

Technical-economic proposal for the establishment of a coffee liqueur plant in the Totonacapan region

Propuesta técnica-económica para el establecimiento de una planta de licor de café en la región del totonacapan

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Abstract

This paper presents the design of a coffee liquor pilot plant that will be located in the city of Papantla Veracruz, in an area of 2500 m<sup>2</sup>, the land has all the services and facilities to make the collection with a cost of approximate investment of \$ 30,000.00 Considering that the mechanical method will be used and that it may have the option of being scaled at the industrial level, the design of the fermenter, installation costs, labor, I am also carrying out a market study, for the sale of the product. When conducting a market study, we seek to obtain current information on the needs existing in the city of Papantla and its surroundings, in relation to liquor consumption, tastes, preferences, parameters that allow to delimit the demand and supply, as the unsatisfied demand of the sector. In the current world, the market and its structure are predominant factors for the development of any project, the market study, as it consists of determining the quantity of goods and services that companies are able to produce to meet the needs of the market. The population at a price level set by the competition.

Liqueur, Pilot plant, Schnapps, Tequila

Resumen

En este trabajo se presenta el diseño de una planta piloto de licor de café que será ubicada en la ciudad de Papantla Veracruz, en un predio de 2500 m<sup>2</sup>, el terreno cuenta con todos los servicios y las facilidades para poder realizar el acopio con un costo de inversión aproximado de \$30,000.00. Considerando que se utilizará el método mecánico y que puede tener la opción de ser escalado a nivel industrial, se muestra también el diseño del fermentador, costos de instalación, mano de obra, se realizó un estudio de mercado, para la venta del producto. Al realizar un estudio de mercado se busca obtener información actual sobre las necesidades existentes en la ciudad de Papantla y sus alrededores, con relación al consumo de licor, gustos, preferencias, parámetros que permitan delimitar la demanda y oferta, como la demanda insatisfecha del sector. En el mundo actual el mercado y su estructura son factores predominantes para el desarrollo de cualquier proyecto, el estudio de mercado consiste en la determinación de la cantidad de bienes y servicios que las empresas están en posibilidad de producir para atender las necesidades de la población a un nivel de precio fijado por la competencia.

Licor, Planta piloto, Aguardiente, Tequila

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## Introduction

The liquor market worldwide, is very variable, segmented and dependent on marketing strategies. There are many cultures that are rooted in their ancestral traditions and among these arise traditional drinks of the country, as is the case of tequila, brandy and wine, among other alcoholic beverages that have been linked as tradition, giving rise to being marketed in the outside.

The constant technological advance and the appearance of new products in the traditional gastronomy within the cultural segment show the need to carry out studies in the elaboration of artisanal liquor. [1]

The process and the application of correct traditional techniques, in the elaboration of artisanal beverages, is as important as its correct combination, in order to obtain from these its best attributes.

The theoretical and practical information about the elaboration and application of the liqueurs, to obtain an artisan liquor with authentic flavor of the region and to delight the most demanding palates. [2]

Within this work we present the design of the fermenter that was used during the process. The methodology that was implemented in this product was traditionally.

## Methodology to be developed

### Process

For the elaboration of coffee liquor, 300 grams of coffee were processed on a granatary scale and 500 grams of sugar. 500 mL of water and 500 mL of brandy were measured in a beaker, and then added to a flask. previously washed, 500 mL of brandy, then in a constant agitation grate, was placed in a beaker with 500 mL of water and 500 g of sugar was added, then it was allowed to stir for a time of 20 min for its dilution, Once the sugar was diluted, it was added to the bottle with brandy, finally the 300 g of coffee was added, a pod of vanilla and cinnamon was placed, finally it was shaken and the bottle was covered correctly; and let it rest for a period of 20 days.

## For the preparation of coffee liqueur (Tequila)

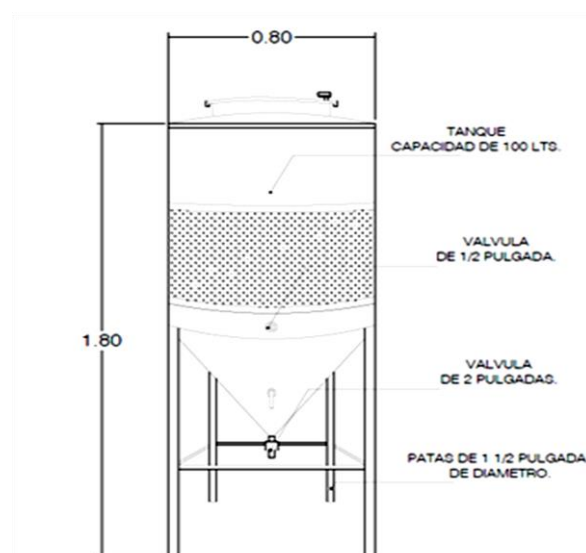
They were used:

- 500 g of sugar
- 500 mL of water
- 500 mL of tequila (Widow of R)
- 300 g of coffee (Baptist)
- 1 vanilla pod
- Cinnamon

For the elaboration of coffee liqueur, according to the alcohol / sugar combination mentioned by Licata 2010; we proceeded to weigh 300 g of coffee on a grain scale and 500 g of sugar, 500 mL of water and 500 mL of tequila were measured in a beaker, and 500 mL of tequila was added to a previously washed bottle. in a constant stirring rack, it was placed in a beaker with 500 mL of water, then 500 g of sugar was added, then it was allowed to stir for a time of 20 min for its dilution, once the sugar was diluted, it was added in the bottle the tequila, finally add the 300 g of coffee, put 1 pod of vanilla and cinnamon, stir and cover the bottle properly; it is left to rest for a period of 20 days.

