

VALUATION OF PASABOCAS DE COCO FROM THE PACIFIC COAST OF THE CAUCA DEPARTMENT, COLOMBIA

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ABSTRACT

The research had the objective of studying the cultural gastronomic heritage of Pasabocas de Coco (a kind of sweet coconut snack), a local product elaborated in the Pacific Coast of the Cauca Department, Colombia. The method consisted in the use of six research tools from the Localized Agrifood Systems (LAFS) approach. Consequently, it was possible to identify the origins and cultural significance of Pasabocas de Coco; the link between the product and the territory; the relationships that producers have established; the effects of geographic isolation on collective action; and alternatives for their rescue and valuation. As conclusion, the study identifies that applying the methodologies of oral history, genealogical method, and technological trajectory recognized the existence of historical and intangible factors that sustain the relevance of coconut snacks in the gastronomic heritage of these communities. However, applying the methodologies for product grading and chain analysis allowed to identify that although the coconut used for the elaboration of this product comes from the territory, the same does not happen with wheat flour and sugar; this dependency on raw materials from outside the Pacific Coast generates losses in the territorial anchoring of the product and, as consequence, in the real possibilities for a Protected Designation of Origin (PDO). The negotiation for a Collective Brand remains as a possible option; however, it will be necessary to advance previously in a process of organizational strengthening, since the methodology of network analysis recognized a low articulation between producers.

Keywords: gastronomic heritage, geographic indications, territory, traditional products.

INTRODUCTION

Since the decade of the 1960s, coconut growing was promoted in Departamento del Cauca by the Colombian Institute of Agrarian Reform (*Instituto Colombiano de la Reforma Agraria*, INCORA). Through the project COpacífico (2023), 1,171 coconut farmers were identified and around 4 thousand hectares planted, in the municipalities of Guapi, Timbiquí and López de Micay. The production in these three municipalities is shipped without processing to the port of Buenaventura, and from there it is transported to the main cities in Colombia, where it is traded fresh or transformed in some agribusinesses. It is estimated that less than 1% of the coconut produced on the Pacific Coast of Cauca stays in the territory for auto-consumption and local transformation. Coconut is a constitutive part of the culture of inhabitants in the Pacific Coast. The objective of the research was to analyze the traditional production of the Pasabocas de Coco, part of the food heritage of Afro-descendant communities living on the Pacific Coast of the Cauca Department, Colombia.

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THEORETICAL FRAMEWORK

The Localized Agrifood Systems (LAFS) approach was created in the second half of the nineties. Muchnik and Sautier (1998) conceive it as a located organization model which serves as a reference for reflecting on the importance of the links between rural agribusinesses concentrations and their impact on the local and regional economic activity, especially in face of the need to develop a systemic approach that would allow visualizing the interactions that happen between stakeholders, techniques, products and the territory. Boucher and Pomeón (2010) systematized the proposals elaborated by diverse authors on the first fifteen years of LAS. From this analysis, three stages in conceptual development were identified: territorial anchoring, activation of resources, and multifunctionality.

Stage 1. Territorial anchoring

This first stage gathers the contributions in common of the ‘territorial link’ of the LAS. Muchnik and Sautier (1998) conceive them as “systems constituted by organizations of production or services (agricultural units, agrifood companies, marketing companies, restaurants, etc.) associated through their characteristics and their functioning to a specific territory. The means, products, people, institutions, know-how, dietary behaviors, and network of relations are combined in a territory to produce a form of agrifood organization on a given special scale”. This perspective is crucial as a characteristic element of LAS in relation to other approaches of agribusiness; it recognizes the potential a territory has as a constitutive part of the agrifood system and from this, provides the opportunity to take advantage of differentiation strategies of local products, due to their characteristics linked to the territory where they are produced. Territorial anchoring is the sum of historical, intangible, and tangible factors that give a close link between the product and the territory.

Stage 2. Activation of resources

Boucher (2004) conceives it as “the capacity to mobilize specific resources (endogenous and exogenous) collectively, under the perspective of improving the competitiveness of rural agribusiness concentrations”. Boucher *et al.* (2006) recognize the need of two types of collective action for the activation of a LAS: structural and functional.

The structural collective action refers to the consolidation of organizational processes in the community that integrates the LAS, whether through an association, a cooperative or another unionization model. This component allows identifying the social and institutional basis in the territory and evidences the possibility of attaining its dynamization, through processes that stimulate leadership and social capital, as well as a greater presence and management of institutions.

On the other hand, the functional collective action is linked with the construction of a territorialized resource in function of its quality, by obtaining a distinctive sign such as a Protected Designation of Origin (PDO) or another type of geographic indication. The perspective of ‘activation’ of LAS highlights the importance of taking advantage of the

potential of traditional food resources through the introduction of certification processes that ensure the link between the product and the place where it is produced.

Stage 3. Multifunctionality

The third stage of conceptual evolution of LAS recognizes that when the local resources are activated to improve the competitiveness of rural agribusinesses, a set of positive externalities are produced simultaneously that benefit multisectorial and multifunctional activities. In this regard, Torres (2013) indicates that “in a given territory, it is considered that when a series of products are made in it, a basket can be formed that increases the value as a whole, in addition to the basket of goods and services is an alternative to gain access to the markets through the diversification of the offer in a territory”.

METHODOLOGY

The research of the gastronomic heritage of coconut snacks produced in the Pacific Coast of the Cauca Department was conducted by using the LAS approach and the methodological proposal by Grass *et al.* (2012), where the three conceptual axes that give identity to the LAS are verified, through the application of six methodological instruments.

