Journal of Namibian Studies, 33 S2(2023): 3871–3885 ISSN: 2197-5523 (online)

Organic food and gastronomy

Telmo Marcelo Zambrano Nuñez[1], MD, Raigón Jiménez[2], Carolina Giselle Herrera Egüez[3], Efraín Rodrigo Romero Machado[4], Michael Roberth Villalva Guevara[5]

[1]Escuela Superior Politécnica de Chimborazo. Facultad de Salud Pública. Escuela de Gastronomía. Panamericana Sur km 1 1/2, Riobamba-Ecuador, telmo.zambrano@espoch.edu.ec

[2]Instituto de Conservación y Mejora de la Agrobiodiversidad Valenciana/Departamento de Química. Universitat Politècnica de Valencia. Camino de Vera, s/n. 46022. Valencia. España, mdraigon@qim.upv.es

[3]Escuela Superior Politécnica de Chimborazo. Facultad de Salud Pública. Escuela de Gastronomía. Panamericana Sur km 1 1/2, Riobamba-Ecuador, giselle.herrera@espoch.edu.ec

[4]Escuela Superior Politécnica de Chimborazo. Facultad de Salud Pública. Escuela de Gastronomía. Panamericana Sur km 1 1/2, Riobamba-Ecuador, eromero@espoch.edu.ec

[5]Escuela Superior Politécnica de Chimborazo. Facultad de Salud Pública. Escuela de Gastronomía. Panamericana Sur km 1 1/2, Riobamba-Ecuador, Michael.villalva@espoch.edu.ec

Abstract

Currently, the gastronomic and service sector has increased the offer of dishes that include organic products in the menus of its restaurants. The growing variation of different types of diets such as vegan, gluten-free, paleo, or even those who opt for a diet with 0 km and seasonal products has been reason enough for the creation of ecogastronomy. Ecogastronomy refers to the application of ecological principles when selecting the ingredients used to prepare different dishes, both in domestic preparations and in collective catering, as well as in haute cuisine. Thus, one of the bases of organic gastronomy is the choice of organic products for cooking, betting on a lifestyle that promotes sustainable development, preferring foods grown in proximity. One of the greatest contributions of ecogastronomy and 'ecochefs' is in preserving biodiversity, expanding the range of food produced and consumed, creating trends in eating habits and reintroducing species and varieties in consumption. Species and varieties adapted to organic production have a higher nutritional content.

Key words: cuisine, biodiversity, ecogastronomy, ecochef, legumes.

1. Introduction

Different studies have shown (1) the impact that agrotoxins, pesticides and preservatives can have on health, as well as it has been proven that the additives used in the transformation of certain foods cause a considerable decrease in quality. Concern about indiscriminate spraying, transgenic seeds and their effects has reached all corners of the world, making organic farming significantly increase its popularity.

It is recognized that many foods are vulnerable to soil contaminants, metals such as cadmium and lead, pesticides, pharmaceutical residues, microplastics and nitrates; are just some of the many factors that affect root vegetables such as carrots, celery, parsley, beets, turnips and radish (2). Faced with this, organic production bases its operational methodologies on obtaining high quality food. And in that sense, agri-food techniques of organic production have marked positive effects on the final quality of food. On the one hand, they affect the reduction of contamination by harmful substances, and on the other, they have a direct relationship on the nutritional and balanced composition of food, as well as on the improvement of organoleptic qualities (3).

The bases of organic production can be focused, among others, on:

• Maintain diversity. A balanced selection of crops respects the rotation system to conserve the soil and the association of plants that help fight pests and diseases.

• Enrich the soil structure and fertility, using organic fertilization based on manure, organic fertilizers and minerals from natural sources, making the most of the farm's own resources.

• Balance the livestock load with agricultural practices for good recycling, taking advantage of by-products and self-sufficiency of the necessary manure.

• Try to use indigenous seeds in cultivation, better adapted to local conditions.

• Avoid forms of contamination that may result from agricultural techniques.

• Enable farmers and ranchers to earn an adequate income and perform rewarding work, in a healthy work environment.

• Create a bond of mutual support between producer and consumer.

• Obtain foods of high nutritional and organoleptic quality.

