

SÁBILA MERMELADE. PROPOSAL FOR A PRODUCT WITH VISIÓN DE INDUSTRIALIZARLO Y COMERCIALIZARLO

Verónica Rangel Medina

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

Verónica Esmeralda Hernández Medrano

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

María Magdalena Esquivel Lozano

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

Jordano Zahid Alonso Delgado

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

Pedro Armando Malagón Navarro

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

San Juanita Adelaida Uribe Herrera

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

Manuel Antonio Valero Estrada

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

Ángel Antonio Santillán García

Instituto Tecnológico de Estudios Superiores
de la Región Carbonífera

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Abstract: The present article explains the physical and chemical properties, uses, methods of siembra, care and sale of the sábila, with the purpose of which the interested investors, at a given time, can have the vision to establish, in a future, the industrialization and product marketing. The primary objectives are, to have a free jam to sell and help with the execution of a new innovative product, as well as to reduce obesity in the coal region; give a vision and determine if the product has an opportunity to be accepted in the market. Aloe vera has its origin on the African continent, on the peninsula of Arabia, Asia and the Mediterranean. (Calderón-Oliver, 2011). In the course of time, researchers and doctors have intensified the studies related to the sábila, giving an account of the so many positive effects that it produces in the human being, as a result, a great acceptance for the products that it contains. For that reason, it is not strange to find, in industrialized countries, a large number of products that remain wise. Today, the market is home to a great diversity of products for the prevention of childhood obesity, youth and older adults for their well-being, in addition, aesthetic products for the care and beauty of women. The type of specific investigation that we used was the mix. In this way, we obtained quantitative, qualitative and statistical data. For the application of the survey, a sample calculation was carried out obtained from the inhabitants of Sabinas Coahuila, which corresponds to a study of the year 2015 provided by the INEGI of the Intercensal Survey 2015, (INEGI, 2015) corresponding to habitual residents of private homes, of men and women mayor of age, counting also with adults older than 60 years in the Municipality of Sabinas Coahuila. We had a great response from the surveys, since the age range of our surveys is between 10 and 26 years old. This leaves us as a result that our market to attack is between 21-25

years of age, and in the results it is noted by a 40.3% of surveyed population. We can decide with exactitude that we have a great Mexican marmalade accepted and supported by the inhabitants of Sabinas Coahuila in the puerta. We were able to conclude that this product will be very feasible, profitable, and healthy for all our consumers in several decades. For the Sabinenses, their health is of paramount importance, we have 56.8% who are interested in a healthy product, perhaps with 28.1% and many people who are not interested in the seals.

INTRODUCTION

This document presents all the research carried out to fulfill the objective of finding out the medicinal properties of the sábila, as well as finding ways to make homemade products that help to maintain good health.

Everything was done on the basis of experimentation, so the results are true in relation to the reality of this plant. Hoping that this work meets expectations.

This investigation seeks to answer the following questions:

- What medicinal properties does Aloe Vera have?
- What products can be obtained from Aloe Vera?
- How to obtain products based on Aloe Vera?

La Sábila (Aloe vera), is a plant that belongs to the family of liliaceae. It looks like a little maguey. It is perennial, with a long rhizome. It propagates by division of the forest. Y have a habit of herbaceous growth. The phytochemical analysis of the Sábila reflects that they have essential accepts, alkaloids, cardiotoxic glucosides, tannins, glucose, proteins and resins. From the Sábila, the root, the stalk and the hojas are used.

This plant has medicinal properties to combat headache, stomachache, skin

infections, and control of the paper.

La sábila (Aloe vera) as a food product has not been presented on the market despite being a plant with innumerable nutritional properties and what you want to achieve is a product taking advantage of all the qualities that the Aloe vera mix has.

Currently in our country, although this ancestral plant has been very widespread, mostly in the area of pharmacy and popular remedies, it has fallen into oblivion on the part of the population at the nutritional level.

The purpose of this product:

It is to incorporate a different product in the market, which attracts new consumers, in these times where there is a concern to find nutritious food. Giving to know a food alternative, which would be economical; That's why there is an alternative to a new product that replaces your way of consumption, as is the case of lamermedada de sábila.

This product is addressed to:

For children, youth and adults. Ya que es to prevent obesity.