Oral history

In the case of the LAS, this instrument uses secondary source revision and interview as means to acknowledge the historical context that allowed the emergence of agrifood products by delineating approximate dates, locations, and participant communities involved in the process. Subsequently, the research must evolve to frameworks that allow the identification of how the products acquired their symbolic value through time, recognizing their incidence in gastronomy, cultural events, and other significant local events; until reaching the present moments where the patrimonial constructed from the history of the product in the territory is consolidated.

Genealogical method

This instrument aims to recognize the ways knowledge was transmitted across generations, the methods by which the inhabitants teach and learn the product elaboration techniques, and the factors that have stimulated or limited these processes. In practice, gathering information from the oral history and the genealogical method is incorporated into in-depth interviews. Meanwhile, through the oral history, the families and conditions that permitted the emergence of the product are identified, and then the details of the histories are complemented with the descendants and genealogies are performed.

Technological trajectory

It allows verifying the degree of conservation of the tradition that incorporates the agrifood products' elaboration, through the valuation of the effects that innovations have had on the genuine preservation or loss of their trueness. In practice, interviewing the producers'

communities is necessary to collect from their own experience the characteristics that identify the original product, the moments when innovations were adopted, recognizing the causes that turned them into technological adoptions; and their effects on the production units and the market.

The oral history, genealogical method, and technological trajectory allow the validation of historical and intangible factors, which grant the territorial anchoring to agrifood products. To verify the impact of the territory's biophysical characteristics on the product, the product qualification is applied as a methodological basis.

Product qualification

This process is based on the verification of material factors granted by territorial anchoring, especially in the particularities of the territory that allow the transformation into physical-chemical, micro-biological and sensorial characteristics of the agrifood products. As a result, the products acquire a quality associated with the territory where they are produced, which seek to be evaluated in the qualification stage and exploited as a signaling mechanism in a certification phase conducted thereafter.

Network analysis

For the LAS approach, it is important to recognize the relationships established between inhabitants of a territory to transfer the know-how related to the elaboration techniques of traditional products, the exchange of raw materials and inputs between producers, the interactions to share information on the market trends, credit options, innovation processes, among others. From the information collected, the network analysis is conducted; this process requires tagging each informant and the stakeholders that they establish various types of relationships with (social, technical and commercial), and the information is classified in a matrix or text thereafter. Once the information is systematized in a database, the UNICET software is used to graph the network, generate indicators, perform their analysis and formulate proposals directed at consolidating the relationships between different stakeholders.

Agribusiness chain analysis

This tool allows characterizing the links, recognizing their functioning, and identifying alternatives for the strengthening of the value chain. For information gathering, various instruments are designed (surveys, interviews, instruments of participatory diagnosis). The chain analysis must be complemented with economic analyses of externalities, and it is unnecessary to identify the set of indirect stakeholders that are affected, positively or negatively, by the activation processes of the territorial resources.

For the study of the valuation of the local product, coconut snacks from the Pacific Coast of the Cauca Department, the six previous tools were applied and it was carried out within the framework of the execution of the project *Fortalecimiento de la cadena productiva del coco de la Costa Pacífica del Cauca - COPacifiCO* ("Strengthening the productive chain of

coconut of the Pacific Coast of the Cauca – Copacífico”) performed between the years 2021 and 2023, in the municipalities of Guapi, Timbiquí and López de Micay.

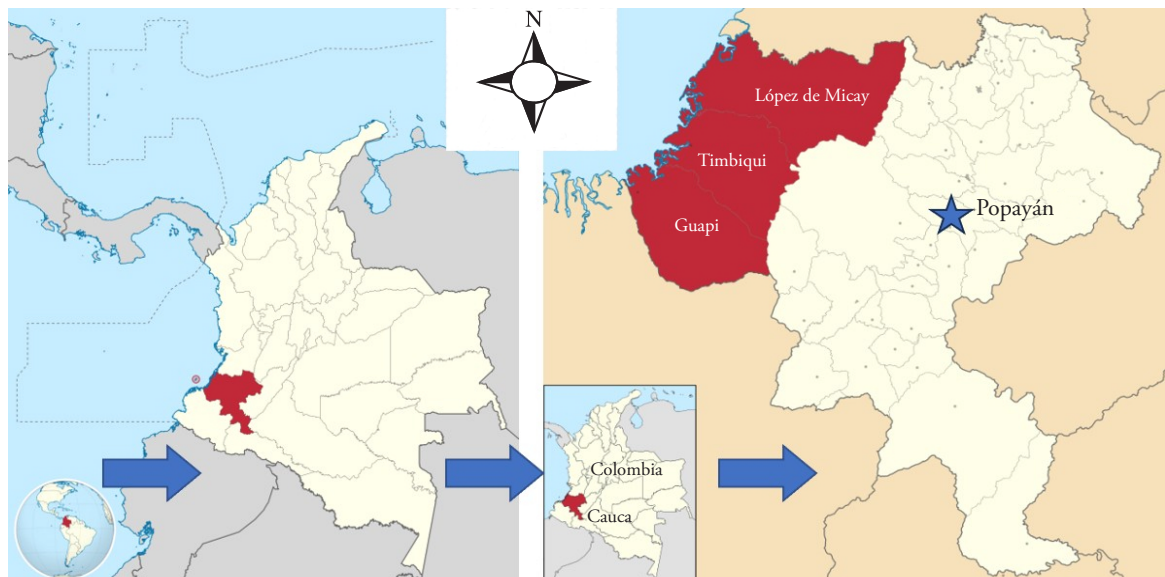
The Cauca Department, which has the city of Popayán as capital, is located in the southwest of Colombia. The territory stands out for its ethnic and multicultural diversity; close to 25% of the population of the Department identifies as indigenous and 20% as Afro-descendant (Departamento Administrativo Nacional de Estadística-DANE, 2018). Presently, Cauca is the second coconut-producing Department in Colombia (Contexto Ganadero, 2023); the production is carried out in the municipalities of Guapi, Timbiquí and López de Micay, which are located on the coast of the Pacific Ocean (Figure 1).