Given the above, organic production slows down the typical industrial model that is the establishment of monoculture systems with hybrid and/or commercial varieties that are very profitable at harvest, but poorly adapted to the different productive areas and with less nutritional contribution. The effects of the substitution of local varieties, from the agronomic point of view, has been the loss of biodiversity (4). Some studies reiterate this assertion, mentioning that a cropping system is desperately needed that ensures food security by providing high yields while protecting the environment. The cultivation system should therefore renounce chemically synthesised plant protection products, which endanger biodiversity and water resources (5).

As an example, it should be noted that only two varieties of apple have 50% of the current market. Similarly, 73% of lettuce grown in the U.S. is iceberg. This unsavory variety of lettuce is usually the only option consumers have. Meanwhile, hundreds of varieties of lettuce have been lost with very different flavors ranging from bitter to sweet, and varied colors, from strong purple, to light green.

The Food and Agriculture Organization of the United Nations (FAO) estimates that more than three-quarters of agricultural genetic diversity has been lost in the last century. As the agricultural industry, led by seed and production companies, uses only high-yielding, high-productivity species, many other seeds of thousands of species and varieties are being lost, which are not of interest to these companies.

The American organization The Rural Advancement Foundation International (RAFI) conducted a study on the available seeds in 1903, comparing them with the inventory of the National Seed Storage Laboratory (NSSL), 80 years later, the RAFI found an astonishing decrease in diversity, with losses of almost 93% of its lettuce, more than 96% of its sweet corn, more than 95% of its tomatoes and almost 95% of its asparagus varieties. This is not just an environmental disaster. In addition, it means a surprising reduction in the crop varieties available to humans and future generations, as well as a limitation in gastronomic elaborations (6).

Given this, the expansion of the organic farming movement is a reality. Europe, for example, has increased in recent years the production, processing and export of vegetables due to changes in dietary patterns that favor a greater consumption of vegetables with high nutritional content. The growing interest in environmental issues has led to calls for sustainable production and consumption of vegetables (7). But in the final analysis of agricultural production, it will only be maintained if it is designed in the image of natural ecosystems, combining scientific knowledge with the wisdom of the natural system and if consumption is normalized, reaching spaces such as domestic elaborations, respectful transformation, extension in collective catering, and involvement in the so-called haute cuisine.

There is therefore an urgent need to improve the use of the term biodiversity in order to give rigour to emerging market mechanisms, which aim to benefit not only the environment but also people (8). Ecogastronomy is characterized by favoring those involved in the food production chain, from small producers, to the last link of sale and consumption of products.

On the other hand, the recovery of the genetic heritage for food is only possible if the species and varieties that historically were in the consumption and intake of the human being are re-introduced and that globalization, also arrived in gastronomy, have made them disappear from the most traditional culinary elaborations. Sadly, therehas been a global displacement of local foods with greater emphasis on indigenous and marginalized communities. This change has consequences for human health (in terms of nutrition and physical health), cultural health (in terms of community identity, ceremonies and social networks) and ecosystem health (in terms of resource and biodiversity management) (9).

The main objective of this work was to highlight what the term ecogastronomy means and the implications that this food processing system presents for the recovery and enhancement of agricultural biodiversity and the nutritional quality of food.

2. Materials and Methods

To meet the objective, the concepts of the term ecogastronomy are reviewed, as well as those of ecochefs and some of the implications it presents for haute cuisine and the tourism potential of certain territories are evidenced.

In the analytical determinations of nutritional composition, the official methods for each specific element have been used (10). Where appropriate, data were subjected to analysis of variance, using statistical software Statgraphics® (V16.2.04). The goodness of fit with respect to the experimental values was evaluated with single-factor ANOVA, standard error of estimation and the smallest significant difference of the Fisher test (F-test) and the derived p-value as described by Ott (11). The results are considered significant when $p \leq 0.05$.

3. Results and Discussion

Faced with a food modernity understood as a distancing of human beings from their natural environment, ecogastronomy has been developed based on the alternative that represents an organic diet capable of offering food of higher nutritional quality, harmless to human health and respectful of the environment. In addition, to achieve

sustainability, the agroecological methodology is not only based on ecology, but perceives food production as a process that involves producers and consumers interacting dynamically (12).

Ecogastronomy is a term that is giving much to talk about in the world of culinary arts, defined by the international Slow Food movement. Within the sector, this movement is based on the integration of organic food into menus and knowledge about new diets and healthier ways of eating. Ecogastronomy is defined as the method of cooking with organic ingredients, that is, they have not been produced with the help of chemicals or artificial additives and this immediately translates into a healthier diet. It not only deals with the interest in good food and nutrition, but also in the conservation of the environment in all its dimensions.

