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Entomophagy in different food cultures

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ABSTRACT

The entomophagy understands the consumption of insects for the human beings. In spite of exotic appearance, it is practiced enough in many countries, mainly in Asia, Africa and Latin America, contributing so to the food security and models of subsistence. In Brazil, in special, in the northeast region the insects are food resources of considerable importance, because of being abundant, of easy collection and offer of nutritious ones. The objective of this inquiry valued the knowledge and the intention of practicing the entomofagia near the students of courses made a list to the extent of the food, located in the Metropolitan Region of Recife and Zona da Mata de Pernambuco. It was observed that most of the interviewed already have the habit in the consumption of ants (Tanajura), in the perspective of the maintenance and cultural tradition of the northeastern one. For 82,4 % of the interviewed ones, in spite of informing that the insects are not composing the usual diet, these showed the thought of including the entomophagy in the food, since they understand like a protein quality alternative.

Keywords: Insect, Alimentation, Alternative food

Entomofagia em diferentes culturas alimentares

RESUMO

A entomofagia compreende o consumo de insetos pelos seres humanos. Apesar de parecer exótico é bastante praticada em muitos países, principalmente na Ásia, África e América Latina, contribuindo assim para a segurança alimentar e modelos de subsistência. No Brasil, em especial, na região nordeste os insetos são recursos alimentares de importância considerável, por serem abundantes, de fácil coleta e oferta de nutrientes. O objetivo dessa pesquisa foi avaliar o conhecimento e a intenção de praticar a entomofagia junto aos estudantes de cursos relacionados ao âmbito da alimentação, localizados na Região Metropolitana do Recife e Zona da Mata de Pernambuco. Foi observado que a maioria dos entrevistados já possui o hábito no consumo de formigas (Tanajura), na perspectiva da manutenção e tradição cultural do nordestino. Para 82,4% dos entrevistados, apesar de informarem que os insetos não estão compondo a dieta usual, estes mostraram o pensamento de incluir a entomofagia na alimentação, pois entendem como uma alternativa proteica de qualidade.

Palavras-chave: Inseto, Alimentação, Alternativa Alimentar

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Introduction

The entomophagy is an ancient and geographically disseminated phenomenon (Posey, 1986; Dufour, 1987; Dwyer and Minnegal, 1991; Chen, 1994; Pemberton, 1995; Turner, 1996; Lenko and Papavero, 1996; Lathan, 1999). It can be said that this culture appeared with the first hominids and currently is present in more than 100 countries in the world (Ramos-Elorduy, 1998).
The Aztec people, for example, were feeding with 91 insects sorts, preparing them in several manners: roasted, fried, whitened or like seasoning, without forgetting of the consumption in natura. With the arrival of the Spanish conquerors, however, a great deal of the native foods were qualified negatively and then forgotten or devalued (Ramos Elorduy and Pino, 1996). These authors registered that, in the century XVIII, insects were given like punishment to the novices of the Convent of Puebla in Mexico.

The first historical registers of the entomofagia, when the food insect's use was so called, date from the Plio-Pleistoceno, when the insects fulfill significant paper in the diet of the first hominídeos, especially in the subsistence of the females and there sweats progeny (SUTTON, 1990). In spite of the fact that at present there is resistance for many people in the insects use like food, this habit is spread and appreciated in several countries.

The insects can be consumed in several manners and in different evolutive traineeships, besides products prepared and / or excreted by them, like the honey that is widely consumed and marketed. However most of the human beings consider the consumption of insects like primitive practice. The main problem is that, for esthetic, psychological and cultural reasons, many insects are considered harmful, dirty, transmitting animals of diseases and seen as nuisances, with the exception of the melliferous bee (Miller; Spoolman, 2015).

In spite of the Asian countries and the middle orient to be recognized by the thousand-year-old practice of the entomophagy, in the American continent only some countries as Colombia, Mexico and in Brazil, are still practiced in native and traditional communities of the interior of the north and Brazilian northeast.