THEORY

Aloevera is one of the 11 most commonly used plants in the naturist industry to make drugs (Calderón-Oliver, 2011), in addition to strengthening the immune system. In addition, it helps with eye conditions and intestinal disorders as it controls stress and acts as an anti-dysenteric, anti-hemorrhoidal, healing, laxative and choleric agent. Intestinal disorders are cured thanks to the secondary metabolites that contain anthraquinones, including Aloe emodin and chrysolids, which help the gastrointestinal system. (R.A., 2005)

Fruit marmalade is defined as a product with a pasty or gelatinous consistency, obtained by cooking and concentrating healthy fruits, properly prepared, with the addition of sweeteners, without the addition of water. (ASALE, 2010)

While the proportion of fruit and sugar varies depending on the type of jam, the ripening point of the fruit and other factors, the usual starting point is in proportion 1:1 by weight. When the mixture reaches 105 °C, the acid and the pectin of the fruit react with the sugar making the mixture cool. In order for the marmalade to form, it is important that the fruit contains pectin. Some fruits that contain pectin are: the apples, the citrus fruits, and numerous fruits from the forest, with the exception of the fresas and laszarzamoras, for example. To make marmalade from these fruits, the industry added pure pectin, but the homemade method consisted of adding another fruit with abundant pectin. (Ahlawat, 2011)

Aloevera belongs to the division: Magnoliophyta, class: Liliopsida, order: Asparagales, family: Xanthorrhoeaceae, subfamily: Asphodeloideae, genus: Aloe, species: Aloe vera and its common name. This plant is considered to be among the succulents, belonging to the crasulaceae (CAM), as it is mostly composed of water (95%), therefore, its leaves are fleshy and elongated (Hamman, 2008). These plant organs reach a height of up to 70 cm and are composed of an exocarpio that is the cortex of the today, the parenchyma, known as a gel; similarly, between the corteza and the gel the aloin conduits are found, this plant also has a floral scape of 30 to 40 cm in length, and the inflorescence is racimosa with tubular, hanging and yellow flowers. (Jiménez, 2015)

Aloevera has its origin on the African continent, on the peninsula of Arabia, Asia and the Mediterranean. (Calderón-Oliver, 2011)

America is considered the largest producer of Aloe vera in the world, contributing around 81% in total production, highlighting Mexico as the main producer country with 10,700 ha cultivated per year. It is worth mentioning that

other important producers are the Dominican Republic, the United States and Costa Rica. (Ni, 2004)

Mexico stands out as the main world exporter of raw material for this crop. Nationally, the cultivation of Aloe vera is mainly concentrated in the states of Veracruz, Yucatán and Tamaulipas (Álvarez, 2012). The state of Tamaulipas occupies the first place in production in the country with 158,000 tons per year, it is distributed among the municipalities of Llera, Padilla, Tula and mainly in González and Jaumave (MILENIO, 2018). However, despite the great importance of cultivation, there is little information in Mexico (SIAP, 2015)

In Mexico, 70% of Mexicans are overweight and a third part suffers from obesity, in addition, this disease is mainly associated with diabetes and cardiovascular diseases.

Poor healthy eating habits and lack of exercise cause 32% of women's deaths and 20% of men in the country.

The most effective way to know the degree of obesity and overweight in people is according to their Body Mass Index (BMI).

According to criteria established by the World Health Organization (WHO), a person is considered to be overweight when their BMI is between 25.0 and 29.9; Grade I obesity is considered when the BMI is between 30.0 and 34.9; Obesity Grade II when the BMI is between 35.0 and 39.9, and obesity Grade III when the BMI is equal to the highest 40. (State, 2016)

Obesity and overweight are defined as an abnormal or excessive accumulation of fat that can be harmful to health. A simple way to measure obesity is the body mass index (BMI), this is the weight of a person in kilograms divided by the square of the body in meters. A person with a BMI equal to or greater than 30 is considered obese and with a BMI equal to or greater than 25 is considered

overweight. Overweight and obesity are risk factors for numerous chronic diseases, including diabetes, cardiovascular diseases and cancer. («Obesity and overweight», 2012)

Diabetes is a suffering in which the sugar (or glucose) in the blood is at a high level. This is because the body does not produce or properly uses insulin, a hormone that helps cells transform glucose (which comes from food) into energy. Without enough insulin, the glucose remains in the blood and with the time, this excess can have serious complications. (Rojas Martínez, 2015) Once I put the topic on the table on obesity in Mexico, it is worth noting that the marmalades separated on many occasions from the usual diet due to their high content of sugar, the marmalades and confituras are products that, consumed with moderation, they can cheer us up in the mornings.