Slow food is characterized by valuing locally based agricultural and food practices for sustainable development, food security, social sustainability and community well-being. In this way, consumers actively participate in ecological, cultural and heritage conservation by creating together with local producers the sociability, enjoyment and exchange of bioregional foods in various ethnic and cultural spaces (13).

The Sustainable Development Goals (SDGs) created in 2015 by the United Nations (UN), already mention that, to achieve a global transformation towards sustainability, it is necessary to transition towards ecological and environmentally friendly eating patterns; with greater importance to urban sectors where greater disinterest is visualized. It is therefore committed to a global systemic perspective with a multilevel sustainable food system (14).

Ecogastronomy is a trend that defends the use of fresh ingredients in gastronomic elaborations that come from agricultural systems where agrotoxins or chemical preservatives are not used, in addition to valuing local flavors and taking into account factors such as environmental awareness, social responsibility and agricultural biodiversity (15). Ecogastronomy represents, therefore, the union between ethics and pleasure for good food, valuing the cultural dignity that gastronomy brings, through the typical regional cuisine, products and pleasure of food, favored by the sensitivity of taste and the fight for conservation.

This trend pays special attention to the protection of plant species and varieties and livestock breeds, organic food, marine species from sustainable fishing or ecological aquaculture models, contributing to the defense of the environment and climate change. The three fundamental concepts that food must comply with under the umbrella of ecogastronomy are that food must be good (because the food has to be of quality), it must be clean (because the environment, biodiversity and ecology in general must be respected and maintained) and it must be

fair (because producers must earn a fair price and it is only done if their production is respected).

Ecogastronomy, supported by the consumption of non-industrialized products, helps to achieve an internal well-being that is also reflected externally. In this sense, it is also seen as a tool to combat different diseases, intolerances and allergies that are generated with the consumption of industrialized foods. The basic principles underpinning ecogastronomy (16) are described below:

• Preserve biodiversity, expanding the range of food produced and consumed.

• Respect quality food, produced with responsibility and environmental awareness.

• Respect the producer and the families whose main activity is family farming and agroecology.

• Safeguard food, raw materials and traditional methods of growing and processing food.

• Consciously use natural resources.

• Select quality ingredients, giving priority to products of known origin, with little processing, in addition to respecting the seasonality of the ingredients and prioritizing the valorization of the local product, with its cultural heritage and historical value.

The concept of ecogastronomy promotes a distinctive combination of values that includes material pleasure, social conscience, civic engagement, and environmental responsibility (1,7). Ecogastronomy also adopts other thermals such as ecocuisine and / or ecorestauración, but in all cases, it derives from the trend, which is becoming generalized, for a healthier diet.

If there is ecogastronomy there is also the ecochef, who is the kitchen professional whose work is aimed at cooking with organic products and ingredients exclusively and who provides the diner with the opportunity to try original, authentic and different flavors in each of their dishes or preparations, with a respect for the nutritional composition. The ecochef aims to prepare these dishes with ingredients of high biological quality and where ecological awareness and respect for the environment through food stand out. Ecogastronomy as well as the ecochef are closely linked in the culinary reality, through the principles of ecology and organic crops where health is preponderant.

The ecochef can either contact local producers for the supply of food or may have associated a small garden (agrochefs) that will be the supply or part of it. The work of the agrochef consists of planting his own food, in which he grows different products without using any type of chemical product, which requires a lot of time and dedication, in order to produce

all or an important part of the restaurant's recipes. Some of the practices, which are very easy to carry out, and that ecochefs carry out, but that are applicable to all consumers in general, to contribute to the well-being of the planet from the kitchens are:

• Buy raw materials of organic origin, seasonal and proximity, as far as possible from local producers. In cases where garden products can be grown, respecting the times of food cultivation.

• Consume products that are packaged in recycled materials or paper, not plastic.

• Take advantage of food and control portions, so you do not have to dispose of extra food in the trash, contributing to reduce the footprint of food waste.

• Use noble materials, avoiding plastics, mainly in market bags and the like.

