v. 2, n. 69, 2022

International Journal of Health Science

FRUIT SPECIES FROM THE SOUTHERN REGION OF BRAZIL AT RISK OF EXTINCTION: A MATTER OF FOOD AND NUTRITIONAL SECURITY

Verônica Ramos de Souza
Universidade do Extremo Sul Catarinense, Nutrition course. Research Group on Food and Nutrition Security - UNESC
Criciúma – Santa Catarina

Letiere Pedro Pereira
Universidade do Extremo Sul Catarinense, Nutrition course. Research Group on Food and Nutrition Security - UNESC
Criciúma – Santa Catarina

Fabiane Maciel Fabris
Universidade do Extremo Sul Catarinense, Nutrition course. Research Group on Food and Nutrition Security - UNESC
Criciúma – Santa Catarina

Rita Suselaine Vieira Ribeiro
Universidade do Extremo Sul Catarinense, Nutrition course. Research Group on Food and Nutrition Security - UNESC
Criciúma – Santa Catarina

Paula Rosane Vieira Guimarães
Universidade do Extremo Sul Catarinense, Nutrition course. Research Group on Food and Nutrition Security - UNESC
Criciúma – Santa Catarina

Abstract: The southern region is the main producer of fruit in the country. Fruits such as araçá, jabuticaba and butiá are part of the local culture. They are better known by older people who tend to remember them with "the flavor of childhood", today, however, it is very difficult to find them and/or their by-products on the market. Producers prefer to work with fruits of higher commercial value. Constant climate change and the consensus on the future insufficiency of natural resources has made the attempt to conserve biodiversity a global concern, and the identification of species that are at risk of extinction and the factors that threaten them is important for the adoption of strategies of preservation. This study sought to identify, among regional fruits, which were not seen being commercialized. Descriptive, transversal and quantitative research. Based on the results, the majority of respondents were female. Among the participants, adults aged below 40 years predominated, but among men the average age was higher than that of women. Regarding the fruits mentioned in the study that were identified by the population, it was observed that most of them are known by a large part of the population, but the loquat, bitter orange, guabiroba and rio grande cherry, do not have extensive knowledge of the participants. Some of the fruits mentioned in this study were seen being marketed widely by a large part of the participants (over 50%), which perhaps place them in less worrisome categories in the risk classification. This study expanded the look at socio-environmental issues, in order to demonstrate the connection of these themes with the performance of the Nutritionist at SAN and thus contribute to the extension of work in this area.
Keywords: Regional fruits; Extinction risk; Biodiversity; family farming.

INTRODUCTION

Eating is a much bigger act than eating. Food refers to nutrition, biological, cultural, religious and even political needs. Each region of Brazil has an identity thanks to its culture and customs, as well as its flora and fauna (LEONARDO et al., 2009).

The country in which we live is the richest in biodiversity in terms of animals, forests and food plants. Each region is unique and produces very characteristic plants and fruits. However, in recent times, several species of food plants have been at risk of extinction (SANTOS et al., 2016).

Some studies show that industrialization and technology may be one of the causes of these changes. In the current model of society, people have less free time, making healthy eating habits difficult, causing many to switch from good food to faster food, such as snacks and fast foods (FRANÇA et al., 2012). The eating habits of Brazilians have been redefined in recent times. With industrialization, many regional foods are losing their place and being forgotten at the expense of ultra-processed and fast food (LOUZADA et al., 2015).

Another relevant factor is that, even out of season, some fruits are always available to the consumer, and some regional and seasonal fruits do not find space for production, increasing the difficulty of finding them for trade and when they do, we know the price is often very high. (BRAZIL, 2008). This implies that each region of the country is at risk of losing the local food identity, when subjects like this must be treated as food and cultural heritage, being defended and preserved and not forgotten (BRASIL, 2015).

Food is everyone's right, but the industrialization of various food items can cause regional foods to be forgotten, even causing them to become extinct (FRANÇA et al., 2012).

The extinction of regional foods can cause these regions to lose their identity and food heritage, a heritage that must be preserved, as it guards the history of each place in Brazil (BRAZIL, 2015). Based on the perception of this type of problem, movements were created with the goal of returning to cultivation, encouraging the cultivation and consumption of regional foods (SCHNEIDER, 2015).

Given the above, the objective of this research was to investigate the presence of regional fruits at risk of extinction in a municipality in the southern region of the country, as well as to verify which fruits from the region at risk of extinction are known by the population and if they were marketed in the last year.

FOOD AND NUTRITION SECURITY

Brazilian food is more focused on the pleasure of eating than on the nutritional value of the food, eating for pleasure and not for what that food represents nutritionally, so there is great acceptance of industrialized foods, rich in fats and sugars (LEONARDO, 2009).

Food and nutrition security (FNS) means that everyone has access to adequate food on a regular and permanent basis (CFN, 2019). It is sought through public policies, which must integrate access to food and question the adequacy and quality of food, with the principle of prioritizing healthy and sustainable foods for trade and consumption, with actions aimed at the vulnerable population (TRIVELLATO et al, 2019).

FNS is directly influenced by economic factors such as low income, unemployment, stagnation in the country's growth. Knowing that FNS happens through the government's commitment to public policies on food and nutrition security, political crises affect it negatively. In order for these policies to work correctly, thus guaranteeing the right to food for all, issues such as increasing income, reducing risks and economic shocks, thus strengthening public financial institutions must be addressed (SOUZA, 2019).

Brazil must seek to be known for being able to reduce food and nutrition insecurity, for improving access to food, generating employment, supporting small farmers and reinforcing food and nutrition security policies (SILVA, 2014).