Its consumption is also recommended for overweight or obese people who are involved in weight loss treatment. However, there is no need to forget that they can provide a point of satisfaction in the low-calorie diet, with what is always best to get an agreement with the dietitian-nutritionist to integrate them into the diet in case the patient wants it.

The hypocaloric diet is that diet regimen that bases its application in the daily caloric restriction, or the reduction in the food intake (which provides calories). have side effects such as the rebound effect (an increase in weight). It is the most common diet in diagnosed cases of obesity and overweight. (Basilio Moreno Esteban, 1997)

If you have to choose between jam or confiture, it is preferable to the first one, since it is made with whole fruit and contains a smaller amount of sugar.

Remember that the 'extra' category contains more fruit, with proportionally less sugar. However, it is always important that we read the label and compare, if necessary, the

content of sugar of different types and brands, so that we choose the one that best suits our needs.

EXPERIMENTAL PART

In order for the product to be successful in the market, it is necessary to know the advantages and disadvantages of the same, a FUECK analysis will be implemented; This will help us to know more about the background as a product and the aptitudes that we will have in the future for the moment to launch it in the regional market. The type of specific investigation that will be used will be the mix, the one that will help, with the complement of surveys hechos to the consumers of the region. In this way, quantitative, qualitative and statistical data will be obtained that will keep us as far as the viability of the product is concerned.

He worked alongside a nutrition specialist, Lic. Tiare Alonso Delgado, applying the interview instrument, worked on improving the energy and nutritional content of the mermelada.

For the application of a survey, if you have to carry out a sample calculation of the inhabitants of Sabinas Coahuila for which place, the data issued by the INEGI of the Intercensal survey 2015, (INEGI, 2015) corresponding to habitual residents of private homes of Men and women mayor of age also counting with adults older than 60 years in the Municipality of Sabinas Coahuila.

They will only try to be potential customers who can purchase the service from the 'Sábila marmalade' due to the information provided, results were obtained on the main people who buy marmalade, are mayors of the city, thus counting only 33,426 inhabitants of Sabinas Coahuila giving a total of 381 samples to be carried out.

To obtain the sample, I use the following formula proposed by Murray and Larry.

In this way, we will know the exact number of inhabitants that we will need so that the results of the survey are feasible, throwing us a result of 381 samples to be carried out.

Due to the pandemic and the impact of social networks, the safest way to apply a survey was through the Google server; It's very easy to execute, apply and use. the application of it

$$n = \frac{Z^2 \sigma^2 N}{e^2(N-1) + Z^2 \sigma^2}$$

survey will seek as a result to know the acceptance of the product in the consumer. The survey will be shared via Facebook and WhatsApp, from our official Sabilada marmalade pages.

According to the results of the applied survey, we can deduce whether our product is not accepted by the consumer.

To be accepted; It will be safe and reliable to launch it at short notice in addition to having carried out a market segmentation. Of being rejected, if you intend to apply another more specific survey, of why the rejection of the product; with the purpose of improving in all aspects and thus being able to have the desired acceptance.

It is required that the summary of the work be accepted, that the corresponding amount of the video be presented and that it be presented, so as to comply with the format described here, otherwise it will not be considered for the book. It is also required to fill in and sign the copyright assignment agreement.

RESULTS

According to the data collected by the surveyors, by the participants in the show, the surveys' age range is between 10 and 26 years. It is as an experience that the market is between 21-25 years, and that the results are noticeable by 40.3%, very around this result follows from 16-20 years with 39.6%, after which it