Currently, as ecogastronomy is a trend that is increasing worldwide, many chefs have adopted the principles of slow food to their style of cooking. For example, the Geranium restaurant, listed in the list "The world's 50 best restaurants" as number one in 2022, consists of a twenty-course tasting menu between appetizers, savory and sweet dishes, all based on products from the area and that change according to seasonality. The menu includes lightly smoked lumpfish roe with milk, kale and apple, forest mushrooms with beer, smoked egg yolk, pickled hops and rye bread. They add to this experience, meat-free menus, based only on organic seafood and vegetables from farms in Denmark and Scandinavia. It is therefore noted that the proximity of the ingredients, their way of cultivation and respect for nature are valued (18).

Such is the value of this movement, that even in some university degrees different thematic areas are being incorporated that refer to sustainable agriculture, what to make with organic food, how to treat them, cook them and present them. Thus, there are differences in the physicochemical composition of organic food, which must be taken into accountwhen processing and final plating. The aesthetics of the dishes prepared under eco-gastronomic techniques differs from the more traditional dishes, since by not intervening chemical processes in the ingredients, changes are observed in the textures of the vegetables, water content, size, colors and even important changes in flavor. This also applies to ingredients of animal origin since these, when fed free of chemicals, hormones and other foods manipulated by industrial processes will generate natural flavors of their species, as well as real sizes, better appearance and an evident biological quality.

Despite the organoleptic differences of agroecological products, the gastronomic scene seems to value these characteristics to promote

responsible product consumption, moving away in a certain way from excessive industrialization. Central, restaurant of chefs Virgilio Martínez and Pía León, demonstrates this at the entrance of their premises where diners cross an orchard with more than 100 species of plants cultivated by the kitchen team, thus carrying the seal of sustainability and respect for Peruvian ecosystems (figure 1).

Fig. 1 Organic products from the Central menu. Source: Mater initiative

Another component that serves to improve the presentation of the dishes is to consider the combination of textures, shapes and colors when assembling this, this provides a considerable benefit, since majestic creations full of contrasts can be achieved and that will make the preparation more striking and colorful. As for example the use of different elaborations (gelatin, compote and dried) of apple of different varieties and play with the height of the slice of dried apple (figure 2).

Fig. 2. Apple dessert, made with three varieties, and three procedures (gelatin, compote and dried) and mounted vertically to offer height to the plate.

The ingredients to be used must have biological quality, which will be given by:

• The total absence of the use of chemical fertilizers, fertilizers and pesticides of artificial origin in the cultivation of vegetables and animal feed that will intervene in the food chain.

• The presence of bio-active substances, such as carotenoids, present in vegetables and fruits of yellow, orange and red colors, such as sulfurs present in onions, garlic, cabbages and broccoli, polyphenolic compounds present in fruits and vegetables of purple colors, etc.

• Presence of textures, flavor and color to the preparations, by the contribution of parts with fiber. Use fruits and vegetables as whole as possible, making a consumption of the skin, since it is where the micronutrients and vitamins are concentrated. Being free of chemicals it is safe to eat the outermost parts, which on the other hand provide a greater fraction of fiber.

• Presence of higher content of ω-3 fatty acids in meat, eggs and dairy products from organic livestock.

• Use of cooking techniques that are more efficient, less polluting and more respectful of nutrients.

• Cultivated biodiversity, which incorporate local varieties with different characteristics in the elaborations.

Local or traditional varieties are defined as "geographically and ecologically distinct populations that are visibly different in their genetic composition with and within other populations, and that are the product of selection by farmers, the result of changes for adaptation, constant experiments and exchanges" (19).

These varieties have reached our days, as a result of the domestication and modification to the environment, of the plant species susceptible to be cultivated, since they have accompanied the human being in each of his movements. Farmers, observers of the changes suffered, have taken advantage of this dynamism, to characterize the diversity of the new attributes that, added to the existing ones, have allowed the selection for the new needs and tastes, sharing history, culture and gastronomy around the local or traditional varieties, such as, for example:

Grazalema striped watermelon: traditionally grown in the region of the Sierra de Cádiz (Spain), it has a fruit with a semi-round shape of medium to large size, with light pink pulp coloration, with wood-colored seeds, and very sweet flavor, it is very appreciated by the consumer.

Tomato Roteño: this tomato was located on the Atlantic coast of Cadiz (Rota, Spain). The weight of the fruit is 160 g / unit, considering this as medium, round and uniform, something also appreciated by the consumer. It has 5 locules and a very low seed content, 0.55 g / fruit.