It is important to point out that Brazil has built a solid legal and institutional foundation, which has made the fight against hunger a responsibility of the State. As a result, poverty and food and nutrition insecurity reduced radically from 2004 to 2014 (SOUZA, 2019).

In 2006, the Organic Law on Food and Nutrition Security (LOSAN) was published, which made SAN assimilate new points, such as: food quality, the right to nutritional information, independence in decisions about production and consumption, respect for cultural traditions and food habits, ethical concern for future generations and the sustainable handling of natural resources throughout the food chain. FNS and the Human Right to Adequate Food (DHAA) go hand in hand (CONTI; SCHROEDER, 2013).

Respecting these aspects, we are faced with fairs promoted by family farming, which play a fundamental role in the construction of a new model of rural and commercial development, based on values of cooperation, solidarity and responsible use of natural resources (MEIRELLES, 2008).

Meirelles (2008) also states that, among several positive aspects, we can say that family farming tends to increase the income of producers and have better final prices for consumers, and the relationship between consumers and producers is made directly. It also encourages conscious production methods and the rescue of agrobiodiversity, generating greater autonomy for the farming

family, which can choose the form of production and which product to produce.

From LOSAN, a set of attitudes with the intention of promoting FNS was being developed. According to the first edition of the Food Guide for the Brazilian Population (Brazil, 2008), it must be a priority among health professionals to advise on the importance of consuming at least 3 servings of fruit daily, in addition to informing about the wide variety of fruits regions available in the country.

FRUIT DIVERSITY (BRAZIL)

Native fruits can be considered Unconventional Food Plants (PANC), and few are used constantly in food. For regular consumption, it depends on a process that guarantees the production, care, and distribution of these fruits, so that the consumer is aware of and can have contact with them (VOLPATO; LONGHI; SPERB, 2015).

PANC's have been used for food purposes by humans since prehistoric times. They are used for food, pharmaceutical, construction, as fuel, among other purposes. The use of plants as food represents a source of income for rural populations, and helps to move the local and regional economy. The use of plants is part of the culture, identity and agricultural habits (BARREIRA et al., 2015).

Brazil is a huge country, with different climates, being excellent for the diversity of fruits that we know, each region of the country is capable of growing a certain species of fruit, making each region have a unique identity of fruits. Some fruits may be known in different regions by different names (HAMAMURA, 2019).

Native fruits are an important part of our flora and have great potential for use and antioxidant characteristics. Some of the native fruits found in Brazil are: jabuticaba, pequi, guabiroba, pitanga, araçá, butiá, bergamot. These fruits are found in different parts of Brazil, and some, despite being typical of a specific region, have spread to other parts of the country (DAROIT, 2018).

Brazil is the third largest producer of fruit in the world, it harvests an average of 40 million tons per year, the area of fruit plants in Brazil is 1,034,708 hectares of tropical fruits, 928,552 hectares of subtropical fruits and 151,732 hectares of species of temperate climate. Main fruits produced in Brazil are: pineapple, watermelon, melon, avocado, banana, persimmon, cashew nut, coconut, fig, guava, orange, lemon, apple, papaya, mango, passion fruit, quince, walnut, pear, peach, tangerine and grape (HAMAMURA, 2019).

FRUIT DIVERSITY, CLIMATE (SOUTH)

The South is a region that is located in the Southern Temperate Climatic Zone, for this reason the states of this region are influenced by subtropical, tropical and temperate climates with well-defined seasons in this part of the country. Because of its well-defined seasons, this part of Brazil allows the cultivation of various fruit trees (ZUCOLOTO; SCHMILDT; COELHO, 2015).

The South region is the main producer of fruit in the country, with Rio Grande do Sul in first place, followed by Santa Catarina, then São Paulo and fourthly Paraná, with the South comprising 78.7% of production in all of Brazil.The most produced fruits in the region are: apples, bananas, grapes, oranges and peach (PEDERIVA et al., 2014).

Fruits such as the araçá, jabuticaba, butiá, guabiroba are part of the local culture of the region. They are best known to older people, who tend to remember these fruits as a childhood flavor. Today, however, it is very difficult to find these fruits and/or their by-products on the market. Producers prefer

to work with more exotic fruits, which are considered more productive (SILVA; SILVA, 2018).

Santa Catarina is a major producer of fruit, mainly bananas, apples, grapes, peaches, passion fruit, oranges and stone fruits. It is believed that around 14,000 producers grow more than 50,000 hectares of fruit, in permanent crops (ENCONTRO DE ECONOMIA CATARINENSE, 2016).

ENDANGERED FRUITS (SOUTH)

When society changes, the needs of the people change with it. With these changes, it is often difficult to maintain a sustainable consumption relationship. Although there is a clear need for the planet's resources for human subsistence, the race for economic development, over the decades, has become a priority for governments (BRAZIL, 2013).

Despite the effort to advance economic development, constant climate change and the consensus on the future insufficiency of natural resources, the attempt to conserve biodiversity has become a global concern, and the identification of species that are at risk of extinction and the factors that threaten them are extremely important for the adoption of preservation strategies (BRAZIL, 2014).

The cataloging of foods, animals and plants at risk of extinction is based on the amount of species existing in the studied place, and when the study is related to food, its commercialization is one of the factors that is most taken into account, because when there are fewer, the lower the supply and the higher the price (BRAZIL, 2013).

In 1994, the *International Union for Conservation of Nature* (IUCN), standardized the criteria to be used for classifying species extinction risks, considering nine assessment categories for evaluation: Extinct, Extinct in the wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern, Data Deficient and Not evaluated (BRAZIL, 2014).

