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Presentation

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In Number 1st presented an article Determination of the water irrigation quality on the heavy metals concentration in agricultural soil and maize cultivated in the Valle del Mezquital, Hidalgo, Mexico by VÁZQUEZ-NÚÑEZ, Edgar & HERRERA-TELLEZ, Mario with adscription *Universidad de Guanajuato, Universidad Tecnica de Tula-Tepeji*, next article Estimation of energy potential of the main crop residues generated in the state of Hidalgo, Mexico by VÁZQUEZ-NÚÑEZ, Edgar, VALLE-GARCÍA, Jessica Denisse and FRÍAS-MARTÍNEZ, Teresa Yadira with adscription *Universidad de Guanajuato, Universidad de Tula-Tepeji*, next article Ancient Vegetables from Campeche between Disuse and Oblivion of the Current Consumer by NIÑO, Naú, BOLÍVAR, Nidelvia and VALENCIA, Marvel with adscription *Universidad Autónoma de Guerrero*, next article Freedom and education in postmodernism by GARCÍA-GONZÁLEZ, Alejandro.

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Ancient Vegetables from Campeche between Disuse and Oblivion of the Current Consumer

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Abstract

Among the goals, we can mention: **a)** exemplifying the traditional vegetables which are replaced in the diet of the people and **b)** synthesizing the consumption that the people hold their plant resources.

The method used was of a mixed nature came together where quantitative and qualitative techniques were used during office and field work, the latter consisted of questionnaire applications aimed at 500 people in four of the eleven municipalities of Campeche. In the applied questionnaires, 15 items about vegetbles; besides, they also considered knowledge and use of plant resources of tropical origin which are cultivated and consumed among the people.

As results, there are three key products that are being replaced, such as: local Caita squash (Cucurbita spp.) by Italian Zucchini (Cucurbita spp.), Milpa melon (Cucumis melo) by Chinese melon (Cucumis melo). To conclude, we can say that ancient vegetables are less consumed by the current people, resulting in loss of natural heritage.

Vegetables, Southeast of Mexico, Campeche, ancient agriculture

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Introduction

In Mexico, there is a huge variety of local vegetables among which we can mention: the local zucchini and the cornfield melon which are interspersed with the corn cultivation in order to increase the profitability of the soil that is cultivated by Mexican peasants. However, some vegetables have disappeared due to the lack of usage continuation when people prefer the new selections that are more productive, some of them are isolated and some others require characterization, selection and improvement to identify outstanding features (Villanueva, 2007).

In this essay, we can defend the fact that the plant products of tropical origin growing in Campeche are, all in all, widely distributed in the tropics of the world in a range of altitude that oscillates between 0 and 1200 m, i.e., from the coast to the Highlands, in the majority of cases. So, it aims to integrate the debate in the sense that the price reaching these plant resources is heterogeneous, which means a financial contribution for producers who can sell them. However, it is important to note that processes of marketing of these products, in most cases, are at local and regional level.

The purpose of the investigation has to do with ancient vegetables that are considered, worldwide, exotic fruits of limited use, little available in markets and their consumption (usually) restricted to regional and local markets nationwide. Populations, inhabiting large cities, consume very little and they are usually associated with high income sectors.

Part of the current problem which arises in the extensive marketing of these products is that we face a highly competitive horticultural market. The importance of the research lies in the existence of a factor that strongly determines the marketing of the vegetables of tropical origin.

To address this problem, we should reduce the investment costs by purchasing seeds of different vegetables in the Mexican farmland and particularly in Campeche where there is a sustainable strategy that would impact in a positive way on the production of butternut squash and melon with which the profit margins for the producer would increase (Sánchez *et al*, 2011, Figure 1).

