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ANALYSIS OF THE PRODUCTION OF RESIDUAL VEGETABLE OILS FROM THE FOOD AND CULINARY INDUSTRY IN THE CITY OF CUENCA (ECUADOR) USING GIS TOOLS

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**DOCTORAL PROGRAM IN WATER AND
ENVIRONMENTAL ENGINEERING**



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INTRODUCTION

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CONCLUSIONS

INTRODUCTION

The consumption of vegetable oil in food has been carried out since ancient times, since it is one of the most developed culinary techniques in the world, both outside and inside homes, taking into account that 70% of the population feed on junk food raising the rate of residual vegetable oil

The National Institute of Statistics and Censuses (INEC) indicates that 54.36% of households throw away with the rest of the garbage, 23.65% burn, bury, throw water into streams or sources, while 21.36% % kept, sold or used as animal feed, with respect to residual vegetable oil

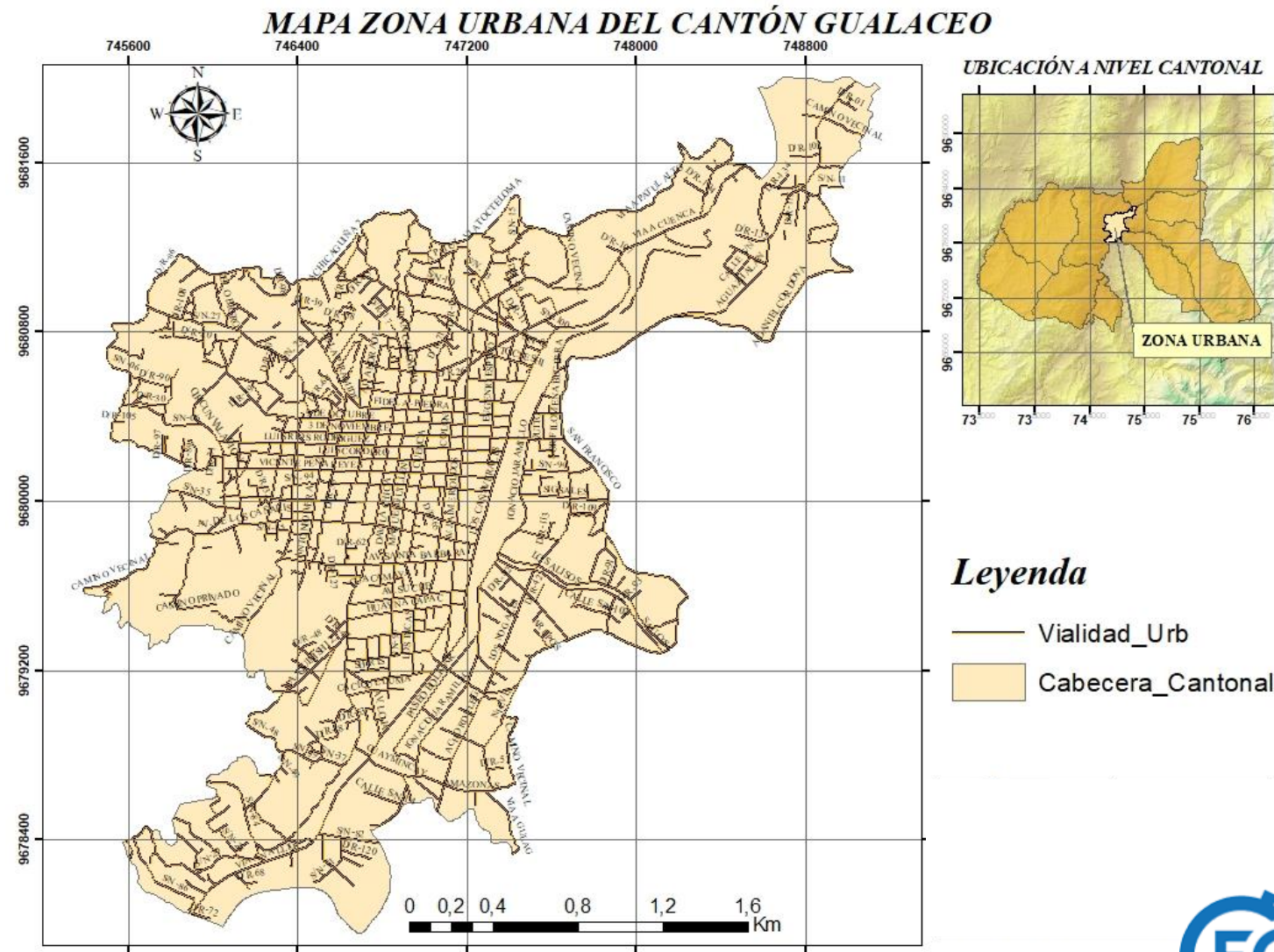


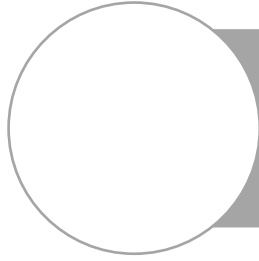
INTRODUCTION

Residual vegetable oil is considered a special waste, which, without necessarily being dangerous, due to its nature can impact the environment and health, due to the volume generated and its difficult degradation.



DATA ANALYSIS AND RESULTS





DATA ANALYSIS AND RESULTS

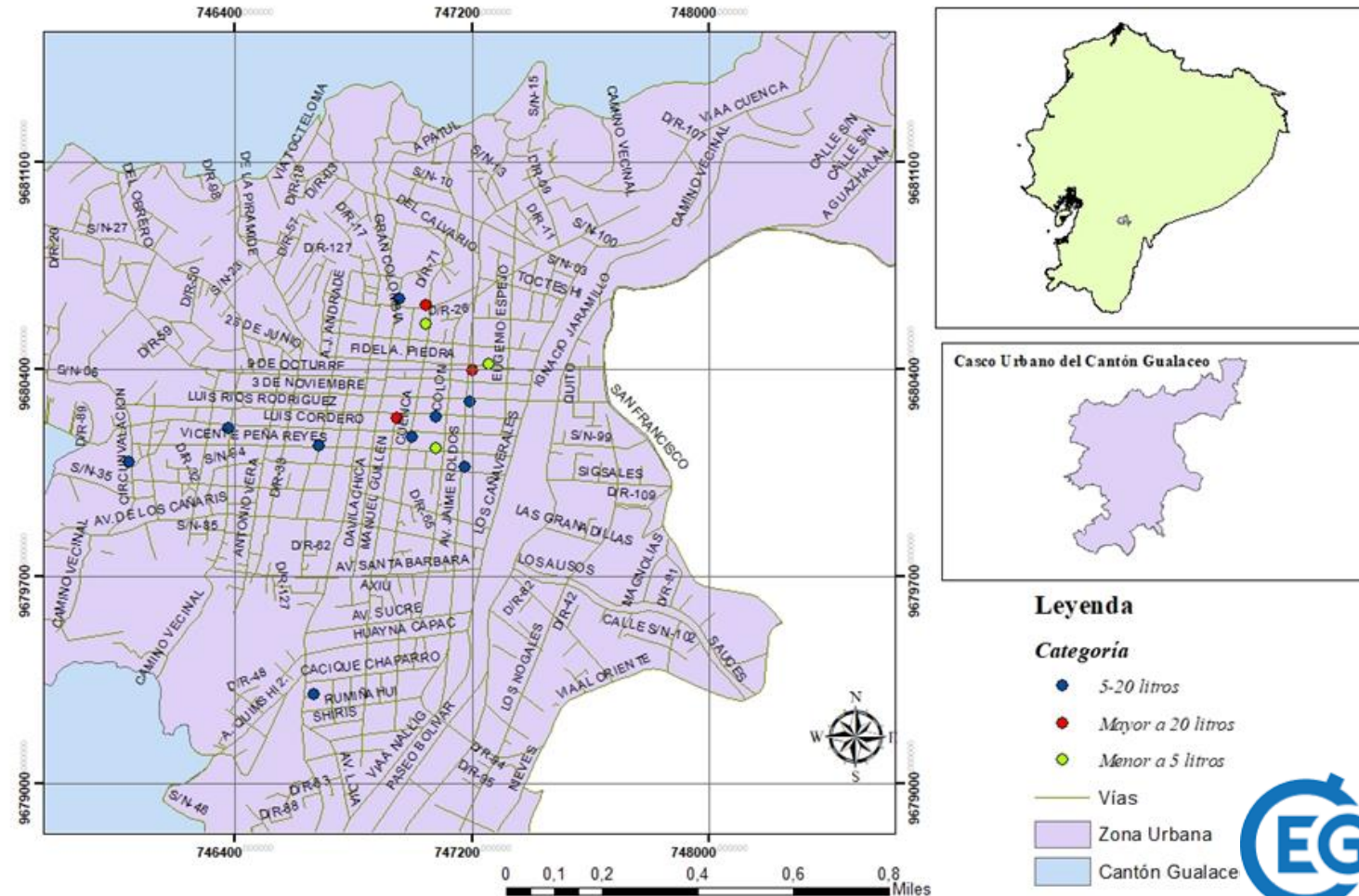
Table 1. Total amount of vegetable oil discarded in restaurants and fast food outlets in the urban area of Gualaceo Canton according to the surveys applied.