It seems to be one of the most important factors for the possible extinction of some fruits, among others, the greater ease in the cultivation of some to the detriment of others, and commercial acceptability can also be mentioned. The fact that they are not well marketed can impact production, on the other hand as they are little produced, these fruits tend to be more expensive in the market. (BRAZIL, 2008).

Fruits such as jabuticaba, araçá, butiá, guabiroba are already considered to be at risk of extinction. They are found in family homes, where they are usually more consumed by older people, who tend to talk about them as a childhood taste (SILVA; SILVA, 2018).

LIST OF STUDIED FRUITS

PITANGA

Figure 1 - Pitangas.

Source: https://lencoisnoticias.com/os-10-beneficios-da-pitanga-para-saude/.

Scientific name: *Eugenia uniflora*
Popular names: Pitanga, Pitangueira, Cerejeira-brasileira, Ginja, Pitanga-branca, Pitanga-do-mato, Pitanga-rósea, Pitanga-roxa, Pitangueira-miúda, Pitangueira-vermelha, Pitanga-vermelha, Pitangueira, Pitangueira-comum
Family: *Myrtaceae*

Origin: South America, Argentina, Brazil, Uruguay.

Also known as: Pitangueira, Pitanga-roxa, Pitanga-branca, Pitanga-red. Its name comes from the Tupi indigenous origin, which means dark red. In addition to being able to eat the fruit, the essential oil can be extracted from the leaves. Quite common in the coastal region in restingas and capoeiras (RASEIRA et al., 2004)

GUABIROBA

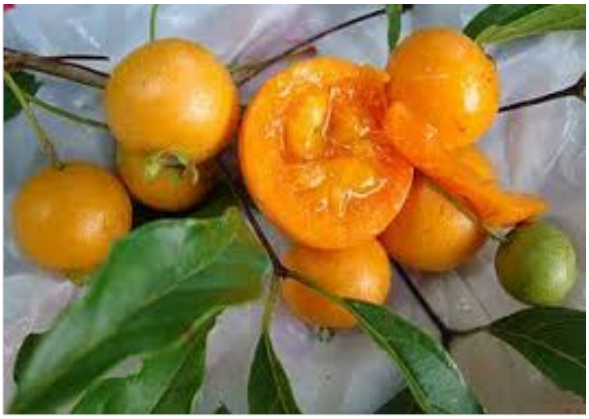

Figure 2 - Guabiroba.

Source: Autores (2019).

Scientific name: *Campomanesia xanthocarpa*
Family: *Mirtáceas*
Popular names: gabiroba, guavirova, gabirobeira, guariroba, guabiroba-da-mata
Origin: Originally from Brazil, this tree is tall with fragrant leaves. It has tasty fruit, in addition to being a great source of iron and vitamins A and C.

Guabiroba, guavirova or gabirova is a name of indigenous origin, which means bitter fruit. They prefer dry and sandy soils of the forest or even of capoeiraes, it is a fruit tree indicated for reforestation, since it blooms throughout the year (RASEIRA et al., 2004).

NÊSPERA

Figure 3 - Nêspera.

Source: https://www.plantei.com.br/muda-de-ameixa-nespera-feita-por-semente

Scientific name: *Eriobotrya japônica*
Family: *Rosaceae*
Popular names: Nêspera, Nespereira, Ameixa-americana, Magnório, Ameixa-japonesa, Ameixa-do-Japão, Ameixa-do-pará, Ameixeira-japonesa, Magnório, Ameixeira-amarela
Origin: Asia, Japan.

It originates from Southwest China, which was introduced in Japan and later in other regions, it is a fruit with a subtropical climate (PAIXÃO et al., 2019).

Also known as Japanese plum, widely used in the production of jellies for jams (SANTOS, 2016).

ARAÇÁ

Figure 4 - Araçá.

Source: https://www.embrapa.br/clima-temperado/busca-de-imagens/-/midia/640003/araca

Scientific name: *Psidium cattleyanum Sabine*
Family: *Myrtaceae*
Popular names: Araçá, araçá de coroa, china guava, araçá amarelo, araçá vermelho
Origin: South America

They are cultivated in coastal fields and on the Santa Catarina plateau. On the island of Florianópolis, frequent in capoeiras and sandbanks. The fruit is eaten whole and has a slight sour taste at the end. (RASEIRA et al., 2004).

WHITE GUAVA

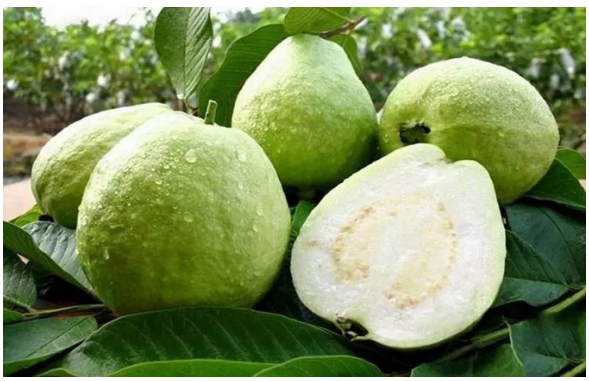

Figure 5 – Goiaba branca.

Source: https://www.manahdaterra.com.br/

Scientific name: *Psidium guajava* L.
Family: Myrtaceae
Popular names: Goiaba-branca, guava, goiabeira, goiaba, goiaba-pera, goiabeira-branca, goiaba-vermelha, araçá-goiaba, araçá-guaçu, guaiaba, guaiaba, araçá-guaiaba
Origin: native to tropical America. Occurs mainly in Brazil and the Antilles

Fruit native to tropical America, enjoying semitropical and tropical climates. They can be of white or red pulp, they are rich in vitamin C. The red one is a highly commercialized fruit in Brazil. (ANDRADE NETO, 2017)

BUTIÁ

Figure 6 - Butiás.