To deepen this analysis with the LAS approach, interviews were applied to 31 coconut producers, which were selected for their trajectory and recognition as leaders by the community; and to 26 traditional processors of this fruit, which were chosen for the diversity of coconut products that they make and the tradition in the elaboration; the importance of having stakeholders distributed among the three municipalities of study was also considered.

RESULTS

Oral History and Genealogic Method

Different hypotheses are raised in relation to coconut’s origin in the Colombian Pacific Coast. Some are presented based on bibliographic references and the voices of some stakeholders in the territory who were interviewed to explain the origin of the fruit in the territory.



Source: Gobernación del Cauca, 2019.

Figure 1. Cauca Department and municipalities of the Cauca Pacific Coast.

Origin of coconut in the Pacific Coast of the Cauca Department, Colombia

Coconut farms began to appear in the decade of the 1960s, driven by the project “Integrated Development of Coconut Health and Production of the Pacific Coast” (*Desarrollo Integrado de Sanidad y Producción Cocotera de la Costa Pacífica*) by then Colombian Institute for Agrarian Reform (*Instituto Colombiano de la Reforma Agraria*, INCORA), which promoted rural property and productive development by financing loans for the establishment of coconut producing farms. This project was developed for a couple of years in the municipalities of Tumaco, El Charco, Iscuandé and Mosquera, in the Nariño Department, as well as in Guapi, Timbiquí and López del Micay, in the Cauca Department.

Before the establishment of coconut plantations, each family used to have up to five coconut palms, and the fruit, coconut coir, and steam (coconut fiber) had different uses at that time. Those first palms were of the Típico variety and had an ornamental purpose due to limited production that was directed to auto-consumption. With the arrival of INCORA, planting the Típico variety large coconut was promoted; however, with the possible threat of diseases, the institution drove the planting of a new small coconut variety called Manila. Finally, the crosses of these varieties resulted in a hybrid, which in the Pacific Coast receives the name of Táparo.

Before INCORA's arrival, the only known coconut variety was Típico. Mr. Diomedes Sánchez recalled how the varieties began to arrive: “The first coconut variety brought by INCORA was Típico. They gave loans to each user to cultivate four hectares of Típico and later they extended loans to grow Manila, because of concerns about the Red Ring, the coconut disease. Then, we told them we wanted to cultivate Típico, but the supervisors told us: ‘No, because of the Red Ring Disease. So, we are going to plant Manila because it is more resistant to dry conditions.’ Therefore, growing Manila was mandatory. Before the arrival of INCORA, there were few coconuts for supply, only for subsistence crops. In the neighboring municipality of El Charco, in the Nariño Department, coconut supply was abundant, but they sent it to the Buenaventura Port and not to the municipalities in Cauca.” Mr. Simón Segura complemented the story with historical events of the territory's coconut production: “During the late seventies and part of the eighties, there was a great bonanza of coconut production in Cauca. Then, there was an earthquake which destroyed a considerable number of palms; after, diseases happened and there was a crisis because the disease eradicated many coconuts. With time, the impact of the disease decreased, and people continued with the cultivation and expansion of their crops. Now the situation is fine. The phytosanitary affectation took place between 1983 and 1985 because of the seaquake in 1979. The coconut was ruined because the earthquake shook the palms, causing some to fall and others to sink into the ground. Even though some palms didn't fall, the coconut clusters did fall due to the ground movement; in addition, the ground subsided and all these aspects affected the crops. That impact still exists; the soil never fully recovered, it lost nutrients, and the harvests are not as they were”.

Coconut is present in a variety of traditional dishes from the Pacific Coast, and some uses in the gastronomy of Afro-descendant communities are presented next:

-Most of the food preparations include coconut milk. *Sudados*, *tapaos* and *encocados* are among the outstanding dishes. The most preferred fish are: pelada, sierra, catfish, alguacil, canchimala, lisa, gualajo, stringray, tollo, flatfish and some less common like the red snapper, corvina and barbiche. The mangrove ecosystem in this territory offers gastronomy full of mollusks and bivalves like: piangua, chorga, piacuil, pateburro; as well as crustaceans such as crab, shrimp, and clams. The consumed bush meats include guagua (commonly called rabbit), guatín, tatabro, pava, paujil, armadillo, and deer, among others. All these meats incorporate coconut in their preparation. Rice is also made with coconut milk and a variety of beverages include coconut, among them *aguapanela* and *otalla* (a kind of milky corn pudding).