Giant radish: its cultivation is located mainly in Bornos-Villamartín (Cádiz, Spain) presents a very large size and elongated shape, presents

the peculiarity that when it reaches its state of optimal maturity, it comes out above the ground to facilitate its collection.

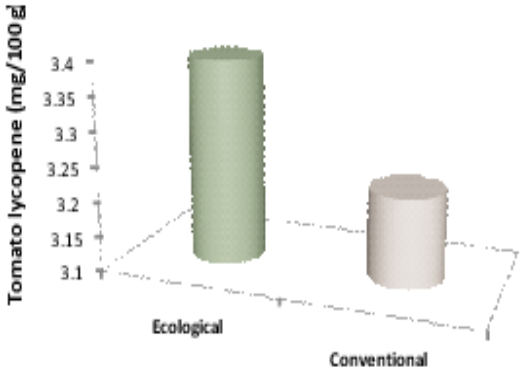
White melon: this variety comes from the Serranía de Ronda (Spain). It is characterized by an elliptical fruit shape, with white rind color, without spots on it or roughness. The pulp is orange-white with an average fruit weight low (approximately 1 kg), height 15 cm, and diameter 12.5 cm and has a high soluble solids content (approximately 14 ºBrix).

In the case of tomatoes, they are the most popular foods in the world, due in part to their versatility and variability and their ease of combining well with a wide variety of foods and aromatic herbs. There are a large number of varieties of tomatoes that are classified according to their use, size and shape, all of them divided into tomatoes for cooking and tomatoes for salad. The quality of the tomato is recognized above all by the perception of sight and touch. The criteria that relate to quality are the lack of defects, regularity of shape, color and firmness. And in a second phase, it is valued for the recognition related to the internal quality of nutritional composition and organoleptic aspects related to texture, flavor and aroma.

Tomatoes and tomato-based foods are considered healthy foods for a variety of reasons, including being low in calories and fat, being cholesterol-free, and being a good source of fiber and protein. In addition, tomatoes are rich in vitamin A and C, β-carotene and lycopene. The characteristic deep red color of tomatoes serves as a parameter of the total quality of the fruit. Tomatoes and their by-products are the major sources of lycopene and are considered important contributors of carotenoids in the human diet.

Lycopene is the most abundant carotenoid in tomatoes, comprising approximately 80 to 90% of the pigments present. The amount of lycopene in fresh tomatoes can vary depending on the species, maturity and environmental conditions in which the fruit ripens (20) Normally, fresh tomatoes contain about 3 to 5 mg of lycopene per 100 g of raw material. Figure 3 shows the levels of lycopene content (mg/100 g of tomato juice) in organic and conventionally produced fruits. The results show that, on average, the fruits of organic production have 5% (with a confidence level of 95%) more lycopene.

Fig. 3. Lycopene content (mg/100 g of tomato juice) depending on the production system (organic or conventional).



Perhaps one of the greatest contributions that ecogastronomy and that ecochefs can make in contributing to biodiversity and balanced diet, is to introduce in recipes and preparations, the grains of legumes of organic production. There is a wide genetic diversity in the legume family, both by the number of species, and by the number of varieties within each species, such as and in alphabetical order: alfalfa, carob, mortas, lupine or, bean, bean, bean, bean or bean, peanut or peanut, veneer, pea, chickpea, bean, lentils, soybean, titarro, clover, veza, yeros, etc.

Others less known and present in the American continent such as canavalia (Canavalia ensiformis), dolic (Lablab purpureus), cajan (Cajanus cajan L.) or mucuna (Stizolobium niveum), also usable for their grains and as fodder. The term legume is reserved for those that are harvested and consumed in dry grain, while those of green consumption such as beans, green beans, or peas, are classified as vegetables. So from the botanical point of view this family is very important for its contribution to the cultivated and spontaneous biodiversity of the planet.

Legumes or dried grains have a high diversity of sizes, shapes and colors, they are shown in a variable number from one to twelve grains, inside a pod. From the nutritional point of view, the importance of legumes lies in the fact that they are the main source of protein of vegetable origin, although they are also a source of carbohydrates or complex carbohydrates, fiber, minerals, etc.