Source:http://diariodamanhapelotas.com.br/site/bioma-pampa-conservacao-e-uso-sustentavel-do-butia/

Scientific name: *Butia capitata*
Family: *Arecaceae*
Popular names: Butiá, Butiá-azedo, Butiá-vinagre, Cabeçudo, Guariroba-do-campo, Coquinho-azedo, Coquinho, Butiá-de-praia, Butiá-açu, Macumá, Butiá-felpudo, Butiá-branco, Butiazeiro, Butia, Coqueiro-cabeçudo, Jerivá
Origin: South America, Argentina, Brazil, Paraguay

They are cultivated in fixed dunes, growing sometimes in coastal fields, sometimes in the midst of dense shrubby vegetation of

the restinga. Used in the repair of liqueurs, cachaça, sweets and can be extracted from the seed oil for food. (RASEIRA et al., 2004).

LARANJA LIMA

Figure 7 – Laranja lima.

Source:https://www.sitiodamata.com.br/especies-de-plantas/frutiferas/laranja-lima

Scientific name: *Citrus Sinensis*
Family: *Rutaceae*
Nome popular: Laranja lima Verde, lima, laranja lima, lima da pérsia
Origin: Southeast Asia

Lime orange stands out for being sweet, low acidity and pleasant. It is well grown in tropical and subtropical climates. (SILVA et al., 2016).

CARAMBOLA

Figure 8 - Carambola.

Source: http://www.aplantadavez.com.br/2018/03/carambola-averrhoa-carambola-l.html

Scientific name: *Averrhoa carambola*
Family: *Oxalidaceae*
Popular names: Carambola, Camerunga, Caramboleira, Caramboleiro
Origin: Asia, India, Indonesia, Malaysia

Star fruit is originally from Asia, typical in tropical regions. It is an exotic fruit that came to Brazil in the early 18th century and is cultivated throughout the country (BASTOS, 2004).

BITTER ORANGE

Figure 9 – Bitter orange

Source: https://vidalevespa.com/emagrecimento/laranja-amarga-citrus-aurantium-emagreca/

Scientific name: *Citrus aurantium* L.
Family: Rutaceae.
Popular names: laranja-azeda, laranja-bigarade, laranja-cavalo, laranja-da-china, laranja-da-terra, laranja de doce
Origin: Originária da Índia

The bitter orange was introduced in Brazil in 1587 by Portuguese navigators. Much is said about its nutritional properties, but it has a bitter taste, being widely used for the production of sweets. (AREAS; MOURA, 2012).

CEREJA DO RIO GRANDE

Figure 10 – Cereja do rio grande

Source: https://www.bertoncelogarden.com.br/produto/218911/cereja-do-rio-grande

Scientific name: *Eugenia involucrata*
Family: *Myrtaceae*
Popular names: Cereja-do-rio-grande, Cereja, Cerejeira, Cerejeira-da-terra, Cerejeira-do-mato, Cerejeira-do-rio-grande, Guaibajaí, Ibá-rapiroca, Ibajaí, Ibárapiroca, Ivaí, Ubajaí
Origin: South America, Brazil

Also known as cherry tree, it grows in a part of Rio de Janeiro, southern Minas Gerais, Rio Grande do Sul, Paraguay, Uruguay and Argentina. (RASEIRA et al., 2004)

JABUTICABA

Figure 11 - Jabuticaba

Source: http://www.viveiroflorabrasil.com.br/comprar/muda-jabuticaba-semente/?v=7ace2f45dad9

Scientific name: *Myrciaria cauliflora*
Family: *Myrtaceae*
Popular names: Jabuticaba, Fruita, Jaboticaba, Jaboticabeira, Jabuticaba-açu, Jabuticaba-do-mato, Jabuticaba-paulista, Jabuticaba-preta, Jabuticaba-sabará, Jabuticabeira
Origin: South America, Brazil

It is a species that grows preferentially in the forests of the plains and humid slopes. It can be used for reforestation. In the industry, it is used for the production of liqueurs, jellies, wines, cachaça (RASEIRA et al., 2004).

METHODOLOGY

Descriptive, transversal and quantitative research. It was carried out in the municipality of Criciúma, in Santa Catarina. Its estimated population is 213,023 people (IBGE, 2017). The city of Criciúma has its main road on Avenida Centenário, which has three bus terminals that connect the city. The sample consisted of 150 people over 18 years of age, approached at the exit and entrance, that is, in the vicinity of municipal terminals, in an area; Terminal Urbano Central, Terminal da Próspera and Terminal Pinheirinho, with 50 people in each terminal, so the sampling was non-probabilistic by volunteering. To obtain the data, a questionnaire developed by the researchers for this study was used, containing 13 questions divided as follows: 05 socioeconomic questions; 02 fruit consumption profile questions and 06 specific questions about the researched fruits. It was held in October 2019, with the population over 18 years old approached at the exit and entrance of the municipal bus terminals. The project was approved by the Ethics Committee in Research with Human Beings of Universidade do Extremo Sul Catarinense, UNESC under opinion no. 3,603,356. Data were processed and analyzed descriptively, categorical variables were presented as

frequencies and percentages and continuous variables as mean and standard deviation.

RESULTS AND DISCUSSION

PROFILE OF THE POPULATION STUDIED

The data presented in Table 1 demonstrate that the participating population had a mean age of 34.3 (±15.4) between 18 and 80 years. Of these, 12 (8%) were over 60 years old and 148 (92%) were adults. Among women, the mean was 32.4 (±15.0) between 18 and 80, for men it was 18 to 68 years with a mean of 37.9 (±15.4). 46 participants (30.6%) were male, 102 people (68%) were female and 2 (1.3%) people did not mark the question.