The main coconut sweets made in this territory are:

- Cocadas and Cocadillas. Sweets obtained through sugar concentration, where the coconut, whether sliced or shaved, is cooked with coconut milk, cinnamon water, and powdered milk. Cocadillas have sugar, while Cocadas use cane honey or melao de panela (syrup).
- Fried coconut in Timbiquí, or Coquillo in Guapi. These are pieces of coconut flesh boiled in water with panela, sprinkled with a mixture of cinnamon powder, powdered milk and grated anise.
- Turrone or Coconut caramels. They are made by boiling coconut milk with sugar, shaved coconut, and lemon juice. After reaching the caramel consistency, the heat is lowered, and the mixture is kneaded while still hot. Then it is cut into squares and finally sprinkled with powdered milk. They are very popular among kids and teenagers, who buy and sell them at school.
- Coconut Bolis. This is a cold beverage sold in plastic bags. Coconut is cooked with cinnamon and when soft, it is blended, strained, and powdered milk is added to blend a second time; lastly, sugar is added. Once the beverage is ready, it is refrigerated, packed in plastic bags and frozen.
- Andullos. This is defined as “something wrapped”, which in this case it is done in dried banana leaf; inside, it contains a mixture of cane honey, coconut milk, shaved coconut, green shaved papaya, guava juice and the husk of ‘Pepa de pan’ tree seeds. This candy is popular in the Saija River Basin, in the municipality of Timbiquí, where it has special prominence during the Virgin festivities, celebrated in August.
- Coconut panela. It is a large Cocada, block-shaped and similar to Panela. This sweet is produced in López de Micay and packaged using banana leaves, which add flavors and aromas to the product.
- Pasabocas. They are a kind of mash, made with shaved coconut, wheat flour, sugar, cinnamon, vanilla or cinnamon essence, and sometimes, anise; this sweet is the one that has the greatest potential to explore other markets and the only one that is made in the three municipalities (Figure 2).



Source: the authors.

Figure 2. Pasabocas de Coco (left) and producer from the municipality of Guapi (right).

On the origin of Pasabocas de Coco in the Pacific Coast of Cauca Department

The origin of the ingredients in Pasabocas allowed suggesting some hypotheses about their origin, which could not have been prior to the arrival of flour and sugar to the Pacific Coast. That is, an indigenous origin is refuted, and it is related to the migration of Spanish colonizers who arrived in this territory, attracted by the gold that was abundant in the riverbanks. The most ancient inhabitants of this territory are the Eperára Siapidaará indigenous group; however, with the Conquest, news of the gold wealth of the Pacific Coast reached Spain, and from 1640 to the late 17th century, mines were established in these territories, primarily in Guapi and Timbiquí. Around 1750, the Spanish Crown introduced the first groups of African slaves to mines in the Timbiquí and Saija rivers. The work crews were composed of men who lived in “reales de minas”, a group of houses organized around a chapel. The mines belonged to the Crown, and these were given in concession to wealthy families who could buy slaves and sustain them with the products of their mine, and cattle and sugarcane plantations (Romero, 1995; Gonsález, 2001; Molano, 2017).

Although the origin of Pasabocas de Coco in the Cauca Pacific Coast is not clear, the most ancient references date back to the “panadería de las Cuero”, in the community of San Francisco, on the banks of the Cupí River. References to the Cuero family indicate that around 1920 they established in their community one of the first bakeries in the territory; the flour arrived in ships from Ecuador and sailed through the Pacific Ocean to then enter by the wide Guapi River and finally by the Cupí River. Due to unknown reasons, the

Cuero family migrated to the municipal township and with them the incipient machines and tools of the bakery. The bakery was installed in Guapi where it still operates today, near the marketplace and a few meters from the Guapi River. In this sense, Mrs. Nelly Romero de Cuero, member of the fourth generation of the Cuero family currently devoted to making Pasabocas in the family bakery, indicated that the first members of the family to own the bakery were Toribia Cuero de Caicedo, who was daughter of an indigenous woman (from the Embera community) and Mr. Romilio, an Afro-descendant. Toribia had eight daughters, of whom four dedicated themselves to the bakery, among them Leonila Cuero Caicedo, Nelly's mother, who still elaborates bread in the family business, including Pasabocas, as well as her son Edinson who is starting to work in the bakery. In addition to the Cuero family in the municipality of Guapi, another seven producers of Pasabocas de Coco were identified distributed in Guapi, Timbiquí and López de Micay, and in every case the origin in the elaboration took place after the Cuero family.

The Genealogical Method in the LAS approach has as priority the recognition of the way in which the know-how was transmitted through the members of the families in which the product of interest originated, as well as other people who acquired the manufacturing techniques because they were directly or indirectly articulated in the production. In the case of Pasabocas de Coco, the oldest reference goes back to the Cuero family in the municipality of Guapi; after them, the manufacturer that has been producing them for the longest has been doing it for about 50 years, in the neighboring municipality of Timbiquí; therefore, its origin is somewhat later than in Guapi.

