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E-waste, a problem in a very nearby future for México, a practical approach: Project of recycling of electronics equipments in the Autonomous University of Carmen

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This work presents the project, recycling of electronic equipments that is developed in the Autonomous University of Carmen since the year 2007 with the support of the Collective Isla Verde A. C. It has a purpose of diminishing the quantity of toxic components that contaminate the environment in Ciudad del Carmen (an island). México being an important petroleum zone in the country seated in the natural protected area called "Laguna de terminos". Also, one seeks to build a culture of recycling for the persons and develop some skills in our students about social service who take part in the Laboratory of Assemble and Recycling, in order to recover functional pieces of the equipments previously received from the project to be rearmed and to extend the life cycle of the same. These equipments are donated to students from diverse companies, teachers, and administrative officers or to the houses of a big partner like the Rotary Club Center, City of Carmen. In fact, they have gone to rural localities of the municipality of Carmen, Campeche, Mexico to recover many useless types of equipment.

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Comparative life cycle assessment of thin film fixed bed reactor (TFFBR) and coagulation-flocculation process for textile waste water treatment for reuse purposes

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Nowadays, the increasing demand for fresh water obliged the international community to react rapidly and find effective solutions to overcome this problem. The implementation of sustainable development strategies all over the world reflects the growth of awareness about different changes in our environment such as the climate change which was the subject of the conference of parties (COP 21) in Paris in December 2015. 195 parties were met in order to develop a universal agreement able to maintain a warming of 2°C until 2100. This tense situation governed by the increase of the pollution, made that wastewater recovery and reuse using innovative technologies environmentally friendly is widely encouraged. The textile industry is among the industries which have a harmful impact on the environment since it requires the use of high volume of water and chemical products. According to the Agency for the promotion of industry and innovation (API) in Tunisia, the textile industry is the leader sector in terms of the total number of companies 32% and job offers 34%. The goal of this Life Cycle Assessment study was to assess the environmental benefits and drawbacks of an advanced oxidation process (AOP) which is the TFFBR used for the treatment of textile effluent in comparison with a coagulation flocculation process. The life cycle impact assessment is carried out based on the ISO 14040 series of standards using the software SimaPro 8 (Pre Consultants BV), the Ecoinvent database and the CML method which includes ten impact categories for the environmental assessment related to the climate change/global warming, depletion of abiotic resources, acidification, eutrophication, and human toxicity. The results show that the environmental performance of TFFBR is much better than the coagulation-flocculation process. Thus, the environmental impact of TFFBR is about 86 to 99% lower depending on the impact category, with the exception of Abiotic depletion potential, for which it is 45% lower. Concerning the coagulation-flocculation process, the stage of production of the chemicals presents the highest contribution, compared to the production of electricity and transport, being responsible of more than 95% of the whole impact in all impact categories.

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