Variables	n	%
Gender*		
Male	46	30,7
Female	102	68
Number of people in the house		
Ovee 5 people	3	2,0
Up to 2 people	38	25,3
From 3 to 5 people	109	72,7
Average monthly income of the Family		
Up to 1 salary	6	4,0
Over 5 salaries	22	14,7
From 1 to 2 salaries	47	31,3
From 3 to 5 salaries	75	50,0
Education		
Complete primary education	6	4,0
Incomplete high school	9	6,0
Incomplete Elementary School.	18	12,0
Complete Higher Education	20	13,3
Complete Higher Education	32	21,3
Incomplete Higher Education	65	43,3

Table 1 - Characteristics of the population studied, Criciúma, SC.

Source: Research data, 2019. * 2 (1,3%) without information.

Regarding the gross monthly family income of the participants, it was observed that 75 participants (50%) have a family income between 3 and 5 minimum wages, 22 participants (14.7%) have an average income above 5 minimum wages, 47 of the participants (31.3%), report having a monthly income between 1 and 2 minimum wages and only 6 participants (4.0%) with a monthly income of up to 1 salary.

Although most of the population studied had earnings above 3 minimum wages, it is clear that the majority of participants 112 (74.7%) also share a residence with 2 or more people as opposed to 38 residences (36.3%). that have up to 2 residents, and the total salary value of the residence does not represent the participant's per capita income.

Regarding the education of the research participants, the sample shows that most of the population approached, 85 (56.6%) attended or attend higher education, with 65 (43.3%) of the interviewees having attended up to high school.

As for the weekly frequency of consumption and the variety of fruits consumed during the week, the data are presented in Table 2.

Variables	n	%
How many times do you eat fruit a week?		
4 times or more	21	14
The person does not usually consume fruit	23	15,3
2 to 3 times	52	34,7
Every day	54	36
How many varieties of fruit do you usually consume?		
I don't normally eat fruit.	17	11,3
1 or 2 varieties	41	27,3
2 or more	92	61,3

Table 2 – Frequency of fruit consumption and variety of consumption, Criciúma, SC.

Source: Research data, 2019.

Regarding the frequency and variety of fruit consumption, shown in Table 2, 15.3% (23) of people reported not having the habit of consuming fruits, 36% (54) of people reported consuming fruits daily, 34.7% (52) participants consume fruit 2 to 3 times a week and 14% (21) report consuming fruit 4 times a week or more.

According to the IBGE, the food consumption of the Brazilian population combines the traditional diet based on rice, and the daily intake of fruits and vegetables is below the levels recommended by the Ministry of Health (400g) for more than 90% of the population, however, the final sample of the study shows that 85% of the participants maintain, even if not daily, the habit of consuming fruits (IBGE, 2009).

Although 15.3% (23) of people reported not consuming fruits, when asked about the weekly frequency of consumption, only 11.3% (17) of people reported not consuming any amount when asked about how many varieties they consume. Among participants who usually consume 1 or two varieties of fruit, 27.3% (41) of people fit this option and among participants who report consuming more than 2 varieties, 61.3% (92) of people are part of this option. group.

It is known that in 2018, according to VIGITEL, the consumption of fruits and vegetables among women was 39.2%, and among men it was between 27.7%. In addition, Florianópolis is among the capitals where this consumption habit is even greater, totaling 39% among men and 50% among women, which may be related to the result of high consumption of fruits among the sample studied, since 68 % of study participants were women (BRAZIL, 2019).

FRUITS FROM THE REGION AT PROBABLE RISK OF EXTINCTION KNOWN BY THE POPULATION

Despite the great diversity of fruit species in the country, the agricultural standard in recent years has been monoculture, as it is considered more financially advantageous, as a greater quantity is produced in a shorter time, it is possible to opt for products of greater economic value, the costs production, are usually smaller, etc. However, this type of cultivation causes great ecological imbalance and loss of biodiversity (SOUSA, 2019).

Even so, reinforces the author, there are movements against the market, seeking more intelligent and sustainable practices, usually associated with family farming, carried out by small producers and in small areas of land and aiming to cultivate several species at the same time, thus taking advantage of the local biodiversity.

According to Planeta Sustentável, Blog da Revista Super Interessante, among the 20 fruits most consumed by the Brazilian population, only 3 are native, and none of the fruits mentioned in this study are among them (JACQUES, 2015).

As for the fruits at probable risk of extinction known by the population, Table 3 presents the distribution of the studied fruits that are known by the population of the Criciúma region and by how many people are known, all of which are fruits still available in the region.

Among all the responses collected, none of the participants showed total ignorance about the fruits listed, and all of them reported knowing at least one of them when asked if they knew any of the fruits listed in a list of 11 fruits.

Fruits	N	%*
Cereja do rio grande	20	13,3
Guabiroba	45	30,0
Bitter orange	60	40,0
White guava	117	78,0
Araçá	119	79,3
Carambola	120	80,0
Butiá	125	83,3
Pitanga	135	90,0
Laranja lima	138	92,0
Jabuticaba	139	92,7
No	-	-

Table 3 – Fruits at probable risk of extinction known by the population, Criciúma, SC.

Source: Survey data, 2019. * Considering 150 respondents.

Regarding pitanga, 90% (135) participants demonstrated that they were familiar with it, but despite being widely known by the population, pitanga is mentioned in the *Slow Food Brazil movement's* "Ark of Taste", as present in the orchards of the houses, until a few years ago, however, with the change of habits and the structural change of the cities, it is disappearing little by little (SLOW FOOD, 2016) In addition, the fruit is highly perishable and normally does not arrive in natura at the markets, which distances it from the current eating habits of Brazilians (FELLER, 2017).

