Journal of Biotechnology & Biomaterials

Mini Review Open Access

Recycled Cooking oil and Its Biotechnology Advancements

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When edible vegetable oil is used to fry food, waste cooking oil (WCO) is produced. WCO waste is improperly disposed of, causing pollution, clogging drains, and contaminating land and aquatic environments, while its ingestion is harmful to human and animal health. WCO as a feedstock for biofuel, bisabolene, bio lubricants, liquid detergents, dishwashing soap, and aromatherapy candle, plasticizer, polyurethane foam, surfactants, and asphalt rejuvenator are reviewed in this paper. Aspects of the worldwide context of WCO generation, its physic-chemical characteristics, and potential applications are also discussed. These uses guarantee that WCO is used appropriately as useful home and industrial goods. For the implementation of WCO in the manufacturing of useful products, more research is required.

In the recent decade, persistent industrialisation has been provoked by rapid population expansion, technical innovation, enhanced investment promotion, trade and capital liberalisation, and financial sector development. Researchers and industrialists are faced with the task of offering cost-effective and environmentally friendly resources that can meet new production techniques in order to fulfil the demand for material resources and satisfy the current industrial revolutions. Numerous scientists have turned to the many simple and novel approaches of resource recovery and optimization in waste treatment to convert wastes into useful raw materials and value-added products. One of the low-hanging fruits in this regard is the conversion and transformation of waste cooking oil (WCO) into a wide range of goods [1]. Among different symptoms, vascular and systemic angiotensin II hypersensitivity is one of the best-established features of preeclampsia. It is also a disease which predisposes mother and infant to develop cardiovascular diseases in future. An increased plasma level of the anti-angiogenic soluble fms-like tyrosine kinase-1 (sFLT1) is being developed as a diagnostic marker for preeclampsia. However, studies are still going on for the patho mechanicss, which trigger this process. The increased plasma level of sFLT1 is due to enhanced angiotensin II-stimulated signalling; another symptom of preeclampsia, the decrease in vascular RGS5 is related to this. Screening for PE attempts to identify high-risk pregnancies to modify antenatal care and institute preventive treatment regimens in order to reduce complications and deaths. The SCOPE group developed a predictive model for PE based on clinical risk factors for nulliparous women and concluded that screening for PE using maternal history alone is an unreliable method

Regardless of the avalanche of study, the essential issue to ask (and the rationale for the current intervention) is what are the possibilities for biotechnological conversion and exploitation of WCO to expand its contribution to the circular economy idea. Given the growing amount of WCO produced, academics, industry actors, and stakeholders must stay current on current WCO usage patterns. In this sense, the current evaluation focuses on the most inventive ways for converting WCO into useful items for both domestic and industrial usage [2,3]. The goal is to bring the existing body of knowledge up to speed and to set the stage for future study in the field.

WCO is produced in great quantities in various countries across the world, but it is unfortunately discarded improperly. Illegal WCO dumping is a nuisance to the environment, emitting disagreeable odours, polluting terrestrial ecosystems, and poisoning aquatic creatures. Three possible pathways for the biotechnological use of WCO have been emphasised in the current work, with examples of successful production occurrences. WCO is a feasible, long-term, and cost-effective feedstock for the manufacture of biofuel, biolubricants, bisabolene, liquid detergent, dishwashing soap, and aromatherapy candles. The use of WCO as a feedstock for the production of plasticizers, polyurethane foam, surfactants, and asphalt rejuvenators is also emphasised.

However, coordinated efforts and regulations are required to offer financial incentives for WCO collection, new pre-treatment, and conversion technologies. More focused and important study on WCO collection, transportation, purification, and use is required [4]. Subsidies, life cycle assessment studies, and monitoring of harmful emissions during biofuel production and other WCO conversion processes will all help to boost WCO's use potential. Governmental authorities, private sector operators, and other key stakeholders should be engaged to participate in the WCO conversion awareness campaign and enlightenment. To mitigate the impact of improper disposal of ever-increasing WCO generation, modern and creative paths for biotechnological conversion and exploitation of WCO should be explored [5].

Conflict of Interest

Authors declare no conflict of interest.

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Received: 19-May-2022, Manuscript No. jbtbm-22-64266; **Editor assigned:** 22-May-2022, Pre QC No. jbtbm-22-64266, (PQ); **Reviewed:** 04-Jun-2022, QC No. jbtbm-22-64266; **Revised:** 09-Jun-2022, Manuscript No. jbtbm-22-64266 (R); **Published:** 16-Jun-2022, DOI: 10.4172/2155-952X.1000276

Citation: Awogbemi O (2022) Recycled Cooking oil and Its Biotechnology Advancements. J Biotechnol Biomater, 12: 276.