In addition, another of the values of legumes are their environmental advantages, being a strategic crop in the design of organic farming systems. These properties are due to several issues, first, legumes have the uniqueness of fixing atmospheric nitrogen in nodules located at their roots in very specific symbiosis with the bacterium Rhizobium, which contributes to increase soil fertility, without the application of fertilizers, increasing the fraction of organic matter in the soil, and consequently the improvement of its structure, the reduction of soil and groundwater

pollution, by reducing leaching. Thus, legumes contribute to soil health and the mitigation of the effects of climate change through their nitrogen fixation properties, being suitable for the recovery of eroded and/or degraded soils.

From the point of view of nutritional composition, legumes have a high variability depending on the species and variety, but also the production system (organic or conventional), being the organic production system responsible for the influence of the higher content mainly in minerals.

Table 1 shows the protein levels present in three types of legumes; white bean arriñonada, Castilian lentil and peanut. Among the three it is observed that the one with the highest protein content is the bean, followed by peanut, being in all three cases high protein values, with percentages of protein similar to those of foods of livestock origin. In the comparison of contents between those of organic and conventional production it is observed that the greatest differences are reached with peanuts, which demonstrates the hardiness of this plant and with it the best adaptation to the conditions of organic cultivation. Thus, it is observed that with the consumption of 100 g of organic peanuts, 8.3% more protein is reached than if the consumption were conventional peanuts. Differences that are 2.1% if the legume is lentil and 5.6, if it is beans (21).

Table 1. Protein composition (per 100 g of edible portion) of legume grain of organic and conventional production.

Vegetable	Protein Content (g/100 g)		Variation (Δ) in favour
	Organic production	Conventional production	
Bean	26.8	25.3	5.6%
Lentil	19.2	18.8	2.1%
Peanut	24.0	22.0	8.3%

Other highly interesting nutritional values in legumes are the minerals that reach the grains. Table 2 shows the concentrations of four mineral elements (phosphorus, potassium, iron and calcium) of the three legumes and the increase in favor that is achieved when it comes to legumes of organic production. In all three cases, the most important mineral is potassium, providing 6% more when organic beans are consumed, compared to conventional beans, 8% in the case of lentils and 11% in the case of peanuts.

It is followed in importance of mineral composition phosphorus, followed by calcium and ultimately iron, which is a trace element, and therefore low concentrations in food. As with potassium, in all cases a greater increase is observed when the grains come from organic production (significant differences at 95% confidence, except in the iron content for peanuts), with variable increases, depending on the mineral element.

Table 2. Mineral nutrient composition (per 100 g of edible portion) of legume grain of organic and conventional production.

Vegetable	Element (mg/100 g)	Organic production	Conventional production	Variation (Δ) in favour
Bean	Phosphorus	567	427	25%
	Potassium	2242	2119	6%
	Iron	5.8	4.7	17.5%
	Calcium	188	183	4.3%
Lentil	Phosphorus	392	390	2%
	Potassium	872	804	8%
	Iron	2.8	1.6	42%
	Calcium	23.7	22.9	3%
Peanut	Phosphorus	523	485	7%
	Potassium	627	559	11%
	Iron	1.12	1.11	1%
	Calcium	110	79	28%

4. Conclusions

Ecogastronomy is a recognition of the strong connections between the dish and the planet. Thefact that the choice of food and its origin has a great impact on the health of the environment and society, makes the products more valuable in terms of planting, harvesting and subsequent consumption. Consumers in favor of this type of food are surrounded by ecological values, where gastronomy includes environmental aspects and social justice when it comes to good eating.

Ecogastronomy is brilliantly executed by kitchen professionals (ecochefs) who in some cases can also carry out the production of small orchards (agrochefs). One of the greatest contributions of ecogastronomy and ecochefs is to preserve biodiversity, expanding the range of food produced and consumed, creating trends in eating habits and reintroducing species and varieties in consumption.

Thesespecies and varieties adapted to organic production have a higher nutritional content. As, for example, the intake of legumes, abandoned during the period of food globalization, and which is so important for the diet, but it is much more important that the consumption is made of legumes from organic production, because of the environmental repercussions and the higher nutrient density existing in these grains.

The restaurants that manage their cuisine under the principles mentioned in this work, refer to a greater knowledge and respect for the food system, necessary for the promotion of traditional gastronomy. But, not only chefs should be involved in this task, since, within the three fundamental pillars of dissemination of cuisine, there are also farmers and diners who are directly involved in food consumption. The

population in general, therefore, correspond to high social and ecological responsibility because we are all part of it.