According to research by Adan (2010) with farmers in Florianópolis, the potential of guabiroba for commercialization is good, as long as it is benefited, because the fruits, according to them, are quite perishable and would not be viable for transport and/or in natura marketing, which may explain the small number of participants, 30% (45) who know about it.

A total of 14% (21) of the participants know the loquat, 79.3% (119) know the araçá, 78% (117) of the participants report knowing the white guava, 83.3% (125) of the people demonstrate knowledge about the butiá, 92% (138) know the lime orange, 80% (120) know the star fruit, the bitter orange is known by 40% (60) of the people, the cherry from Rio Grande by only 13.3% (20) of the 150 people questioned and jabuticaba is known by 92.7% (139) of the participants.

Fruits	N	%*
No	9	6,0
Cereja do rio grande	16	10,7
Nêspera	16	10,7
Guabiroba	40	26,7
Bitter Orange	46	30,7
Carambola	100	66,7
Araçá	103	68,7
Butiá	104	69,3
White guava	105	70,0
Jabuticaba	115	76,7
Pitanga	118	78,7
Laranja lima	119	79,3

Table 4 – Fruits at risk of extinction already consumed by the population, Criciúma, SC.

Source: Survey data, 2019. * Considering 150 respondents.

Table 4 shows which fruits in the list have already been consumed by the population at some point in their lives, and 78.7% (118) of the participants have already consumed pitanga. Among the sample, 26.7% (40) people tried guabiroba, 10.7% (16) loquat and 68.7% (103) araçá. White guava has already been tried by 70% (105) of people, butiá by 69.3% (104) of people, with 79.3% (119) having already eaten lime orange, 66.7% (100) also tried carambola, 30.7% (46) bitter orange, only 10.7% (16) had already consumed the cherry from rio grande and 76.7% (115) of the participants reported having consumed the cherry at some point in their lives. jabuticaba. Only 6% (9) of the people exposed had never consumed any of the listed fruits.

Of those who consumed any of the fruits, they were asked on which occasion they were consumed. 38% (59) of people had already consumed it at home, and of these, 16% (24) reported having species planted at home. Another 26.7% (40) people reported having consumed in the places of relatives or friends. Among the two situations, 5.3% (8) people reported having consumed the species in childhood. 28% (42) people did not answer the question. Among the entire sample, 6% (9) of people reported never having tried any of the fruits described in the study, and questioning the occasion of consumption became irrelevant in this case.

FRUITS AT RISK OF EXTINCTION SOLD IN THE CRICIÚMA REGION IN THE LAST YEAR

Table 5 describes the fruits seen by the interviewees, being marketed in the last year in the region of Criciúma.

Mentioned fruits	n	%*
Cereja do rio grande	-	-
Guabiroba	3	2
Nêspera	8	5,3
Araçá	13	8,7
Laranja amarga	18	12
No	21	14
Pitanga	27	18
Butiá	29	19,3
Goiaba branca	62	41,3
Jabuticaba	64	42,7
Carambola	73	48,7
Laranja lima	89	59,3

Table 5 – Fruits at risk of extinction traded in the last year, identified by research participants, Criciúma, SC.

Source: Survey data, 2019. * Considering 150 respondents.

Among the fruits sold in the last year, pitanga was seen by 18% (27) of participants in local shops, 2% (3) people saw guabiroba, which is in accordance with studies that say that there is no adequate supply in the market by products that use guabiroba as a raw material, or even the fruit in natura (ALBUQUERQUE, 2016).

The loquat, despite being known by some participants, was cited as a "house fruit" and only 5.3% (8) of the participants saw this fruit being commercialized, but despite this, it is highly produced in the Southeast region of the country. (OLIVEIRA, 2013).

Araçá was seen being marketed by only 8.7% (13) people, which may be linked to the variability in the production of this fruit, in addition to the variation in size and high perishability (FALCÃO; GALVÃO; CLEMENT, 2000).

The white guava was seen by 41.3% (62) of the people, the butiá was seen by 19.3% (29) of the participants, the lime orange by 59.3% (89) of the people and the carambola by 48, 7% (73) of the people who attested to having viewed it in the trade.

About bitter orange, 12% (18) of people responded that they had seen it in the store. This fruit was popularly used in the production of sweets, because in natura it does not have a pleasant taste, but currently, interest in the fruits has grown due to their use in slimming products (OLIVEIRA et al., 2017).

Despite being cited in several studies for the risk of extinction, 42.7% (64) of people saw jabuticabas being marketed in the region (SLOW FOOD, 2016).

The jabuticabeira takes from 8 to 12 years to produce the first fruits and is commonly found in parks, gardens and sidewalks in urban areas (SUGUINO et al., 2012).

Not one person saw the cherry of the Rio Grande in commerce. Perhaps one of the reasons for the apparent lack of production

of this fruit is the difficulty in relation to the time it takes to bear the first fruits, since it is described that the first flowering occurs after 10 years of the plant, in addition, it has only one flowering. per year (WAGNER, 2017).

In the last year, 14% (21) of the interviewees did not see any of the mentioned fruits on sale.

Of those who saw any of the fruits being sold in the last year, 68% (102) of the participants saw them being sold in local markets or fruit trees, another 31.3% (47) people did not respond and 0.7% (1) responded have seen in trade in the interior.

As for the values being accessible, 36% (54) said yes, 30% (45) did not find it affordable, 4.7% (7) did not see the price and 15.3% (23) did not respond.