Material and Methods

Basing in individual evaluations, in a specific population group, this quali-quantitative study carried out a lifting data about the different ways of realizing the insects like food, through structured questionnaires, what it was applied in the present and virtual form (social networks). The question were: Age group of respondents; Gender of the students interviewed; Level of Student Education; Would you consume insects?; Do you know what entomophagy is?; What insects could be consumed?

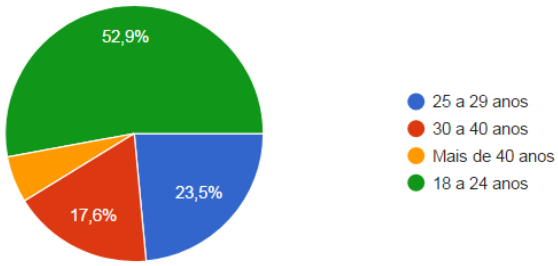
The questionnaire was consisting of questions that it showed information's of the public: type, level of schooling and age, and questions made a list to the knowledge and acceptance of the practice of entomophagy.

In a sample not probabilistic and for convenience, 150 (hundred and fifty) persons were interviewed. The sample points were carried out in the Metropolitan Region of Recife (RMR) and the Zona da Mata in Pernambuco. This universe of interviewed wrapped teachers and pupils what are made a list to the extent of studies of the food.

Results and Discussion

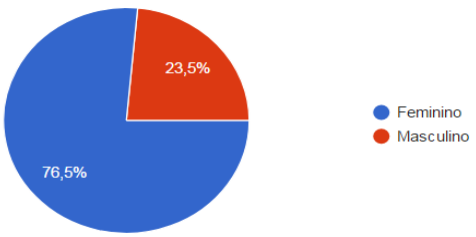
In agreement with the Figure 1, we notice that the age group of the interviewed ones (n=150) was of 52,9 % between 18 to 24 years; 23,5 % from 25 to 29 years; 17,6 % from 30 to 40 years and with more than 40 years 5,9 %. So, the universe of interviewed was constituted of young adults.

Figure 1: Age group of the interviewed.



The gender of the interviewed 76,5 % is constituted by the feminine sex, so 23,5 % is represented by the men. This expressive difference as for the type results from the fact that the courses in which the interviewed frequent, are those of studies of the food, when it was attended in his majority by the feminine sex. When food is discussed in the Brazilian northeast, generally it is a question harnessed to subjects of "woman".

Figure 2: Gender of the interviewed.

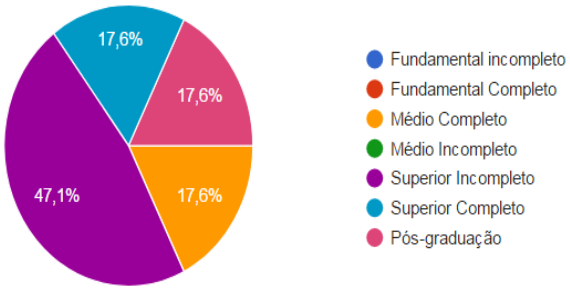


In the Figure 3, we notice the description of the degree of schooling of the interviewed ones. In 47,1 % they reported to have incomplete superior and

the rest answered being basic completely and incomplete, both with 17,6 %, resulted from pupils of postgraduation also with 17,6 %. It is noticed that the contingent of interviewed has degree of education adapted to answer the questionamentos referring to the inquiry.

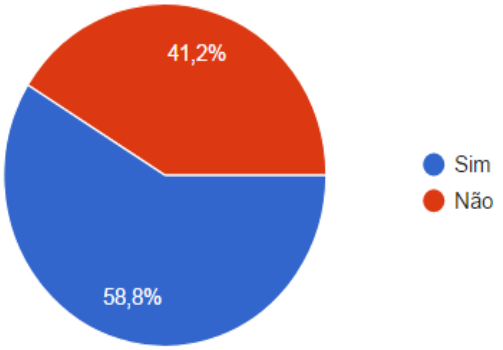
Cheung and Moraes (2016) reported in his inquiry which women have a tendency to try more innovatory foods, which reduce the time to them in the kitchen and which also guarantee good quality nutricional and sanitary, for his family, besides contributing with beneficial effects to health and the body.

