SLAUGHTERHOUSE WASTEWATER TREATMENT SYSTEM	
Offering Organization:	Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C.
Type of Organization:	Public Research Center
Development Stage:	Pilot design stage without testing
Desired Relationship:	– 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
Sector:	Environmental
Area of knowledge:	Water Treatment
Key words:	Residual water, water treatment, municipal slaughterhouse, wastewater

DETAILED DESCRIPTION:

Problem to be solved:

Municipal slaughterhouses are public and private establishments that are primarily involved in the slaughtering of animals. In addition to violating legislation related to protecting the environment, slaughterhouse wastewater is a potential threat to the environment and public health. The concentration of organic matter in these effluents, measured as Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD), is of the order of 6500 and 9000 mg/L; the average content of fats, oils and greases (FOG)is of the order of 500 mg/L. Moreover, slaughterhouse wastewater also contains traces of many pathogens such as Salmonella, Shigella, Vibrio cholerae, and viruses, all which cause a large number of diseases including typhoid, dysentery, cholera, and hepatitis among many others. In Mexico, there are 1000 municipal slaughterhouses officially registered, of which only 20 are equipped with plants that treat their wastewater. By and large, the wastewater from these establishments is discharged directly into municipal sewers, bodies of water, and land without prior treatment.

Solution:

The present invention is applicable to the field of wastewater treatment, specifically the treatment of slaughterhouse wastewater, and has the capacity to remove 80-98% of organic matter present in slaughterhouse wastewater as measured by BOD and COD. The plant and treatment process consist of an Anaerobic Filter and an Activated Sludge Reactor of high organic content. Additionally, the process includes a pretreatment stage to eliminate suspended solids and grease and a disinfection stage to eliminate pathogens

New and Innovative Aspects:

- The plant and process for the treatment of slaughterhouse wastewater is flexible and versatile from the perspective of construction and operation.
- The stages that comprise the process of treating this wastewater are modular in nature and rely on inexpensive commercially-available materials. The process does not require any special chemical products or other precautions beyond what are already required by a conventional treatment system.
- It is possible to treat slaughterhouse wastewater with concentrations above 200 and

3000 mg/L BOD and COD, respectively, and effectively remove 80-98% of the organic matter as measured by BOD and COD.

- The costs of wastewater treatment under this model are between 30-50% lower when compared with the costs of an activated sludge and coagulation flocculation system.

TECHNICAL CHARACTERISTICS:

The invention consists of a plant and process for the treatment of slaughterhouse wastewater. The treatment process is comprised of six sequential stages: screening and grit removal; homogenization and pumping; water sifting; retaining of fats and oils; biological treatment (anaerobic filter and aerobic reactor); and disinfection.

Main advantages derived from its utilization:

- Guaranteed removal of 80-98% of organic matter, measured as BOD and COD, present in slaughterhouse wastewater.
- Wastewater treatment costs that are between 30-50% lower with respect to the costs of an activated sludge and coagulation flocculation system.
- Flexible and versatile construction and operation of the plant and slaughterhouse wastewater treatment process. This is to say, easy to implement, adaptable for treatment of large or small volumes, and adaptable for treatment of wastewater with different concentrations of organic matter.
- Treated water that is guaranteed through the treatment process to meet current regulations (NOM-001-SEMARNAT-1996, NOM-002-SEMARNAT-1996).

Applications:

- Treatment of slaughterhouse and similar wastewater.

INTELLECTUAL PROPERTY

- Patent application submitted in 2009.
  Folio: MX/E/2009/083455

ABOUT THE OFFERING ORGANIZATION

Presentation:	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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