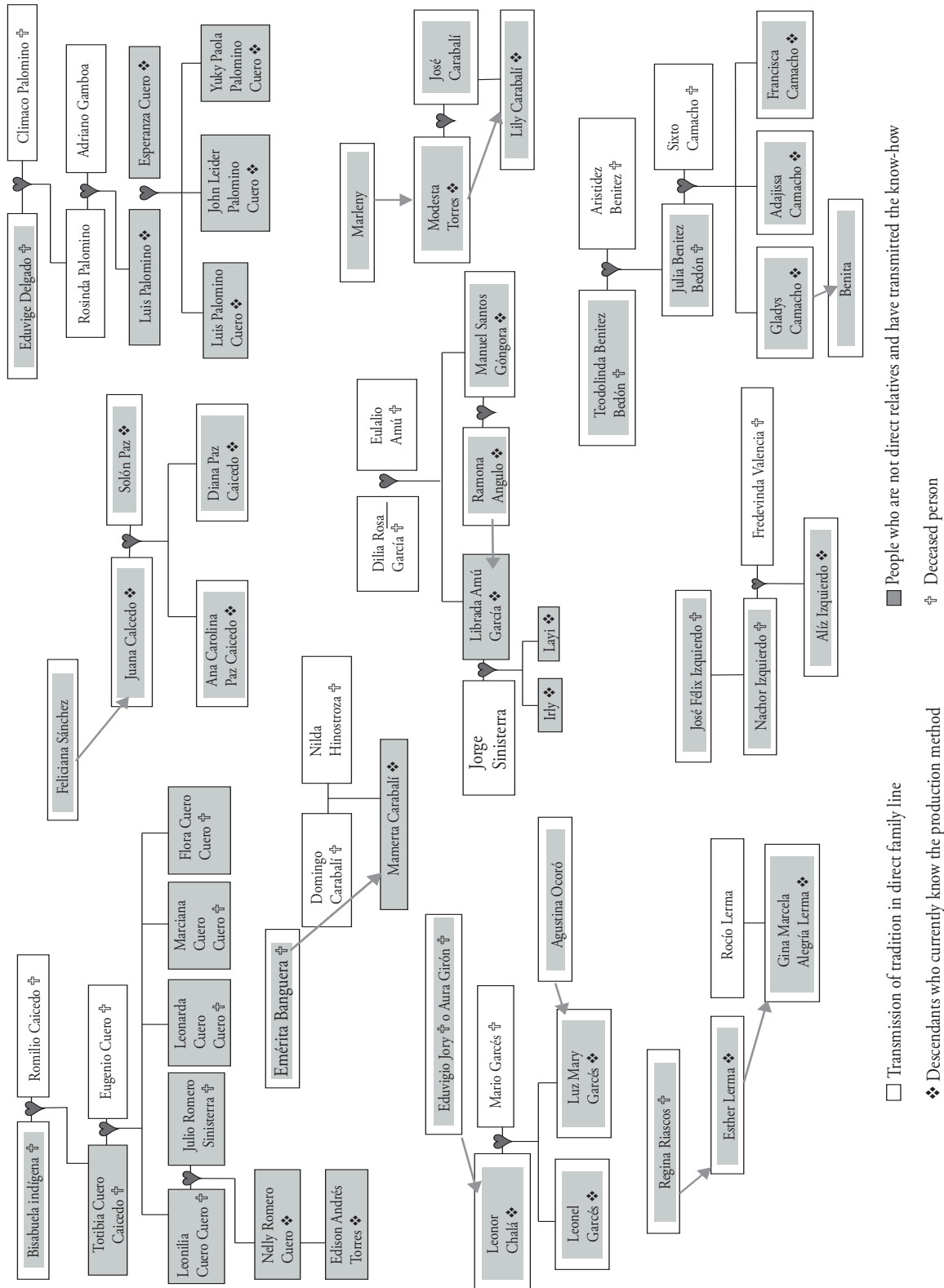
Although it has been identified that the oldest reference in the genealogy of the Pasabocas de Coco is in the Cuero family in Guapi around the decade of the 1960s, and subsequently in a group of producers in the other two municipalities, it was not possible to recognize a family connection between them or a teaching process of the elaboration technique, which evidences the possibility that it was a worker from the Cuero bakery who transmitted this know-how or the empirical development of the recipe, based on the knowledge of the product and the general route of production. In this sense, Mrs. Nelly Romero Cuero was asked about how the elaboration of the Pasabocas in the other municipalities came about. She expressed that, "it was normal for many people to come to help make the bread, and then I could see that these people also made some and then went out to sell in the market; there were many people who also learned."

The following genealogy (Figure 3), presents the possible links in the transmission of techniques of elaboration for Pasabocas in the three municipalities.

Technological trajectory

The technological trajectory aims to identify the innovations that have been incorporated into the elaboration of the products, from their origin to the present.

In the elaboration of the sweets in the Caucan Pacific Coast, it was possible to identify that the ingredient that is present in all preparations is shaved or grated coconut. To obtain it, all kinds of tools and methods are used, from piangua (mollusk) shells, to aluminum



Source: prepared by the authors.
Figure 3. Genealogy of the Pasabocas de Coco in the Caucan Pacific Coast.

spoons Split by the handle and used to obtain thin slices of coconut pulp, or the innovative “raspacoco”, which is a wooden stool to which a toothed iron blade is tied for the comfort of the person who is shredding the coconut.

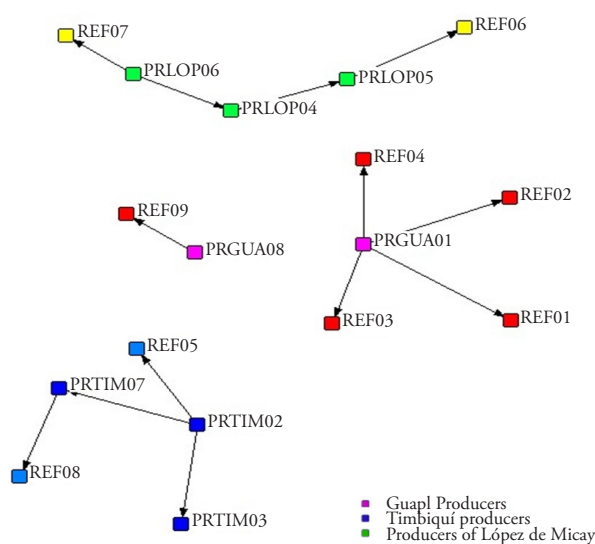
The most advanced technological development is the electric scraper; some are local adaptations and others are stainless steel equipment transported from inland cities.