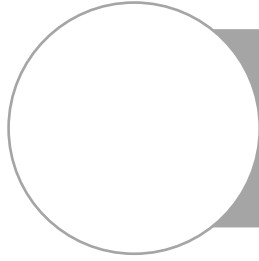
Establishments	Waste quantity (litres/ week)	Waste quantity (litres/month)
Restaurants	179	5012
Fast food outlets	13	364
TOTAL	192	5376

DATA ANALYSIS AND RESULTS

Imagen 2. Map of restaurants and fast food outlets that generate residual vegetable oil in the Gualaceo-Azuay canton.

Restaurantes y Locales de Comida Rápida: Generadores de Aceite Vegetal Residual en el Casco Urbano del Cantón Gualaceo

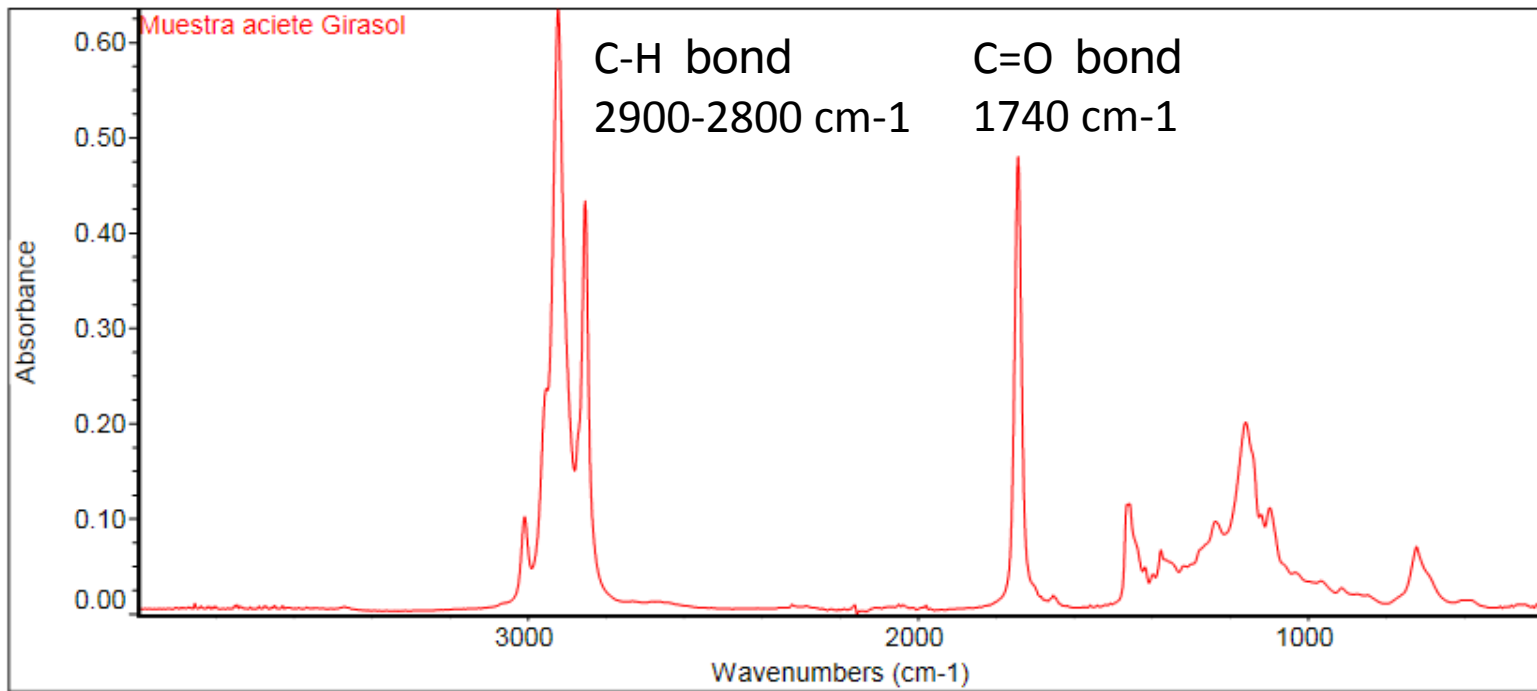




DATA ANALYSIS AND RESULTS

Table 2. Total amount of vegetable oil used in restaurants and fast food outlets in the urban area of Gualaceo Canton.

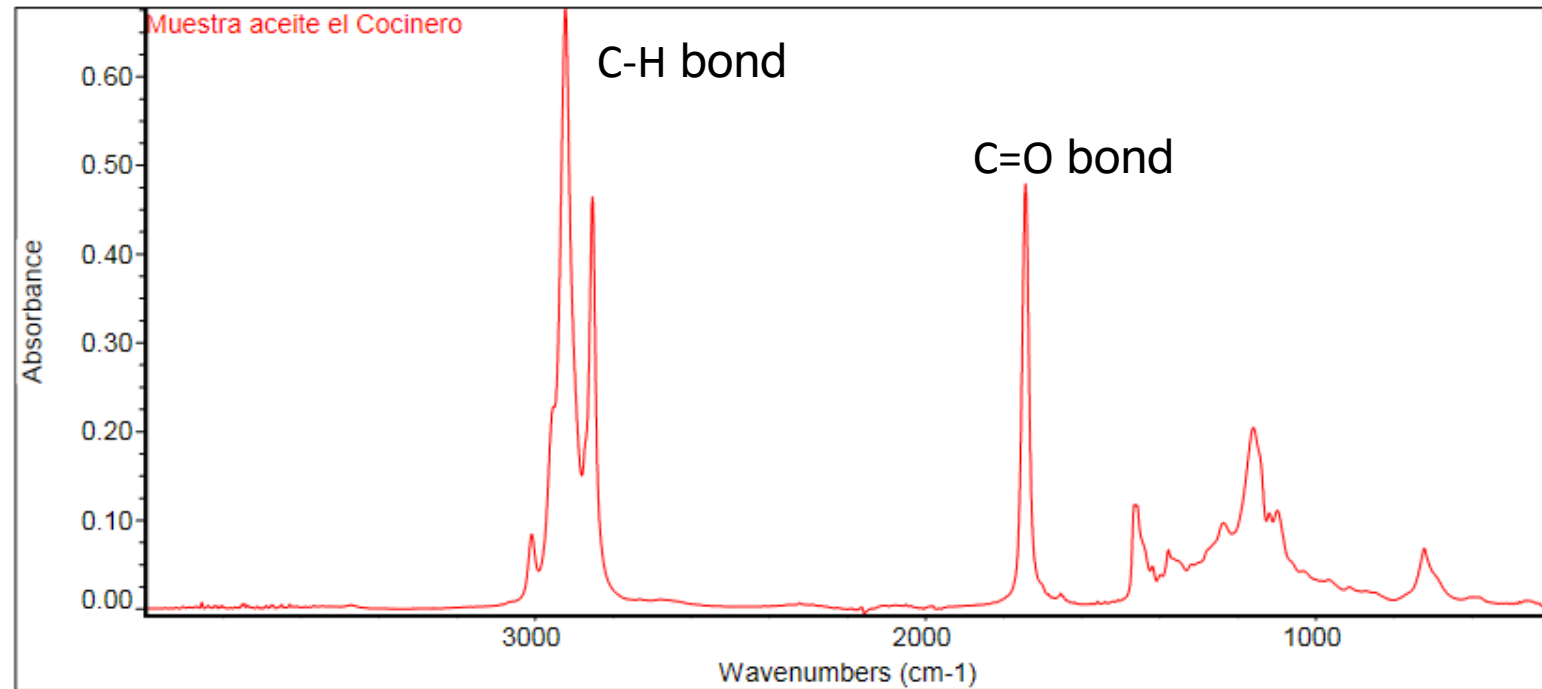
Establishments	Waste quantity (litres/ week)	Waste quantity (litres/month)
Restaurants	215	6020
Fast food outlets	15	420
Total	230	6440