follows from 26 years the most with a 15.1 and lastly the one with the lowest participation is between 10-15 years with a 5%. It is worth noting that the product is directed, but good when it is interested in the product. The analysis throws a lot of emphasis on the female gender, with more than 50% participation on the male gender. This gives a more accurate and favorable approach to the study, as it is known in advance that the occupation of each one is very important because of this, the mayor responded by students, secondly to the professionals, following them from an office or trabajador, and finalizing people who are free in their time and for the moment they are not dedicated. To identify who bought and why they bought the sábila jam, we obtained 56.8% of acceptance, 28.1% of the time, and whoever planned to consume them was 15.1%; this is a big step to carry out the realization of the product. The supermarket, the favorite service store of future customers, with 65.5% of all is in the Super Gutiérrez commercial chain, in second place, they prefer to buy online, in third place, Soriana with 10.1% other self-services below. These are extremely important and useful at the time of introducing the product to the market and knowing in advance where to start. According to the results of 42, 8.2% would buy the product from their parents in second place with 25.9% to their abuelo, in 23.3% to a parent of their same age and finishing with a minor.

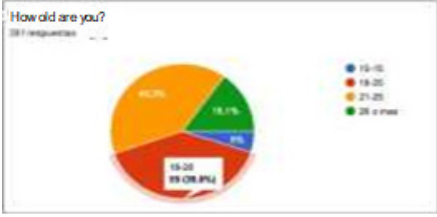
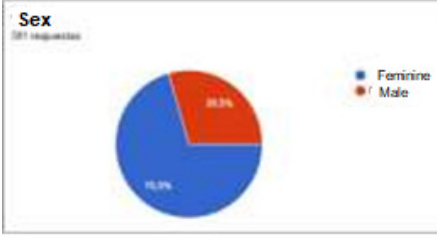
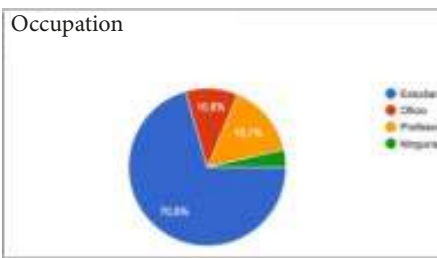

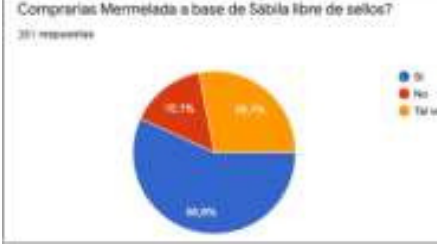
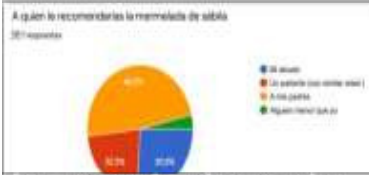

CONCLUSIONS

Thanks to the performance of the entire team, it was possible to decide with exactitude that a Mexican marmalade was accepted and supported by the inhabitants of Sabinas Coahuila. And that this product will be feasible, profitable, and healthy for all consumers in several decades, and that 56.8% are interested in a healthy product, perhaps with 28.1% and few people are interested in

the information contained in the seals.

As a result, a reliable product of high quality is obtained. As mentioned above, a market study was carried out to know the possible supply and demand that exists in this product. Know the potential consumers, the different points of sale and the publicity.

Survey tabulation and interpretation.

QUESTION	INTERPRETATION	RESULTS SCHEDULE
<p>How old are you?*</p> <p><input type="radio"/> 10-15</p> <p><input type="radio"/> 16-20</p> <p><input type="radio"/> 21-25</p> <p><input type="radio"/> 26 or more</p>	<p>The results that can be observed in the graphic, throws the range of ages from 21 to 25 years old, has the greatest interaction and response on the part of the surveys.</p>	
<p>Sex*</p> <p><input type="radio"/> Female</p> <p><input type="radio"/> Male</p>	<p>In the analysis of the results of this graphic, the feminine gender tuvo more interaction at the moment of the survey. The interest that the surveys presented marked a difference about him male gender.</p>	
<p>Occupation?</p> <p><input type="radio"/> Student</p> <p><input type="radio"/> Job</p> <p><input type="radio"/> Profession</p> <p><input type="radio"/> None</p>	<p>The occupation of each person is very important, thanks to these results we can firmly decide that the students show a great response of interest to the mermelada.</p>	
<p>Comprarias Mermelada a base de Sábila libre de sellos?*</p> <p>Would you buy marmalade based on sabila libre de sellos?</p>  <p><input type="radio"/> Yes</p> <p><input type="radio"/> Nope</p> <p><input type="radio"/> Perhaps</p>	<p>Nowadays, it is very common to see in the packages that we consume embossed warning seals. The graphed results demonstrate the importance that the consumer gives to their food and for them it is only important that the product is free of seals.</p>	
<p>To whom would you recommend aloe vera jam?</p> <p>My grandfather Single relative (with similar age) To my parents someone younger than me</p>	<p>As is well known, at the time of purchasing a product to consume it, the most important thing for the company is the recommendation that is given from client to client. Thanks to this graphic, arroja que los padres es el potencial más recommended</p>	
<p>En cual supermercado te gustaria que vendieran mermelada de:</p> <p><input type="radio"/> Gutierrez</p> <p><input type="radio"/> Simiana</p> <p><input type="radio"/> Mexico</p> <p><input type="radio"/> Preferencia Online</p> <p><input type="radio"/> Otro: _____</p>	<p>It is an important step to know the segmentation of the market and more to know which commercial establishment appeals to our client. We observed the popularity and impact that the Gutiérrez commercial chain has on consumers.</p>	