It was found that sometimes the cooking method for the Pasabocas has changed, replacing firewood ovens with gas ovens, mainly due to difficulties in obtaining firewood because of environmental restrictions aimed at conserving the mangroves. It is important to point out that, in most cases, producers do not have access to electricity due to the lack of interconnection in these areas of Colombia.

Network analysis

To measure the dimension of the collective action among producers of Pasabocas in the municipalities of Guapi, Timbiquí and López de Micay and the opportunity of activating this territorial resource, a mapping of the social network was made among the community of bearers of this know-how; a survey was applied to do this, where producers of Pasabocas were consulted about who established daily connections with the production of this traditional coconut product.

In the graph diagram (Figure 4), generated from the information included in the UNICET software, 17 nodes were identified, articulated through 13 relationships and distributed in four sub-networks. On the upper part there are 3 producers from the municipality of López de Micay (PRLOP04, PRLOP05 and PRLOP06); towards the center, two sub-networks are shown with the two producers from the municipality of Guapi (PRGUA01



Source: prepared by the authors.

Figure 4. Graph network for producers of Pasabocas de Coco.

and PRGUA08), including the Cuero family; finally, on the lower part, three producers are identified from the municipality of Timbiquí (PRTIM02, PRTIM03 and PRTIM07). The graph analysis of the social network allowed identifying the isolation in the relationships between producers from the three municipalities; this is possible due to geographic aspects of the territory largely agrees with what was recognized in the genealogic method, and in addition contributes new elements to suggest the possibility that this know-how had been conducted through learning of some worker in the Cuero family's bakery, who transmitted the technique to other stakeholders in the territory, or through empirical methods of elaboration that could arise from oral transmission or trial and error processes in the elaboration.

On the other hand, in the municipalities of Timbiquí and López de Micay, there is interaction between producers, which opens the possibility of integration in processes of training, collective purchase of inputs, processes of commercial formalization through cooperatives or associations, as well as the option of advancing in joint processes of transformation, trade and certification. Regarding the indicators of the network, it is found that the density has a value of 5.15%, confirming the scarce relation between bearers of the know-how from the three municipalities and in agreement with the graph analysis, which is sustained by factors such as geographic isolation, limitations in waterway transport in the territory, difficulties in telecommunication, insecurity problems, and public order from the presence of illegal armed groups in the zone, among others.

Product Qualification

The qualification process is defining to validate the connection between the product and the territory, as well as the particularities that give the products their identity and can make them unique. This information is also important to understand the nutritional properties, which allows having a preliminary reference of the risks associated with safety and is the basis for proposing strategies oriented at improving manufacturing practices and the compliance with health and hygiene regulations; and it is the basis to prepare product datasheets which are a requirement demanded at the moment of paperwork for the Collective Mark or Protected Designation of Origin with the Superintendence of Industry and Commerce (*Superintendencia de Industria y Comercio*, SIC) as the institution responsible for this procedure in Colombia.

A proximal and microbiologic analysis of Pasabocas de Coco was conducted for the qualification process, in certified laboratories in Colombia. Table 1 shows the results.

Resolution 1407 from 2022 of the Colombian Ministry of Health and Social Protection establishes that the content of molds and yeasts should not exceed 10cfu/g. Regarding this standard, samples PB4 and PB5 exceed the limit of these microorganisms, which would indicate that there is contamination of the products possibly due to deficiencies in handling and storage as well as incipient alteration that causes a reduction in the shelf life and duration of these snacks. Although there is no microbiological indicator for *Bacillus cereus*, for confectionery products in Resolution 1407 from 2022, the maximum allowed

Table 1. Proximal and microbiological analysis of pasabocas de coco.

Sample	Proximal analysis					Microbiological analysis						
	Total fat	Ashes	Humidity	Protein	Mesophiles	Total coliforms	Fecal coliforms	Staphylococcus aureus	Salmonella	Lactic acid bacteria	Molds and yeasts	Bacillus cereus
PB1	21.39g/100g	1.15g/100g	11.97g/100g	4.56g/100g	30 UFC/g	<3 NMP/g	<3 NMP/g	<100 UFC/g	Ausencia/25g	30 UFC/g	<10 UFC/g	<100 UFC/g
PB2	26.28g/100g	1.20g/100g	10.93g/100g	5.25g/100g	<10 UFC/g	<3 NMP/g	<3 NMP/g	<100 UFC/g	Ausencia/25g	<10 UFC/g	<10 UFC/g	<100 UFC/g
PB3	22.22g/100g	0.91g/100g	10.55g/100g	4.54g/100g	<10 UFC/g	<3 NMP/g	<3 NMP/g	<100 UFC/g	Ausencia/25g	<10 UFC/g	<10 UFC/g	<100 UFC/g
PB4	18.69g/100g	1.03g/100g	15.06g/100g	5.70g/100g	90 UFC/g	<3 NMP/g	<3 NMP/g	<100 UFC/g	Ausencia/25g	<10 UFC/g	<10 UFC/g	<100 UFC/g
PB5	16.08g/100g	0.75g/100g	9.25g/100g	5.64g/100g	190 UFC/g	<3 NMP/g	<3 NMP/g	<100 UFC/g	Ausencia/25g	20 UFC/g	20 UFC/g	200 UFC/g

Source: results from the certified laboratory.

in other related products is generally 100cfu/g, and since sample PB5 exceeds this value, it would not fulfill the indicator. Again, contamination and faults in handling and storage of the product are reflected.