FINAL CONSIDERATIONS

Based on the survey results, it was noticed that the majority of respondents were female. Among the participating men and women, adults aged below 40 years predominated, but among men the mean age was higher than that of women.

Regarding the fruits mentioned in the study that were identified by the population, it was observed that most of them are known by a large part of the population, but the loquat, bitter orange, guabiroba and rio grande cherry, do not have extensive knowledge of the participants, however. this study did not take into account the possibility of having knowledge of the fruits through other names, and it may be that people know them by popular names or from other regions.

It was also observed that some of the fruits mentioned in this study were seen being marketed widely by a large part of the participants (more than 50%), which perhaps place them in less worrisome categories in the risk classification. On the other hand, most of them were observed in commerce, by less than 50% of the population studied. In addition, there was reference to commercialization in fruit trees and local fairs, which proves to be a product of family farming, thus reinforcing the importance of encouraging this for the development of more responsible forms of cultivation.

This study expanded the look at socio-environmental issues, in order to demonstrate the connection of these themes with the performance of the Nutritionist at SAN and thus contribute to the extension of work in this area.

REFERENCES

ADAN, Natalia. **Estrutura demográfica, conhecimento e uso local de guabiroba.** 2010. 33 f. Tese (Doutorado) - Curso de Agronomia, Universidade Federal de Santa Catarina, Florianópolis, 2010.

ALBUQUERQUE, Jaqueline Steininger. **Propagação vegetativa de guabiroba pelo método de enxertia.** 2016. 31 f. TCC (Graduação) - Curso de Engenharia Florestal, Universidade Federal do Paraná, Curitiba, 2016.

ANDRADE NETO, Germano de Albuquerque. **Produção e caracterização de filmes poliméricos para revestimento comestível em goiabas.** 2017. 54 f. TCC (Graduação) - Curso de Curso de Engenharia Química, Universidade Federal da Paraíba, Joao Pessoa, 2017.

AREAS, Taís F.; MOURA, Regina B.. **Laranja da terra: evidências científicas para diferentes aplicações terapêuticas. Revista Fitos**, Rio de Janeiro, v. 7, n. 2, p.110-118, abr. 2012. Bimestral. Disponível em: <https://www.arca.fiocruz.br/bitstream/icict/19196/2/1.pdf>. Acesso em: 21 ago. 2019.

BARREIRA, T.F. et al. **Diversidade e equitabilidade de Plantas Alimentícias Não Convencionais na zona rural de Viçosa**, Minas Gerais, Brasil. Rev. bras. plantas med., Botucatu, v. 17, n. 4, supl. 2, p. 964-974, 2015.

BASTOS, Débora Costa. **A cultura da carambola**. Rev. Bras. Frutic, Jaboticabal, v. 26, n. 2, Aug. 2004

BRASIL, Ministério da Educação. Alimentação saudável e sustentável. Brasília: Ministério da Educação, 2009. Disponível em: Acesso em:

BRASIL. Ministério da Saúde. **Alimentos regionais brasileiros.** Secretaria de Atenção à Saúde, Departamento de Atenção Básica. – 2. ed. – Brasília: 2015. 484 p.

BRASIL. Ministério da Saúde. **Manual operacional para profissionais de saúde e educação**: promoção da alimentação saudável nas escolas. Secretaria de Atenção à Saúde, Departamento de Atenção Básica. – Brasília: 2008. 152 p.

BRASIL. Ministério do Meio Ambiente. **Livro vermelho da flora do Brasil** - 1. Ed, Instituto de Pesquisas Jardim Botânico do Rio de Janeiro - Rio de Janeiro, 2013. 21 p.

BRASIL. Ministério do Meio Ambiente. **Manual Nacional Avaliação de Risco de Extinção das Espécies da Flora Brasileira**. Centro Nacional de Conservação da Flora – Rio de Janeiro, 2014. 12 p.

BRASIL. Ministério da Saúde. **VIGITEL 2018.** Secretaria de Vigilância em Saúde – Brasília, 2019. 131 p.

CFN. Conselho Federal de Nutricionistas. **Segurança Alimentar e Nutricional.** Disponível em: <http://www.cfn.org.br/index.php/seguranca-alimentar-e-nutricional/>. Acesso em: 13 ago. 2019.4

CONTI, Irio Luiz; SCHROEDER, Edni Oscar. **Convivência com o Semiárido Brasileiro: Autonomia e Protagonismo Social.** Brasília: Editora Iabs, 2013. 236 p.

DAROIT, Guilherme. **Frutas nativas tentam recuperar mercado.** 2018. Disponível em:<https://www.jornaldocomercio.com/_conteudo/2018/02/cadernos/empresas_e_negocios/613849-frutas-nativas-tentam-recuperar-mercado.html>. Acesso em: 15 ago. 2019.

ENCONTRO DE ECONOMIA CATARINENSE, 10., 2016, Blumenau. **Panorama da fruticultura catarinense: levantamento de dados para a safra 2014-15.** Blumenau: Apec, 2016. 19 p.

FALCÃO, Martha de Aguiar; GALVÃO, Rosana de M. Souza; CLEMENT, Charles R. **Fenologia ε produtividade do araçá-boi na Amazônia Central.** 2000. 13 f. Tese (Doutorado) - Curso de Ciências Biológicas, Universidade do Amazonas, Manaus, 2000.

FELLER, Daniele. **Análise da comercialização de produtos derivados de pitanga (eugenia uniflora l.) em Florianópolis (SC), associada à análise da aceitabilidade do suco "tropical" da fruta.** 2017. 31 f. TCC (Graduação) - Curso de Gastronomia, Instituto Federal de Santa Catarina, Florianópolis, 2017.

