RETASTE Conference Abstracts
Vol. 3 RETASTE-LCA-376-Oral
Athens, Greece, 27-29 September, 2023

rethink food resources, losses, and waste 2023 retaste

Research on the environmental impact of Massive Food Services and Homemade Meals: A Case Study of Stewed Chickpeas in Chile

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Abstract

In recent years, climate change and its consequences have been a relevant topic worldwide, given its repercussions for both the environment and human beings. Nowadays, the consequences manifest themselves, such as water scarcity, glacier melting, and biodiversity loss. Moreover, drought directly affects food production, as it affects land productivity. In addition, the world's population increases year by year, demanding a higher amount of food. Therefore, taking the corresponding measures to minimize the environmental impacts of producing food for human consumption is of utmost importance.
Related literature concluded that there is still a lack of comparative studies on the entire life cycle carbon footprint of home cooking, restaurant dining, and order.
Therefore, this research aims to compare, through life cycle assessment, the environmental impacts generated by the massive food service offered by a public university in Santiago, Chile, versus making the same recipes at home under two scenarios: following a recipe and without a recipe. The stewed chickpeas are the case study as they represent a typical Chilean recipe. The system boundaries consider that the necessary ingredients for preparing the meal are purchased, processed, and cooked, and, finally, the waste and wastewater are treated. The functional unit is set as one serving of food to compare the different scenarios. The results show that the recipe at the massive food service generates 0,212 kg CO_2 eq, while the recipes homemade, without and with a recipe, emit 0,271 and 0,353 kg CO_2 eq, respectively. However, contrasting with the results obtained from the water footprint analysis, the massive food service recipe generates a higher amount of impact with 1,356 m^3. Based on the results obtained, massive food services could have a lower environmental impact per serving, given the efficiency of the equipment used to prepare the food compared to the appliances available in a typical Chilean household.

Keywords: Life cycle assessment, massive food service, homemade food, Chile

Acknowledgments: This research is partially supported by FONDECYT through grant 11220493 and DICYT through grant 062317EP_ACA