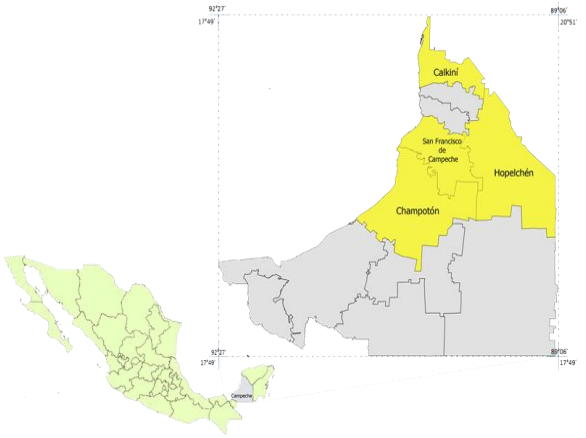

Figure 1 Study area

These vegetables have been cultivated in Campeche since the ancient times for personal consumption as well as corn and bean, they have always been part of people's diet, which could positively improve and complement the nutrition since they are vegetables taking advantage of the consumption of their seeds (Ruelas, Aguilar, García, Valdivia & López 2015: 1846).

Some bibliographic references as (Bolívar, Valencia & Sauri, 2009), expose the lack of opportunities for marketing with the consequent decrease of income associated with such resources as the situation that leads to the opening of the owners of the vegetable producers, to hear new ideas from land to use which usually come from promoters of GM crops; this implies one of the challenges in the conservation of genetic resources of tropical origin, the preservation of the intangible cultural heritage linked to them.

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In order to recognize the importance of traditional vegetables and resize its socio-cultural value in Campeche and its people's diet.

There are four sections that integrate this article, these sections are: objectives, methodology, results and conclusions.

Objectives

Among the goals, we consider: ***a)*** exemplifying the traditional vegetables which are replaced in the diet of the people in Campeche and ***b)*** synthesizing the consumption of the plant resources that these people have.

Methodology

Firstly, an office work was carried out through consultation of digital and printed literature of topics as a strategy to preserve the natural heritage (Valencia, Bolívar & López, 2013), floral species that became obsolete by future generations (Romero, Valencia, López & Bolívar, 2013) and loss of traditional trees and intangible heritage in the city of San Francisco de Campeche (Bolívar & Valencia, 2014).

Secondly, a work of field was carried out for the achievement of the objectives raised in such way that some face-to-face surveys were also carried out in the four municipalities of the State of Campeche, during the period between September 2011 and February 2015. The applied questionnaires showed, among other results, the following information: full name, address and age of the surveyed.

For the pilot project of the questionnaires a sample of 500 people in four of the eleven municipalities of the State of Campeche was used: Calkiní (100 persons), Campeche (250 persons), Champotón (75 persons) and Hopelchén (75 persons).

In the survey, we asked about the knowledge, use and disuse of the plant resources of tropical origin that are harvested in Campeche. During the questionnaires' process of validation, some images were added as well as and the element called "Forms of Consumption of" (for meals, drinks and desserts), with the format that is shown in Table 1 (Bolívar & Romero, 2007).

Results

The results por example refer to the natural drinks made by vegetables and other fruits in order to contrast them with artificial drinks so that we can demonstrate that consumers in Campeche prefer drinking artificial beverages rather than the natural ones. Finally, a sampling was performed by conglomerates through neighborhoods and municipalities, with an equivalent sample to 10% of the population of each municipality (Saldaña & Niño, 2013). All of this represents an added value regarding other techniques outlined in the existing literature on the subject.

Results obtained on the basis of the elementary and secondary students' knowledge during the 2011-2015 are shown in tables 1 and 2.

Year	2011	2012	2013	2014	2015
Fruits	Grapes	Tangerines	Oranges	Grapes	Oranges
	Strawberries	Grapes	*Cantaloupes*	Oranges	Apples
	Pears	Oranges	Grapes	Apples	Strawberries
	Apples	Apples	Pineapples	*Cantaloupes*	Pineapples

Table 1 Level of knowledge of fruits in elementary students Source: Own Elaboration, 2012-2015

Table 1 findings showed that elementary students in the State of Campeche do not know the local fruits.

