

# Use of traditional food and proposal for the dish of good eating for the Totonac region

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## ABSTRACT

**Objective:** To identify the use of traditional food, quantify the main foods consumed in the region, and propose a dish of good eating for the Totonac region.

**Methodology:** A semi-structured survey was carried out in 328 households of the municipality of Filomeno Mata, Veracruz, Mexico. The Household Dietary Diversity Score (HDDS) and a section were used to obtain information about the regional foods that the local population consumes on a daily basis.

**Results:** The families recognized a total of 35 regionally-produced vegetal and animal products. Each household that participated in the survey mentioned an average of 7 foods out of the whole list.

**Limitations:** To improve and implement a good food dish, several elements must be taken into account: age, gender, height, physical activity, or physiological condition, among others.

**Conclusions:** The registered foods are linked to the local culture and open a door to the generation of various resource-leveraging strategies, such as the dish of good eating for the Totonac region.

**Key Words:** regional food, dietary diversity, food security.

## INTRODUCTION

Food diversity has contributed very important resources to human diets through the years. The communities, over the course of their historical evolutions, have added vegetables, fruits, and roots to their diets, making them part of their development (Gispert and Álvares, 1997). Therefore, humans depend on the ecosystems; this situation is very clear in subsistence economies, where human communities take everything they need to survive directly from the ecosystems (Gómez-Baggethun and de Groot, 2007). Consequently, higher diversity creates favorable conditions for a more stable supply of food sources (Torres and Sandoval, 2015).

In this regard, accurate knowledge about the traditional foods of a particular region is decisive for the improvement of the food and nutrition security of the population (Calderón *et al.*, 2017). Therefore, the consumption of local produce establishes an important link: not only does it provide food, sustenance, and employment sources, it establishes a direct and significant relationship between human welfare, nutrition, and agrobiodiversity (Becerril, 2013).

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The current landscape has shown that the weight of exogenous food in rural communities is increasing. This situation led to the addition of industrialized food to the diet of rural communities, which has had negative implications in the diversity of the diet, food security, and nutrimental condition of the members of the domestic units (Otero *et al.*, 2017). This growing dependency implies a reduction in the variety of plants and animals. This situation causes a reduction in the variety of the diet and, consequently, in the agrobiodiversity of the system, resulting in a negative impact on nutrition. Therefore, there are enough proofs to clarify the importance of traditional crops and wild plants and animals for the economic benefit of small farmers and human health (Nivia and Ivette, 2009). Additionally, Hunter and Fanzo (2013) have shown their importance in rural communities. PNUMA (2008) pointed out that they are an invaluable resource because their reproduction enables the adaptation to the changing conditions. This implies a greater planification of proposals that generate strategies aimed at increasing the use of these foods.

Consequently, the objective of this study was to identify the use of traditional food, through the quantification of the main regional foods consumed by households, ultimately achieving a better use of these foods and offering an alternative in financial insolvency times. Additionally, we propose a dish of good eating for the Totonac region. The study was carried out in the municipality of Filomeno Mata, Veracruz, Mexico. This municipality is part of the Totonac culture. The study area has a wide knowledge about the use and care of natural resources.

## MATERIALS AND METHODS

The study was carried out in the municipality of Filomeno Mata, Veracruz, Mexico (20° 10' and 20° 16' N, 97° 38' and 97° 45' W, between 194 and 800 masl). Its borders are the municipalities of Coahuilán, Coyutla, and Mecatlán, Veracruz (N), the municipality of Mecatán and the State of Puebla (E), the State of Puebla (S), the State of Puebla and the municipality of Coahuilán (W) (SEFIPLAN, 2019).

### Selection and size of the sample

The target population was the private household's stratum. The study comprised 2,178 households located only in the municipal seat (INEGI, 2015). The sample was obtained using the formula for finite populations (Wayne, 2017).

$$n = \frac{N * Z_{\alpha}^2 * p * q}{d^2 (N - 1) + Z_{\alpha}^2 * p * q}$$

Where:  $N$ =population size;  $Z=1.96$  trust level;  $p=0.5$  probability of success or expected rate;  $q=0.5$  probability of failure;  $d=0.05$  accuracy (maximum permissible rate error). The analyzed population included 328 households. We used semi-structured interviews and their application was the result of a simple random sampling.