Figure 3: Level of Schooling of the interviewed.



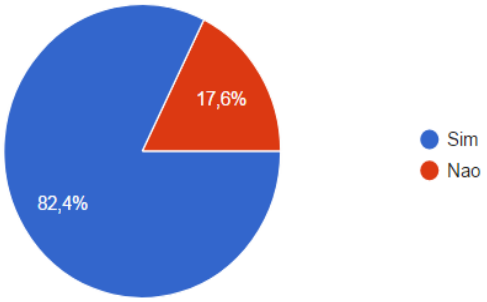
Still in agreement with the Figure 3, an expressive percentage of interviewed have basic formation for the understanding of the subject open to question. This interpretation was corroborated with the finds of the Figure 4, what negotiates on the knowledge as to the entomophagy, in which 58,8 % affirms knowledge talks about the consumption of insects and his benefits in the food.

Figure 4: Answers of the consumption of insect.



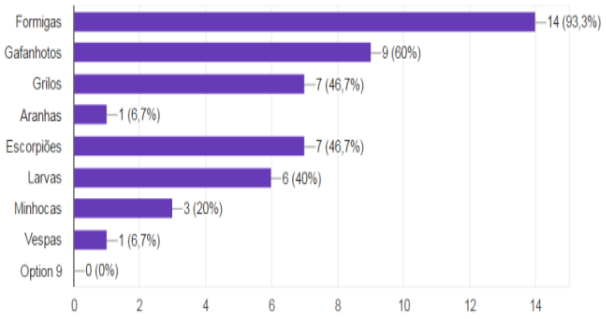
According to the Figure 5, in 82,4 % of the interviewed ones inform that they might include in his diet the practice of the entomophagy. This elevated considered acceptance percentage according to Cheung and Moraes (2016), can be connected with the degree of schooling and age group, according to express in the Figure 3, since the schooling and age are factors determinative for change of food habits in the population. Therefore, that the education shows off a mighty tool in the transformation and change of habits and customs.

Figure 5: Answers on the knowledge of entomophagy.



According to the FAO (Food and Agriculture Organization of the United Nations), there is predicted for 2050 an increase appreciated for 9 billion persons, forcing so to a progressive elevation in the food production that can turn in a still bigger pressure on the environment. Of agreement Berenbaum (2016) one of the alternative fountains of animal protein that is suggested there are the insects so much for the use in food composed for animals since for human consumption. Resh and Cardé (2003), affirm what in spite of the insect consumption to be culturally not much accepted in the western countries, are traditionally consumed in the tropical and subtropical countries, and his consumption they have several benefits.

Figure 6: Percentage of insect most consumed by the interviewees.



Of agreement the Figure 6, in the present inquiry the ants obtained the biggest percentage of preferency, with nearly 93,3 % of the interviewed ones; followed of grasshoppers (60 %); crickets and scorpions both with 46,7 %. Maior (2012) say this percentage corroborates with the finds of this study, when to consume the Tanujura, female of the saúva ant, of form roast or fried in the butter was necessary the persons from Pernambuco.

In Brazil, there are four main insects that enter in the menu: Formigas cortadeiras (Atta sp., Hymenoptera: Formicidae), larvas do bicho da taquara (Morpheis smerintha (Hubner), Lepdoptera: Nymphalidae), larvae of curculiónidos called Bicho das Palmeiras (R. palmarum (L.) and

R. barbirostris (F.), Coleopetera: Curculionidae) and larvae of the Bicho-do-coco (Pachymerus nucleorum (F.), Coleoptera: Bruchidae) (CARRERA, 1992).

In accordance with the method of cooking employed in these insects, the lifting presented what nearly 86,7 % prefers fried insects consume; and 73,3 % for roasts. In another study, the analysis carried out with fried larvae of R. palmarum obtained the results: 54,3 % of nitrogen, 21,1 % of lipids, 12,7 % of water and 5,04 % of ashes, showing that the larvae are fountains of proteins and lipids (COIMBRA JUNIOR, 1993).