Therefore, they do not consume them, even though they prefer the temperate and cold ones, such as grapes, and mainly citrus fruits like oranges and tangerines (Romero, Bolívar & Valencia, 2012 así como Correa & Niño, 2008) which is a shame since all physical, intellectual, and even professional development and training process are accompanied by a good state of health where food plays a crucial role.

Year	2011	2012	2013	2014	2015
Fruits	Apples	Pineapples	Strawberries	Apples	Oranges
	Strawberri	Apples	Papayas	Pears	*Watermelons*
	Pears	Oranges	Grapes	Pineapple	Apples
	Grapes	Tangerine	Oranges	Papayas	Bananas

Table 2 Level of knowledge of fruits in secondary students Source: Own Elaboration, 2012-2015

Table 2 results, sorted by frequency in descending order, show the knowledge of fruits in secondary students in the state of Campeche, they barely know local fruits and consequently their consumption is minimal, so they prefer temperate and cold fruits, such as apples, pineapples, strawberries, and oranges. In this group of students, we found out that they consume the local fruits (papaya, watermelon and banana), although these do not represent the traditional fruits, they grow in Campeche.

The watermelon cultivation in Campeche, Mexico is really important due to its potentiality in the market, as is demanded during all the year by the local consumers. The average sown watermelon area from 2007 to 2012 was of 1,613 ha; t, 80.93% concentrated in the municipalities of Hopelchén and Campeche whose production as a whole was approximately 33,267 a total in the state of 39,955 t, the latter valued of 117,338 pesos (Uzcanga & Ramírez, 2015: 1331).

"Migration from the countryside to the city contributes to the loss of important varieties of vegetables", said Eduardo Benítez, Deputy Representative of FAO in Mexico. He also mentioned: "those products that are consumed are going unnoticed, then... their disappearance is a latent risk. What is not consumed, is not taken care of, and therefore is not preserved" (Rangel, 2016: 50). The results obtained on the basis of the over-40-year-old adults' knowledge during 2011-2015 are represented in tables 4 and 5.

Having analyzed the results, we could notice that unlike most school-children, adults over 40 years old and under 60 years old, still prefer and consume local products, as demonstrated in 2011 with fruits like mamey-papaya, chi-abal plum and sapodilla; in 2012 the cornfield melon, the cantaloupe and the watermelon, and in third place the orange; in 2013 the first two places were occupied by the citrus fruits, in third place the chi-abal plum, in 2014 and 2015 the coconut in third place, noting that the Zapotaceas: tauch and sapodilla were not preferred by people in 2013, 2014 and 2015, which was interpreted as a lack of knowledge of these fruit trees.

The mamey (Pouteria sapota) is, today, one of the "fine" fruits that is consumed in various parts of the tropics and is used by the food industry in the manufacture of ice cream and cakes (Linares & Bye, 2015: 55).

Others results observed were: that adults over 60 years old still prefer and consume local products, the most important ones were: in 2011 mamey-papaya, chi-abal plum and sapodilla; in 2012: manila-mango, sapodilla and chi-abal plum in third place; in 2013: sapodilla, redcurrant, chi-abal in third place; in 2014: nance, soursop and coconut; in 2015: pitahaya, mamey, and soursop in third place, observing that adults prefer the region fruits.

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To our certain knowledge, these products are widely regarded as their natural heritage. We, particularly, pointed out that the sapodilla (*Manilkhara sapota*) is extraordinary, it contains an edible fruit prized for its sweetness and delicious flavor. The Mayans knew and extracted its latex, named "sícte", which is the Mayan term for chewing gum, it was the base of the chicle industry for many years. Nowadays, in the international chewing gum industry, this substance has been replaced by artificial polymers and only the local handcraft industry keeps using it as organic chewing gum, of great value to connoisseurs as a product that supports the conservation of rainforests in our country (Linares & Bye, 2015: 56).