## **Tool**

The questionnaire was structured in two sections. The first section included questions about the diversity or the variety of the diet classification, using the Household Dietary Diversity Score (HDDS) (CONEVAL, 2010). The objective of the questionnaire was to determine the dietary diversity of the households. However, in this case, the questionnaire was only used to establish the number of food groups that can be found in the region.

At the same time, the participants of the survey were asked about the regional foods that they consume daily and were asked to classify them according to the HDDS groups.

A pilot survey (n=10) was used to find inconsistencies in the tool. Additionally, other researches carried out in the area were used to increase the number of regional foods that are used in the area and to generate a dish of good eating for the Totonac region. Therefore, the edible natural resources mentioned by López (2019) were analyzed.

The *Plato de Bien Comer* (good food dish) is a food guide included in the Norma Oficial Mexicana (Mexican Official Standard) and is used to promote and educate the population about food security. It establishes the dietary guidance criteria in Mexico (CIAD, 2021). This categorization has three components: vegetable and fruits; cereals; pulses and food of animal origin (CIAD, 2021).

## **RESULTS AND DISCUSSION**

### **Group classification of the food consumed by the Totonac households**

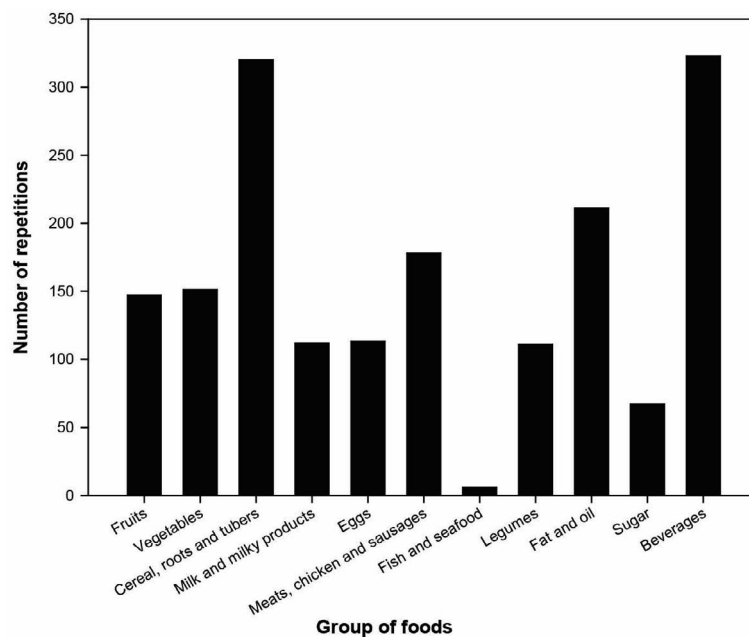
The study area has a great food diversity: the population complements its diet with exogenous products and foods that can be obtained locally.

Local families own productive plots and backyard poultry. Usually, their production is destined for self-consumption, because their plots are small. The agricultural plots and the backyard use have mainly developed diversified food systems. Nevertheless, regional foods are losing ground on the daily diet, because they have been gradually replaced by commercial products; access to those products has become easier throughout the years. They are still present in different degrees and their diets are balanced to a certain point, thanks to this type of product.

Using the HDDS, we determined the food groups that have a higher weight in the area (Figure 1).

The families that participated in the survey reported that the groups that they more frequently consume are: beverages (323); cereals, roots, and tubers (320); lard and oils (211); meat, chicken, and sausages (178); and vegetables (151). We determined that some food groups can be replaced—at least in terms of their percentage—by local products, helping to achieve a better diet.

Beverages are the most frequently mentioned group. In this regard, the excessive consumption of sodas in households causes several diseases, including overweight. In contrast, families tend to consume coffee and beverages prepared with seasonal fruits. Therefore, we established that the use of regional foods involves a healthier diet. Additionally, they provide food to families during financial insolvency times, using products with a cultural identity, which are an alternate source to complement the diet.



