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The “Circular Economy” for the Conversion and Incorporation of Residues of Edible Oils in the Composition of "Biodiesel" Fuel for Public Transport to Reduce Environmental Pollution in Chile

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Oil is a non-renewable energy, limited and whose costs related to refining are very high. It is extremely polluting and its use is completely linear, producing millions of tons of pollutants daily in the environment.

On the other hand are the edible oils that end up contaminating underground layers and watercourses (one liter of edible oil, pollutes up to 40,000 liters of water, which is the equivalent of one person's annual water consumption (Gonzalez & Gonzalez, 2015).

The circular economy is mainly based on being restorative and regenerative from its thinking and design, which has as its ultimate goal to maximize the efficiency of resources and minimize the production of waste in the framework of economic sustainability and social (Hu et al. 2011).

Many authors analyze the problem of linear versus circular economies and the pollution with different perspectives.

Jeon et al. (2009), display that in recent decades, there have been searches for methods and products that can replace the use of oil as a source of energy less polluting.

Demshemino et al. (2013), look the biodiesel like an alternative fuel that is obtained from renewable resources that are burned in diesel engine with less environmental contaminants.

Talebian-Kiakalaieh et al. (2013) analyze that used cooking oil could help reduce the cost of biodiesel production by 60-90%. Biodiesel could reduce the emission of unburned hydrocarbons (68%), carbon monoxide (44%), and sulfur oxide (100%).

Alcantara et al. (2000) and Lam et al. (2011), reflect that from 2007 to 2010 the use of biodiesel represented a participation of more than 80% in transport in the total consumption of biofuels and 30.26% in the total consumption of fuels for road transport. More than 80% of the cooking oils used are produced in households, and the cost of their elimination they are enormous, among them is the elimination of used oil and the high cost of treatment of the water polluted.

In Chile, according to the Decreto Supremo 11/08 of the Ministry of Economy of Chile, Biodiesel may only be mixed with diesel oil in 2% (class B2) or 5% (class B5).

Circular No 30 of May 16, 2007 from Tax and Service of Chile exempt to bioethanol and biodiesel of the tax payment specific that affects gasoline and diesel.

These are indications that the circular economy can be a tool that helps fight the pollution caused by oil and edible oils.

Biography

Tomas Gabriel BAS has completed his PhD from University of Quebec at Montreal (Canada) and postdoctoral studies from the same University. He is the director of MBA at Universidad Catolica del Norte (Coquimbo) Chile. He was the founder director of the Institute of Innovation based on Science and Director of Masters in Technology Management University of Talca (Chile). Manager founder and editor of the scientific journal (SciELO) "Journal of Technology Management & Innovation" (www.jotmi.org).. He has published more than 40 papers in reputed journals and 50 conferences.

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