Source: own elaboration

REFERENCES

1. Álvarez, M. R. (2012). *Efectos de la certificación sobre la competitividad de la industria de la sábila en México*. Ciudad de México: Revista Mexicana de Agronegocios.
 2. Ahlawat, K. y. (2011). *Processing, food applications and safety of Aloe vera products: a review*. Journal of Food Science and Technology.
 3. ASALE, R. (2010). *Mermelada* (Vol. Edición del tricentenario online.). Diccionario de la lengua española.
 4. Basilio Moreno Esteban, M. G. (1997). *Diagnóstico y Tratamiento en Enfermedades Metabólicas, Madrid*. Ediciones Díaz de Santos, S.A.
 5. Calderón-Oliver, M. Q.-C. (2011). *Efectos benéficos del Aloe en la salud*. Revista especializada en Ciencias de la Salud.
 6. DOMINGUEZ-FERNANDEZ, R. (2012). *Aloe vera gel: structure, chemical composition, processing, biological activity and importance in pharmaceutical and food industry*.(Vol. XI). Rev. Mex. Ing. Quím [online].
 7. Esmaeili, A. y. (2015). *Preparation of Polyamide Nanocapsules of Aloe vera L. Delivery with In Vivo Studies*. AAPS PharmSciTech.
 8. Estado, I. d. (2016). Fernández, D. (2012).
 9. INEGI. (2015). *INFORMACION POR IDENTIDAD*. Obtenido de <http://www.cuentame.inegi.org.mx/monografias/informacion/coah/poblacion/default.aapx?te ma=me>
 10. Jiménez, C. (2015). *Identificación de Fito patógenos asociados a las principales enfermedades del cultivo de sábila en los municipios de Agua de Dios y Ricaurte (Cundinamarca)*. Revista Tecnología y Productividad Girardot Regional Cundinamarca.
 11. MILENIO. (2018). *Tamaulipas, líder en producción de sábila*. Obtenido de <http://www.milenio.com/negocios/tamaulipas-lider-en-produccion-de-sabila>.
 12. Ni, Y. T. (2004). *Isolation and characterization of structural components of Aloe vera L*.
- International Immunopharmacology.
13. «Obesidad y sobrepeso». (2012). Obtenido de sitio web de la OMS
 14. R.A., S. (2005). *Aloe vera: ¿respalda la evidencia científica las cualidades que le atribuye la medicina natural?* Metas de Enfermería.
 15. Rana, S. S. (2018). *A mini review on morphological, biochemical and molecular characterization of Aloe vera L*. International Journal of Chemical Studies.
 16. RIO, B. D. (s.f.). Obtenido de Los 6 productos de aloe vera más vendidos en Amazon: <https://www.elle.com/es/belleza/cara-cuerpo/g19683879/mejores-productos-de-aloe-vera-amazon-baratos-cremas/>
 17. Rojas Martínez, M. R. (2015). *Epidemiología de la diabetes mellitus en México*”. Academia Nacional de Medicina de México.
 18. SIAP. (2015). *Servicio de Información Agroalimentaria y Pesquera. Cierre de la producción agrícola por cultivo. México*. Obtenido de <http://infosiap.siap.gob.mx/agricola>