Concerning the results from the proximal analysis, when comparing data for the samples, it can be seen that PB4 and PB5 are the ones that have the lowest total fat content and have higher protein contents. Thus, their formulations seem to differ with regards to the samples PB1, PB2 and PB3, which have similar characteristics.

Chain analysis

The chain of Pasabocas de Coco is made up by the links of input suppliers, Pasabocas producers, and consumers.

When it comes to the variety of coconut preferred for the preparation of Pasabocas, consensus has not been reached between the two varieties present in the region: Típico (large coconut) and Manila (small coconut). Sometimes, one or the other varieties are used depending on their availability and in some cases the price, with the Manila variety being the more inexpensive. In the case of Pasabocas, except for the coconut, the other inputs come from inland (flour, sugar and essences), especially from the neighboring Cauca Valley Department; practically all of these inputs reach the municipalities of the Pacific Coast by sea from the port of Buenaventura, the largest of the country in this coast. Eight producers of Pasabocas de Coco are identified, distributed between the municipalities of Guapi, Timbiquí and López de Micay; all bearers of this technique were women, with an average age of 67 years, and it was seen that a generational replacement is not happening for the transmission of know-how, which places at risk the conservation of this cultural gastronomic heritage from the Cauca Pacific Coast.

The interview respondents are dedicated to multiple tasks, such as cultivating *pan coger*, coconut, sugarcane, as well as *trapiche* to sell cane honey, *viche* and its derivatives (ancestral alcoholic beverages from the Colombian Pacific Coast) and to manage the shops, which allows them to recognize that the production of Pasabocas is not their main income, but rather a complement to the family economy since their production is carried out throughout the year, at the least once per week.

Most of the women producers work alone and occasionally obtain help from a family member or neighbor in specific tasks such as shaving or grating the coconut. Only some producers of Pasabocas de Coco are located in the municipal townships and have services of electricity and water, which does not happen in most of the cases. On the other hand, the geographic location makes obtaining some of the resources difficult, such as propane gas tanks for the ovens, because they are brought in ships from inland to the main populated centers of the Pacific Coast in the Cauca Department and from there, in smaller vessels to the residencies of Pasabocas de Coco producers.

Regarding the link of sale/commercialization points, the distribution of Pasabocas de Coco is carried out by the producers themselves, visiting the streets of their towns, as is the case of Mrs. Juana Francisca (Guapi), who sells her products in some nearby communities,

making visits in her small vessel. In other cases, some of the producers have stores where they exhibit their Pasabocas in plastic tubs making them visible to the public, while some other sell directly in their houses. In all the municipalities of study, the Pasabocas de Coco are sold at \$1,000 Colombian pesos (approximately 25 cents USD).

Most of the consumers are located in their same communities (paths, villages, towns) and tend to be neighbors or family members of the producers of Pasabocas de Coco; with the exception of the family business, Sabrococos, which has scaled at a higher level of coconut processing and has a permanent sale stand in the airport of the municipality of Guapi and a couple of clients nationally, who distribute some of their products, but in the case of the Pasabocas, most of the sales are done in the local sphere.

DISCUSSION

The application of the LAS approach and the methodology proposed by Grass *et al.* (2012) made it possible to verify that the Oral History, the Genealogical Method, and the Technological Trajectory are important tools to validate the historical and intangible factors that give territorial anchoring to agrifood products. However, with the purpose of verifying the impact that material factors have on characteristics of the products, the qualification process through physicochemical, microbiological, and sensory analyses were determinant to integrally establish the connection between the product and the territory. Regarding this last aspect, it is recommended that the qualification process includes advanced analytical procedures to identify the presence of distinctive elements in the features of the products, which are those that define the singularity compared to other similar ones.

Most of the institutions responsible for the registration of distinctive signs in Latin American countries, including the SIC in Colombia, only incorporate administrative and legal procedures to obtain the Protected Designation of Origin, leaving out the technical elements that make it possible to verify the territorial anchoring, which is an aspect to be improved in this process. In addition, the distinctive signs such as the Protected Designation of Origin have been criticized for the scarce importance they have as a differentiation mechanism at the time of being prioritized by the consumer and also on the real effects they have on communities of producers. Regarding this aspect, it is difficult to determine the impact that these signs have on the valuation of the products (PDO and CB), especially when the institutions responsible in most Latin American countries do not address communication strategies aimed at educating the consumer and appreciate the real impacts on the communities of producers. If there is not a process of education and information for the consumer, or an economic and social assessment of the impact of these signaling mechanisms on producers, it is difficult to objectively evaluate the true potential of these signs and their sustainability. These reflections on the consumption of products determined by territorial factors align with proposals by Link *et al.* (2006), Carrasco (2007), Espejel *et al.* (2014); Champredonde, M. and González, J. (2016), Espinoza *et al.* (2016), Verbeke *et al.* (2016), Desjardins (2017), and Sanz *et al.* (2018).

Consequently, the potential of the LAS approach is also measured by the real impact of public policies, designed to assess the rural products with territorial link; this critique agrees with la FAO (2010), Blanco and Riveros (2011), Desjardins (2017), Boucher and Riveros (2017), Domínguez and Renard (2017), Torres (2018), Riveros and Boucher (2019), among others.