**Figure 1.** Group of foods consumed in Totonac households.

### Local food resources used for the diet

The families who participated in the survey recognized and consumed a total of 35 regional products of vegetal and animal origin (Table 1). Each household that participated in the survey mentioned an average of 7 foods out of the whole list. For this analysis, the fruits that are consumed as seasonal aguas frescas or snacks were put in a single group. Other researches have established that there are, at least, 20 fruits grown in productive

**Table 1.** Indigenous foods consumed by Totonac households.

Food group	Common and scientific name
Fruits	Avocado ( <i>Persea americana</i> Mill.), sweet potato ( <i>Ipomoea potatotes</i> (L.) Lam.), sugar cane ( <i>Saccharum</i> spp.), varied fruit trees (no scientific name), tomato ( <i>Solanum lycopersicum</i> ), pahlua ( <i>Persea schiedeana</i> Nees),
Vegetables	Chives ( <i>Allium choenoprasum</i> ), squash ( <i>Sechium edule</i> (Jacq.) Sw.), squash guide, (no scientific name), peppermint ( <i>Mentha spicata</i> ), black nightshade ( <i>Solanum nigrum</i> L.), nopales ( <i>Opuntia ficus-indica</i> ), pichoco ( <i>Erythrina american</i> Mill.), tomatillo ( <i>Physalis gracilis</i> Miers), tree chili ( <i>Capsicum annuum</i> L.), piquin chili ( <i>Capsicum annuum</i> 'Pequin'), coriander ( <i>Coriandrum sativum</i> L.).
Cereals, roots and tubers	Pumpkin ( <i>Cucurbita argyrosperma</i> K. Koch), fungi (wild mushroom) ( <i>Agaricus campestris</i> ), corn ( <i>Zea mays</i> L.), pipian ( <i>Cucurbita argyrosperma</i> ), manioc ( <i>Manihot esculenta</i> Crantz).
Eggs	Wild eggs (no scientific name)
Meats, chicken and sausages	Armadillo ( <i>Dasyopodidae</i> ), pork ( <i>Sus</i> ), hen ( <i>Gallus gallus domesticus</i> ).
Legumes	beans ( <i>Phaseolus vulgaris</i> ), asparagus ( <i>Asparagus officinalis</i> ), bean ( <i>Phaseolus vulgaris</i> L.) guaje ( <i>Leucaena leucocephala</i> (Lam.) De Wit), malvaron ( <i>Xanthosoma robustum</i> Schott), papalo ( <i>Porophyllum ruderale</i> (Jacq.) Cass.), quelites ( <i>Amaranthus hybridus</i> L.).
Sugar	Honey (no scientific name)
Beverages	Coffee ( <i>Coffea arabica</i> L.).

Source: Own elaboration based on López (2019).

plots in the region. Therefore, this study had a different classification for those fruits that are included in dishes, such as avocado, sweet potato, tomato, etc.

In this regard, based on the above-mentioned list, the sample was divided into 8 to 11 of the food groups included in the classification (Figure 2).

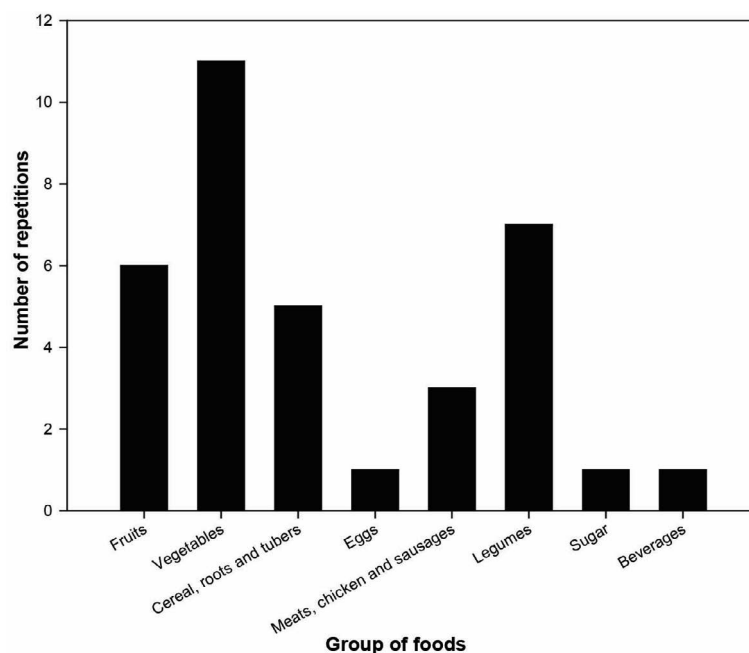
There are no records of local foods that belong to the following groups: milk and dairy products, seafood, lard, and oil. The reason behind this is that the study zone does not have a livestock tradition; additionally, fish and shellfish are only available in nearby cities. Therefore, the results suggest that the area lacks the necessary conditions to substitute these three groups, although it can substitute the remaining eight groups.