## Results

In this section, the design of the fermenter is first known, where the coffee liquor is obtained, which is shown in figure 1.

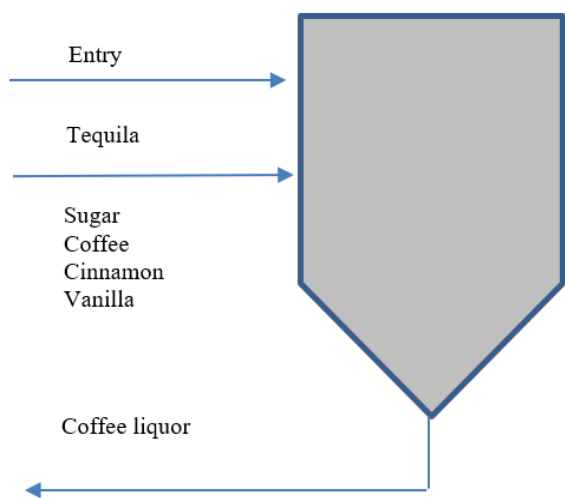


**Figure 1** Fermentor design

Source: Self Made

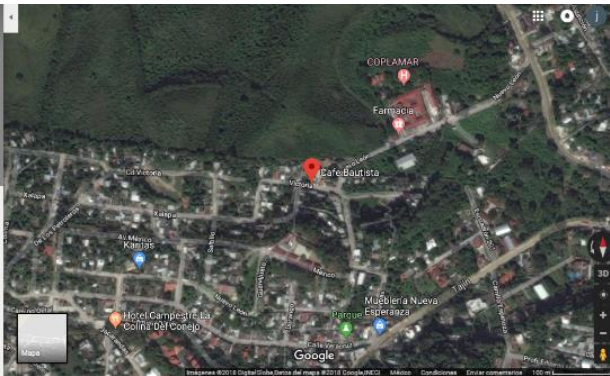
The fermentor has a capacity of 20 L of production.

The diagram of the process for the obtaining of the liquor is presented where it is left to rest for a period of approximately 20 days to obtain the final product, Figure 2.



**Figure 2** Fermenter process diagram  
*Source: Self Made*

The plant that was designed for coffee liquor will be located exactly in Victoria, Valentín Gómez Farías 113, Papantla de Olarte, Veracruz, which is shown in figure 3.



**Figure 3** Location of the coffee liquor plant  
*Source (Own elaboration) Source (Google maps)*

The following tables show the operating expenses, as well as an economic analysis, according to Urbina 2010 and Toledo Vesco 2007, of the investment for the preparation of the coffee liquor plant.

| Operation  |             |
|------------|-------------|
| Workforce  | \$25,200.00 |
| Boxes      | \$448.00    |
| Bottles    | \$1,800.00  |
| Mtto. Team | \$800       |
| Light      | \$490.45    |
| Total      | \$28,738.45 |

**Table 1** Operating costs  
*Source: Self Made*

| Administration       |                      |
|----------------------|----------------------|
| M. Administrative O. | M. Administrative O. |
| Secretary            | Secretary            |
| Vigilant             | Vigilant             |
| Adm.                 | Adm.                 |
| Assistant            | Assistant            |
| Light water          | Light water          |
| Phone                | Phone                |
| Office expenses      | Office expenses      |

**Table 2** Administration costs  
*Source: Self Made*

| Description      | Cost     | Units | Total cost |
|------------------|----------|-------|------------|
| Fermentor        | \$15,000 | 1     | \$15,000   |
| Work table       | \$2,800  | 2     | \$5,600    |
| Containers       | \$2,000  | 3     | \$6,000    |
| Transporter cart | \$2,428  | 1     | \$2,428    |
| Baptist Coffee   | \$160.   | 10 kg | \$1,600    |
| Vanilla          | \$8,000  | 1 kg  | \$8,000    |
| Salaries         | \$4,200  | 3     | \$12,600   |
| Exintor          | \$910    | 2     | \$1,1820   |
| Schnapps         | \$25     | 20 L  | \$500      |
| Tequila          | \$150    | 20 L  | \$3,000    |
| Extractor        | \$2,200  | 2     | \$4,400    |
| Total            |          |       | \$60,948   |

**Table 3** Economic analysis  
*Source: Self Made*

According to the data in table 1, 2 and 3, they make a total investment cost of \$ 160,999.03 pesos MN, which is very important since the microenterprise is introducing in the local market to \$ 180 the 125 mL and \$ 250 the of 222 mL; selling 100 units of each monthly presentation has a total of \$ 43,000 pesos M.N, therefore with the above presented, the investment is obtained in the fourth month, thereafter would be profits.

Acknowledgment

Mainly to the Universidad Veracruzana for having allowed this project to be carried out in the best way possible within the facilities, in turn also a great contribution to the micro-business "Café Bautista".

Conclusions

As a final product, a quality artisanal liquor was obtained with raw materials from the region.

This work was carried out with the purpose of giving use to the raw material that is found in the Totonacapan region, and to obtain a monetary benefit with the realization of artisanal liquor of the region, highlighting the area with this product.

Once the coffee liqueur was obtained, it was given a ready presentation to go to the market and be commercialized.

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