FRANÇA, Fabiana Chagas Oliveira et al. **Mudanças dos hábitos alimentares provocados pela industrialização e o impacto sobre a saúde do brasileiro**. **I** Seminário Alimentação e Cultura na Bahia, Bahia, 2012.

HAMAMURA, Harumi. **Frutas de Clima Subtropical e temperado.** Florianopolis: Unisalesiano, 2019. 104 slides, color.

IBGE. Instituto Brasileiro de Geografia e Estatística. Cidades, Criciúma, panorama. 2017. Disponível em: <https://cidades.ibge.gov.br/brasil/sc/criciuma/panorama> Acesso: 21 de ago. 2019.

JACQUES, Luis. **Das 20 frutas mais consumidas no Brasil, somente 3 são nativas.** 2015. Disponível em: <https://nossofuturoroubado.com.br/das-20-frutas-mais-consumidas-no-brasil-somente-3-sao-nativas/>. Acesso em: 15 nov. 2019.

LEONARDO, Maria. Antropologia da Alimentação. **Antropos**, Lavras, v. 3, n. 2, p.01-06, dez. 2009.

LOUZADA, Maria Laura da Costa et al**. Alimentos ultra processados e perfil nutricional da dieta no Brasil**. **Rev. Saúde Pública**, São Paulo, v. 38, n. 49, p.1-11, abr. 2015

OLIVEIRA, Janiele Sacramento Freitas. **Seleção de possíveis antagonistas a antracnose da nêspera**. Revista Eletrônica Thesis, SÃo Paulo, v. 20, n. 10, p.49-54, jun. 2013.

OLIVEIRA, Thayse Wilma Nogueira de et al. **Laranja amarga como coadjuvante no tratamento da obesidade**. Rsc, Piauí, v. 1, n. 6, p.114-116, jun. 2017.

PAIXÃO, Marcus Vinicius Sandoval et al. **Tratamentos térmicos no desenvolvimento de plântulas de nêspera. Brazilian Journal Of Animal And Environmental Research,** Espirito Santo, v. 2, n. 3, p.91-96, abr. 2019.

PEDERIVA, Cassiano Junior et al. **Produção de frutíferas na região sul do brasil**. In: AGROTEC, 2., 2014, Rio de Janeiro. **Anais... .** Rio de Janeiro: Fai, 2014. p. 1 - 4.

RASEIRA, Maria do Carmo Bassols et al. **Espécies Frutíferas Nativas do Su l do Brasil.** Pelotas: Embrapa, 2004. 125 p.

SANTOS, Fernando Santiago dos. **Espécies exóticas presentes na mata da câmara – São Roque.** São Paulo: Beatriz Teixeira, 2016. 22 p.

SANTOS, Robson dos et al. **Biodiversidade em Santa Catarina: Parque Estadual da Serra Furada.** Criciúma: Ediunesc, 2016. 192 p.

SCHNEIDER, Kamila Guimarães. **"A revolução está no prato": do global ao local no movimento** *Slow Food***.** 2015. 209 f. Dissertação (Mestrado) - Curso de Antropologia Social, Universidade Federal de Santa Catarina, Florianópolis, 2015.

SILVA, Ana Lúcia Oliveira da; SILVA, Leonardo Xavier da. **Brasil frutas nativas do Rio Grande do Sul.** 2018. Disponível em: <http://fidamercosur.org/claeh/experiencias/experiencias-en-la-regi%C3%B3n/581-brasil-frutas-nativas-do-rio-grande-do-sul>. Acesso em: 13 ago. 2019.

SILVA, C. E. de Farias et al. **Uso da laranja lima e seus resíduos no desenvolvimento de novos produtos. Brazilian Journal Of Biosystems Engineering,** São Cristovão, v. 10, n. 1, p.69-96, mar. 2016.

SILVA, Sandro Pereira. **A trajetória histórica da segurança alimentar e nutricional na agenda política nacional: projetos, descontinuidades e consolidação. Ipea**, Rio de Janeiro, v. 1, n. 1, p.1-82, abr. 2014.

SLOW FOOD BRASIL: **Arca do Gosto**. 2016. Disponível em: <http://www.slowfoodbrasil.com/arca-do-gosto>. Acesso em: 13 nov. 2019.

SOUSA, Luna Rezende Machado de et al. Food security status in times of financial and political crisis in Brazil. **Cadernos de Saúde Pública**, Rio de Janeiro, v. 35, n. 7, p.1-13, jul. 2019.

SUGUINO, Eduardo et al. **A cultura da Jabuticabeira**. Apta Regional: Pesquisa e Tecnologia, São Paulo, v. 9, n. 1, p.15-22, jan. 2012.

TRIVELLATO, Paula Torres et al **. Food and nutrition (in)security in families of farmers who supply the National School Feeding Program**. Rev. Nutr., Campinas, v. 32, e180247, 2019

ZUCOLOTO, Moises; SCHMILDT, Edilson Romais; COELHO, Ruimário Inácio. **Por ter as estações bem definida, esse pedaço do Brasil, possibilita o cultivo de diversas frutíferas.** Alegres: Caufes, 2015. 184 p.

WAGNER, Julia Goetten. **Pesquisa participativa sobre *eugenia involucrata* dc para fins de conservação e melhoramento genético.** 2017. 90 f. TCC (Graduação) - Curso de Agronomia, Universidade Federal de Santa Catarina, Curitibanos, 2017.

VOLPATO, Cesar; LONGHI, Alvir; SPERB, Miriam. **Frutas nativas - alimentos locais, sabores e ingredientes especiais. Cetap**, Posso Fundo, v. 1, n. 1, p.1-22, jan. 2015.