Meanwhile, the ten most frequently mentioned products (Figure 3) were: squash, coffee, chile de árbol, pequin peppers, beans, fruits (overall), eggs, corn, quelites (wild herbs), and tomatillos. Therefore, these produces are the most frequently consumed and have a significant presence in the studied households.

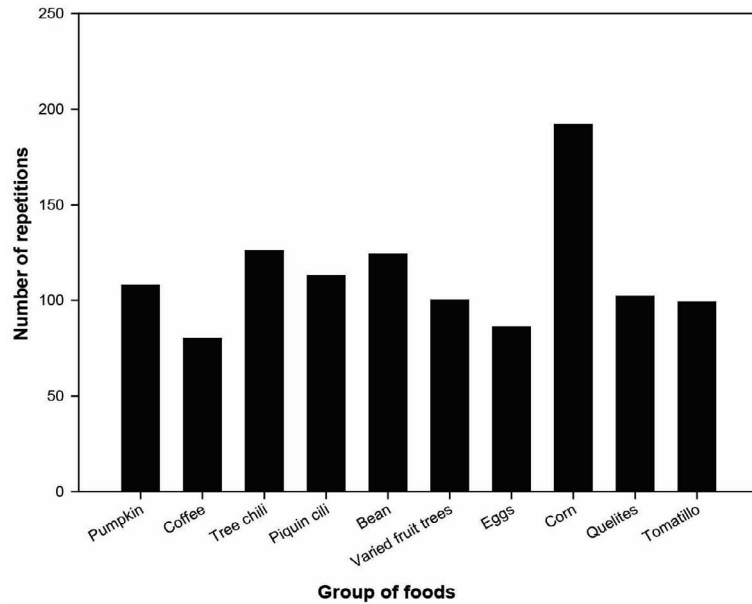
According to the classification that was used for this study, the most consumed regional foods belong to the following groups: vegetables, cereals, roots and tubers, beverages, leguminous plants and pulses, fruits, and eggs. The highest number of species were registered in the vegetables, leguminous plants, and pulses group, as well as the cereals, roots, and tubers group.

### Dish of good eating for the Totonac region proposal

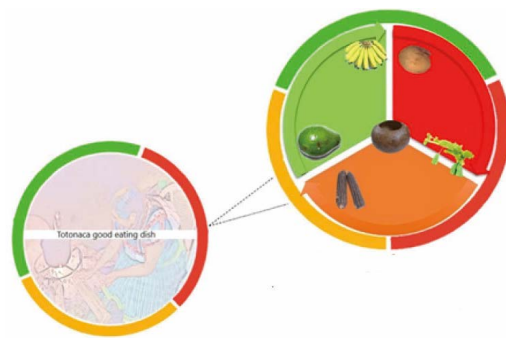
Based on the above-mentioned data and the Mexican Plato del Bien Comer, the food was categorized to propose a Dish of good eating for the Totonac region (Figure 4). For that purpose, the food mentioned in the research and the consulted bibliography was recorded: 59 vegetables and fruits, 1 cereal, and 8 pulses and food of animal origin. The first and the



**Figure 2.** Native foods consumed, classified by food group.



**Figure 3.** Local foods that are mostly consumed.



**\*\*Foods found in another research.** Fruits and vegetables: anay, acamayo capulin mustache, chalahuite (2 varieties), chiltepin, custard apple, plum, foreign epazote, guava, fig tree, jobo, tangerine, mango, passion fruit, orange, nigua, papalo, pine seed, banana, banana apple tree, rose apple, white quelite, quelite, quintonil, tepetomate, shell tomato, wild tomato, purslane, sapote hair, mamey sapote, black sapote, blackberry. Cereals: no product is reported. Legumes and animal food: tree bean and fat bean.

**\*Foods found in the investigation.** Fruits and vegetables: avocado, pumpkin, sweet potato, sugar cane, chives, squash, tree chili, piquin chilli, coriander, asparagus, varied fruit trees, tomato, guaje, squash guide, peppermint, night shade, fungi, malvaron, nopales, pahua, papalo, picocho, pipian, quelites, tomatillo, yuca, manioc. Cereals: corn, legumes and animal food: armadillo, pork, green beans, beans, hen, wild eggs.