Bibliography

1. Carvalho FP. 2017. Pesticides, environment, and food safety. Food and Energy Security, 6(2): 48-60.
2. Knez E, Kadac-Czapska K, Dmochowska-Ślęzak K, Grembecka M. Root Vegetables—Composition, Health Effects, and Contaminants. Int J Environ Res Public Health. 2022;19(23).
3. Raigon MD. 2007. Organic food: Quality and health. SEAE/Junta de Andalucia. ISBN 978-84-8474-217-3. 192 pp.
4. FAO, Food and agriculture Organization of the United Nations. 1996. The State of the World's Plant Genetic Resources for Food and Agriculture. FAO, Roma, Italia.
5. Pergner I, Lippert C. On the effects that motivate pesticide use in perspective of designing a cropping system without pesticides but with mineral fertilizer—a review. Agron Sustain Dev [Internet]. 2023;43(2). Available from: https://doi.org/10.1007/s13593-023-00877-w
6. Gallegos P. 2004. Industrial production, against food biodiversity, let's bet on the "bio" and the "local". The Ecologist, 19: 44.
7. Pedretti EF, Duca D, Ballarini M, Boakye-Yiadom KA, Ilari A. Environmental impact assessment of producing frozen spinach in central Italy. Resources, Environment and Sustainability [Internet]. 2023;12(January):100110. Available from: https://doi.org/10.1016/j.resenv.2023.100110
8. Andres SE, Standish RJ, Lieurance PE, Mills CH, Harper RJ, Butler DW, et al. Defining biodiverse reforestation: Why it matters for climate change mitigation and biodiversity. Plants People Planet. 2023;5(1):27–38.
9. Pilgrim-Morrison S, Pretty J. The Loss of Local Livelihoods and Local Knowledge: Implications for Local Food Systems. Social-Ecological Diversity and Traditional Food Systems: Opportunities from the Biocultural World. 2021 Jan 1;65–89.
10. AOAC (Association of Official Agricultural Chemists). Official methods of analysis of AOAC international. Editor, Dr William Horwitz. 17º edición. Publicado por AOAC internacional. Gaithersburg, Maryland USA. 2000.
11. Ott L. An introduction to statistical methods and data analysis. Duxbury Press, a Division of Wadsworth Publishing. Belmont, CA. 1977.
12. Bernabeu-Mestre J. 2017. Wild rural cuisine. Ethnobotany and gastronomy in the work of Joan Pellicer Bataller (1947-2007). Mètode: Journal of Dissemination of Research, 94: 8-15.
13. Fusté-Forné F, Jamal T. Slow food tourism: an ethical microtrend for the Anthropocene. Journal of Tourism Futures. 2020;6(3):227–32.
14. Tochtrop C, Bickel MW, Hennes L, Speck M, Liedtke C. Principles and Design Scenarios for Sustainable Urban Food Logistics. Frontiers in Sustainable Cities. 2022;4(June):1–8.
15. Alcântara LCS, Grimm IJ, Sampaio CAC, Mantovaneli O, Feuser S, García M. 2017. Living Well: conceptual theoretical discussions. Pensamiento Actual, 17(28): 66-77.

16. Tomazoni, AM. 2017. Transforming eating habits into pleasure and health: educating with food. Interested. Interdisciplinarity and Spirituality in Education. ISSN 2179-7498 1.9: 10-17.
17. Pietrykowski B. 2004. You are what you eat: the social economy of the slow food movement. Review of Social Economy, 62 (3): 307-321.
18. Reed W. The World's 50 Best Restaurants | The best restaurants in the world [Internet]. 2023 [cited 2023 Mar 5]. Available from: https://www.theworlds50best.com/
19. Shi J. 2000. Lycopene in tomatoes: chemical and physical properties affected by food processing. Crit. Rev. Food. Sci. Nutr., 40: 1-42.
20. Palomares G, Raigon MD, Ordono I, Ortiz-Perez M. 2003. The Influence of Organic Cultivation on Productive Components in Dry Bean. Annual report-bean improvement cooperative, 46: 111-112.
21. Raigon MD, Palomares G, Ortiz-Perez M, Ordono I. 2003. Ca, K, Fe, P and Na content in different varietal types of dry bean using two growing systems: organic and conventional. Annual report-bean improvement cooperative, 46: 109-110.