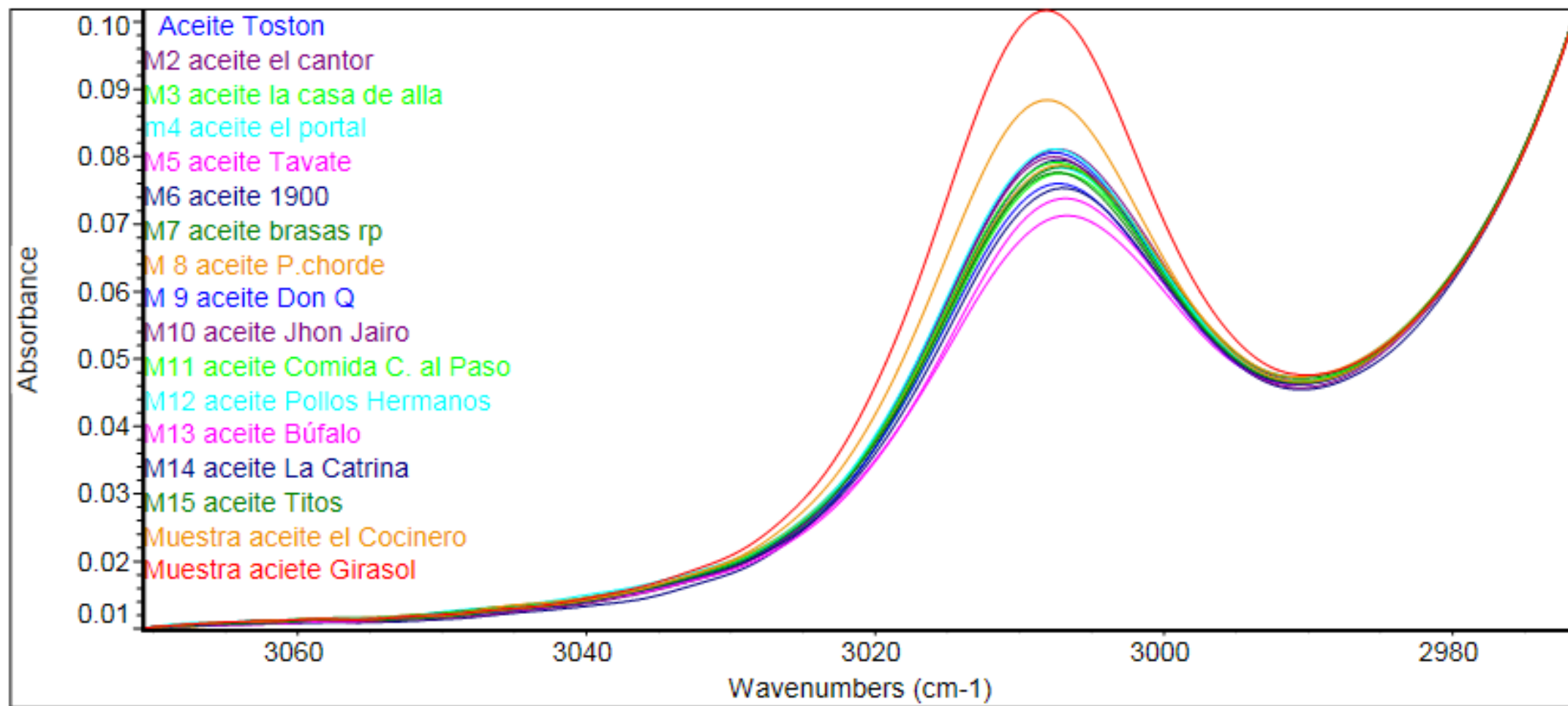
FTIR SPECTRAL TEST RESULTS

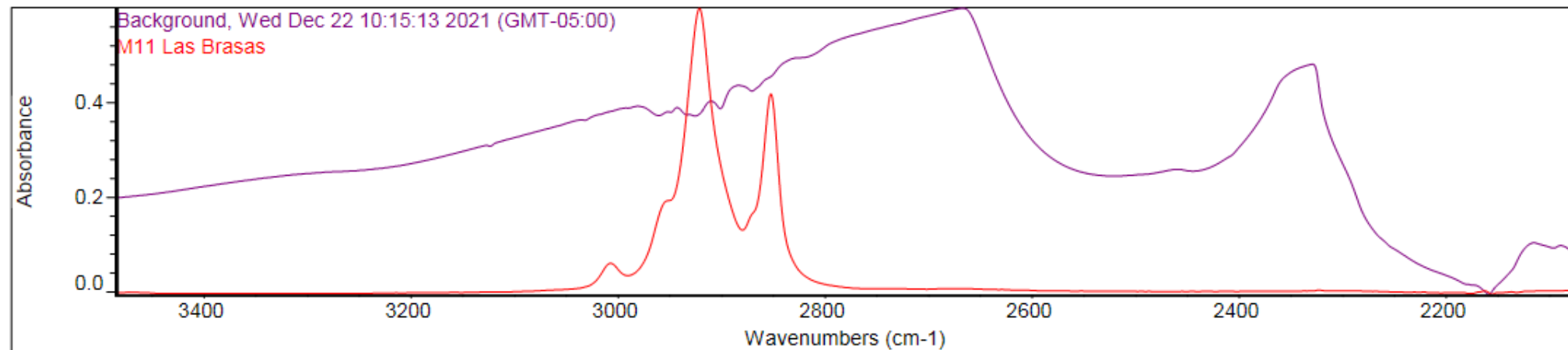
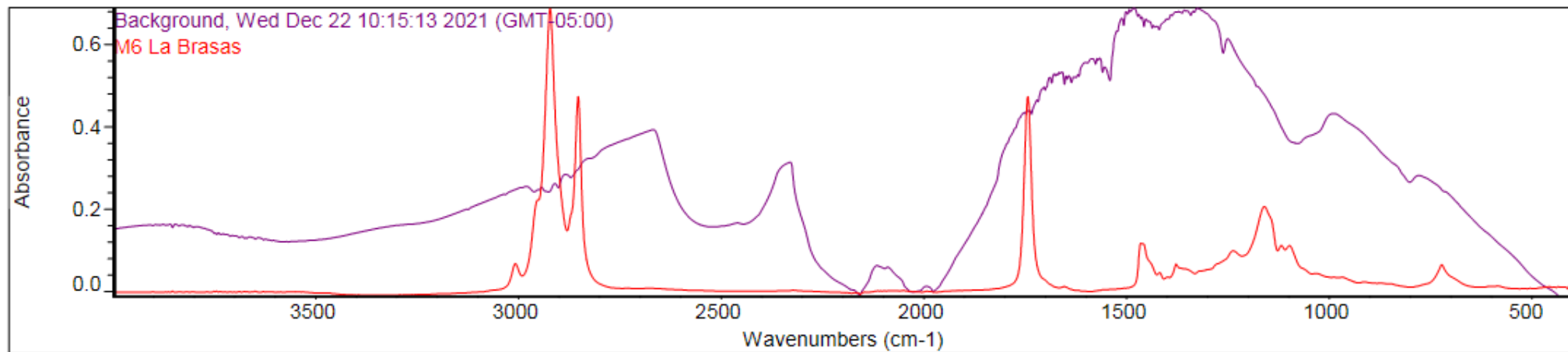
lipids:

- oil
- fat



DATA ANALYSIS AND RESULTS





CONCLUSIONS

- ✓ It was determined that the restaurants are in the intermediate category, that is, they are medium generators of residual vegetable oil (5-20 liters), which weekly discard 117 liters, followed by small generators that are less than 5 liters of AVR, giving a value of 15 liters per week, as well as the largest generators that are greater than 20 liters, giving an average value of 60 liters per week, according to the surveys applied, giving a total of 197 l/week.
- ✓ the owners and administrative personnel do not have sufficient environmental education regarding the environmental impacts generated by the inadequate management of the AVR

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