**Figure 4.** Proposal of the plate of good peasant.

last categories were the most frequently used foods. There is a clear difference between the quantities reported using this classification versus the HDDS classification. A key point is that the mentioned produces are those that are currently being used in households; as times went by, many other products were no longer used. Therefore, other products that were not mentioned can be explored in a strategic use plan, widening the number of products in each category.

These results showed that a substantial set of local foods can be included in the development of this dish, revealing the local importance of products with a food identity.

Additionally, given the characteristics of the classification, some foods that were registered during this study were not taken into account for this section. Coffee fits into this context —although it is fundamental for households, it is considered a beverage and therefore it is not included in the *Plato del Bien Comer* proposed by the Mexican Government. Likewise, other products —such as garlic and pepper— are known, but used to flavor dishes and therefore do not fall into a clear category.

Generally speaking, regional foods belong to the family diet, as well as to a cultural and social context. Using them encourages an improved diet and, consequently, improves family nutrition. Additionally, government programs can provide greater visibility to local diversity, generating better food conditions.

This research established regional food as a major factor. These results have been validated by studies carried out in Llano del Higo, Jalisco, Mexico by Espinoza (2017) who points out that rural communities use and manage the vegetables, seeds, fruits, and meat in which their subsistence has taken root. In this way, natural resources have provided food culture with irreplaceable resources for the human diet (Gispert and Álvares, 1997). In this sense, some studies prove that people place major importance on the use of wild biodiversity as food (Asprilla-Perea and Díaz-Puente, 2020). Consequently, preserving those resources has become a major factor that must be taken into account, to improve food quality, given the scarcity of products in the market and the limitations put on imports (Yong *et al.*, 2017).

Therefore, rural farming production is a basic food source for rural community households. Previous studies in the study area (including López (2019)) have established that it is necessary to carry out multidisciplinary studies in the indigenous communities, in order to rescue and preserve their knowledge about the use of natural capital.

Meanwhile, food diversity includes the type of food that different cultures prefer; in the case of this study, we determined that corn, *chile de árbol*, and beans are the most consumed foods in this area. These data match the findings of Cruz and Pérez (2018) who found out that the foods preferred by the local culture in deprived municipalities in Chiapas, Mexico, are those that have been handed down from generation to generation (such as corn and beans). Other researchers have determined that some foods —including the main cereals (corn, rice, and wheat)— have been an essential part of the life of certain human groups (Muñoz *et al.*, 2020). Some studies have pointed out that the species with greater regional demand in the food category include: sugar cane, corn, chiltepín, wild tomato, black nightshade, *chile de árbol*, and tomatillo (López-Santiago *et al.*, 2019). Those products are the same products mentioned in this research.

Meanwhile, the *Plato del Bien Comer* proposal made by the Mexican Federal Government is not a very viable option in rural areas, because it includes food products that are unknown to poor populations —particularly indigenous communities (Monárrez-Espino, 2009). Consequently, proposals with greater feasibility have been developed using regional food, to make this meal truly accessible. Some works have been published in this line, including a proposal for a “Mayan Dish”. This *Plato del Bien Comer* for Mayan communities

proposes using the resources available in the communities; this would not have a negative economic impact on the family situation (Cabrera-Araujo *et al.*, 2019). Mayan populations have consumed products that include each food group since times immemorial (Cabrera-Araujo *et al.*, 2019). Therefore, taking into consideration the goals established in this study, a *Plato del Bien Comer* for the Totonac region is feasible.

To improve and apply this good food dish proposal, certain key elements must be taken into account: age, gender, height, physical activity or physiological condition, etc. (CIAD, 2016).

## CONCLUSION

In conclusion, this study reveals the importance of taking care of the latent biodiversity, given the direct relationship that exists between lore, practices, and resources. This relationship preserves a complex dynamic that has not been properly studied yet. To improve the proposal for a rural *Plato del Bien Comer*, the nutrition advantages that these species have must be established, as well as their direct and indirect benefits vis-à-vis industrial food and whether or not they can substitute them. Another major factor that must be taken into consideration is the temporariness and quantity of the said resources' production.

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