Traditional cuisine has, throughout history, been made up anonymously by women whose stews, tastes and smells have made it survive until our days. Honor to women for being initiators and preserving the cultural heritage of Mexico's gastronomy (Rodríguez & Niño, 2013: 133).

These are the results obtained according to adolescents and adults' preferences of desserts during 2011-2015, (see *Table 3*).

*	Kinds of bread	*	Cold desserts	*	Tradition rts
2	Cake	2	The Mashed candies	3	Sweet
1	Cheese pie	1	Ice cream	2	Plum
1	Upside down le cake	1	Gelatin	2	Pumpkin
2	Doughnuts	8	Crème caramel	1	Sweet andy
1	Vol-au-vents	4	Strawberries & cream	1	Yucca
1	French toast	1	Yogurt & banana	8	Liquor– nce
1	Corn cake	1	Condensed milk candy	6	Marzipan
	Cherry cake	3	Chocolate cream	6	Meringue
	Honey pudding		s covered with chocolate		coconuts
					ut candies

Table 3 Level of preference for desserts in adolescents and adults, with frequencies Source: Own Elaboration, 2011-2015. * f = frequency of consumption

Table 3 results show higher frequencies in different flavored cakes. The first one with 30% is chocolate cake, and 28% three-milk cake; the following is coconut cake with 10% and cheese cake with 5%; the Mashed candies in different flavors, as well as ice cream and pies; the low frequency-traditional sweets are highlighted which were also associated with specific events; for instance, pumpkin candies, yuccas and little coconuts were associated with the celebration of the day of the dead; sweet potato candies, marzipans, coconut candies and meringues are linked to "Holy Child" Novena held in the months of January and February; the plum candy and the liquor-filled Nance candy are related to the tourism and usually consumed when there are visitors. This shows a lack of knowledge (intangible heritage) of traditional desserts (candies), which may disappear in the next generations if we keep the current trend of consumers in the four hearty municipalities of Campeche.

Others results were that the drinks that adolescents and adults preferred during 2011-2015, you can see in the Table 4.

*f	Traditional Drinks	*	Artificial Drinks	*	Fizzy Drinks
33	Pozol	1	Nestea (tea)	4	Cokes
20	New Cornflour	5	Fresky Bon	4	Sodas
14	Tepache	4	Zuco		CHOCOLATE
	NATURAL R	4	Tang	4	Soldadito Soldier)
400	Orange &	3	Hibiscus Flower	3	Bevi
223	*Melon*, a, cashew				TEA
	WATER	2	Be Light Fruit ink	2	Reca
35	Purified water	1	Frisco	4	Nestea
9	Rain water			3	Arizona

Table 4 Level of preferences for drinks in adolescents y adults, with frequencies Source: Own Elaboration, 2011-2015. * f = frequency of consumption

Table 4 results allow us to conclude that: *i)* traditional beverages are now in disuse; *ii)* the fresh fruit waters of the region were preferred by most consumers; *iii)* soft drinks are in a privileged place as the preferred beverages, as are located above the consumption of fresh water by 25%; *iv)* regarding teas, local tea has a high frequency and *v)* rain water is also in disuse as water for human consumption. This information shows a clear loss of traditions linked to the beverages consumed by people from Campeche. Due to this, farmers, who were always the generators of the agro–biodiversity, now prefer planting more profitable fruit and horticultural products rather than letting traditional crops be marginalized (Rangel, 2016).

Conclusions

In general, Campeche's younger population is unaware of many local natural resources and does not consume traditional food, which means losing of intangible heritage that converges to the loss of natural heritage.

It is necessary to inform the future generations about the natural resources and ways of using them, so that they can gain knowledge, as development prospects should steer towards the consumption of local products in order to contribute to biodiversity conservation, reduce the consumption of fossil fuels, give an added value to the work of the peasant and rescue the culinary traditions.

With this study, we managed to statistically know that in the four municipalities of Campeche, the current consumers prefer to include Italian Grey Zucchini in their diet instead of the caita Zucchini and the traditional cornfield melon was replaced by the cantaloupe.

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