ + CH₄) in order to obtain a clarified effluent.

- Posttreatment in artificial wetlands with two cells, the first with water hyacinth (*Eichhornia crassipes*) connected in series to the other, packed and planted with para and vetiver grasses (*Panicum purpurascens* and *Vetiveria zizanioides*).
- Disinfection with chlorine to eliminate pathogens, leaving an effluent that is ready to be discharged into the ground and bodies of water.
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Main advantages derived from its utilization:

- The results of this treatment process of wastewater such as vinasse from the distillation of tequila, mescal, and the like, reveal a method for obtaining clarified water that meets official wastewater regulations.
- The quality of the water obtained allows for its application in landscape or agricultural irrigation.

Applications:

- Wastewater treatment for vinasse from the distillation of tequila, mescal, and the like.

INTELLECTUAL PROPERTY

- Patent granted in 2012, valid until 2024

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.
<i>Contact Information:</i>	Mtro. Evaristo Urzúa Esteva - eurzua@ciatej.net.mx