In agreement with the Figure 7, the interviewed expressed that of insects consumed they are connected the habit with the tradition and food culture (56,3 %); being able to be an alternative fountain for a future shortage of food (25 %); having in mind that 18,8 % has knowledge of the insect as fountain of nutritious ones.

Figure 7: Has case consumed or come to consume, which would be the factor which caused?

Regarding the traditions the insects are already consumed by nearly 2 billion persons in several countries of Africa, Asia and South America. There are several reports that show that the use of the insects in the food in ancient people. In Ancient Greece the cicadas were a very appreciated and disputed plate and according Aristóteles, the females when full of eggs they were becoming much tastier than the males.

The Romans were considering an extremely appetizing delicacy to the larvae of a so-called insect "cossus" whose taxonomic identification still today is a reason of disagreement between entomologists (CARRERA, 1992). In China the ants pupae were used like delicacies for the nobility (CHEN, 1994). Of the hundreds of thousands of sorts of insects catalogued, 1509 are used like food by nearly three thousand ethnic groups in more than 120 countries (RAMOS-ELORDUY, 2000), in agreement with the author, the biggest group of edible insects are coleópteros (443 species), himenópteros (307 species), orthopterous (235 species) and lepidópteros (228 species); nearly ten per cent of these sorts are cosmopolitan and the remainder is restricted to determined geographical zones, being a 12 % of aquatic specis and 78 % terrestrial.

Nutricional Quality

According to express in the Figure 7, 18,7 % of the interviewed made a list of the consumption of insects as fountain nutricional. Studies have been demonstrating that the nutricional quality that the "meat" of the insects is composed by the same substances found in the meat of the vertebrates that are consumed widely how: the ox, the pig, the chicken and the fish. One of the main differences is in the quantitative value, an insect as the formiga cortadeira Atta cephalotes, for example, has 42,59 % of proteins against 23 % of the chicken and 20 % in the beef. The insects count high quantities of proteins and lipids, also they are rich in sodium, potassium, phosphorus, manganese, magnesium, iron, copper and calcium, and many sorts are rich in vitamins of the group B, like the Thiamine (B1), riboflavin (B2), and niacin (B6) (RAMOS-ELORDUY, 2000).

The types of lipids found in the edible insects are: Acids capric, lauric, oleic, linoleic, stearic, palmitic, myristic between others. In this way, most of these insects provide the necessary energy to carry out different tasks and organic functions. The quantity of edible insects that each person must ingest so that his state nutricional is satisfactory varies in accordance with the selected sort. For example, a diet to base of grasshoppers, in which the ingredients are in balance, would be going to formulate a petition 25g / person / day, the equivalent one to average of 47 specimens of the type Sphenarium (RAMOS-ELORDUY, 2000).
According Tan (2017), due to the nutricional quality, the insects established like fountain of sustainable alternative protein in comparison with the conventional meats, however be somewhat interest for those who not and are familiarized with his taste. So, the consumers must be caused eating first insects for a better product to improve the intentions of consumption.

For end, this relation man and insect is happening in several forms along the history like the use in the medicine, agents polinizadores and bioindicadores. Besides, historical reports of the use of the animals for communities and traditional people are relevant culturally, so this register documents the traditional knowledges that are ecologically important for list the most worn-out sorts, which is basic for preparation of strategies of conservation and handling of natural environments (ALVES, 2007)

Conclusions

The edible insects represent one of the great available renewable resources for a sustainable

exploration that relieves the hunger and malnutrition of the wanting populations in the developing and underdeveloped countries

It is necessary that the habits are revised to feed of the western culture and to consider through the scale of current knowledges, the potential nutricional offered by the insects, when the great quantity of proteins, fats, vitamins and minerals was given in them contained.

It is vital the development of strategies and education policies of handling, collection, conservation and economical strategies of insects that could be used in the food, making the populations aware on the palatability of the insects, his qualities nutritional and his importance like food resource in the improvement of the quality of life and health.

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