The reconstruction of the origin and history of Pasabocas de Coco in the Pacific Coast of Colombia through the application of oral history, as well as the transmission of know-how with the genealogic method, which agrees with the results identified by Grass *et al.* (2018) with studies on the transmission of elaboration techniques of Poro cheese in the region of Los Ríos in Tabasco (Mexico) and in the role that workers fulfill in the Rural Agribusinesses in the expansion of techniques for elaboration of products in stakeholders different from traditional families and in territories outside those of origin.

The collective functional action, where producers organized and accompanied by institutions, undertake joint actions to reach certification, must be articulated to the technical diagnosis (existence of the territorial anchoring in the product) and the administrative process that demands the management of signaling of the product. The importance of structural collective action has been valued since the origins of LAS, by authors such as Boucher and Desjardins (2005), Boucher, Muchnik and Desjardins (2006), among others.

The importance of the hygienic and sanitary quality of traditional products in a normative framework of public policy according to the real risks of these products and the particularities of their traditional production, has been analyzed by authors such as Muchnik (2006) in their reflections on the territorial identity of foods, and Rastoin (2020) in the impact of the territorial anchoring on responsible and sustainable food, similar to Grass *et al.* (2013, 2018) and Villegas de Gante *et al.* (2019), in studies about genuine cheeses in Mexico. Regarding the multifunctionality of the LAS approach, it is seen that the valuation of externalities is an element to improve the methodology proposed by Grass *et al.* (2012), since this component is addressed through a chain analysis that allows identifying the stakeholders associated to links that integrate it; however, there are other stakeholders that are indirectly benefitted, and it is important to research with complementary tools such as economic analyses.

On the other hand, this study allowed recognizing that sometimes initiatives for agrifood tourism routes are implemented around certified products, although in many cases a real articulation and benefit for local producers are not generated, and they become mechanisms that instead of potentiating the product, they generate social conflicts and impacts on the community of producers. This agrees with what was identified by Velarde *et al.* (2002) for the strengthening of the localized agrifood system of typical products from Mar de Plata in Argentina, Thome (2017), around the effect that oenology tourism has in central Mexico, as well as Dávila *et al.* (2019) in case studies carried out in Valle de Guadalupe, San Cristóbal de las Casas and Playa del Carmen in México, and Martínez (2019) to strengthen the amaranth agrifood system in Mexico City.

CONCLUSIONS

The oral history allowed identifying the cultural relevance of coconut in the Cauca Pacific Coast, as well as the diversity of products and uses of coconut in this territory, which agrees with what is proposed by diverse authors who recognize that a food that is made up of two elements, an organic compound and a patrimonial component (knowledge, values and social representations), where the first takes on physiological functions and the second the needs for socialization. In the particular case of Pasabocas de Coco, it allowed to recognize that the oldest origins date back to the Cuero family bakery, which was founded more than 100 years ago, although quite likely its elaboration emerged once the family settled in the municipal township of Guapi and had coconut offer, in the 1970s, when the INCORA promoted this crop in the municipalities of Guapi, Timbiquí and López de Micay.

The oral history conjugated with the genealogic method allowed identifying the inexistence of a route for know-how transmission in the elaboration of Pasabocas de Coco between the three municipalities, since although the greater seniority in the elaboration is identified in the Guapi Cuero family, and then in the families of the other municipalities, there are no communicating vessels that allow explaining how the transmission of this knowledge happened; the only hypothesis is sustained in that it was possibly the workers from the Cuero bakery, who when they left it, they undertook their elaboration independently in neighboring territories or explained to other people in the way to make them.

The technological trajectory allowed identifying that innovations have been oriented towards easing coconut shaving and change in baking technologies of the product, especially in firewood ovens, due to the environmental restrictions in the use of this resource and from health aspects in work from the smoke generated in these ovens. These modifications in the traditional elaboration of Pasabocas, from the perception of producers and consumers, have not affected the particularities in product manufacture and have not impacted the elements that give it identity. The application of the Oral History, the Genealogic Method, and the Technological Trajectory, allowed verifying the compliance of historical and intangible factors that give Pasabocas connection with the communities of the Pacific Coast.

The Qualification Process used techniques of physicochemical and microbiological analysis, which did not allow to verify the territorial anchoring due to the existence of material factors between Pasabocas de Coco and the Cauca Pacific Coast. This situation is mostly explained by the absence of differentiating elements between Pasabocas that are produced in the Cauca Department and those that are made in neighboring territories, especially because of the homogeneity in the coconut produced in the entire region of the Colombian Pacific Coast, as well as from the high dependency of wheat flour and sugar, which comes from outside the territory. As consequence, in the case of Pasabocas de Coco, there is offshoring of the agrifood system that evidences the difficulty in successfully undertaking the paperwork for a distinctive sign such as the Protected Designation of Origin (PDO),

before the SIC. It is likely that the Collective Brand (CB) is an option for Pasabocas de Coco producers to undertake joint processes of production and commercialization, to the degree that this certification does not require proving a connection between the product and the territory.

For the management of a CB, it is necessary to consolidate the structural collective action through unionization processes, having the support of local authorities, and making alliances with those who have made advancements in the issue and have presence in the territory. In addition, means should be explored for the promotion and sale of these traditional products, which leads to socio-entrepreneurial accompaniment for these producers in themes of marketing, administration and finances. The implementation of workshops to preserve the know-how and strengthen businesses to guarantee the conservation of this cultural heritage is also important.

Another aspect of great importance is related to the improvement of the places of elaboration of Pasabocas, the use of adequate tools and production equipment, not only for higher yield and profitability, but to improve the safety of the product as well as the health and security of the bearers of know-how.

Concerning the multifunctionality proposed in the LAS approach, there is the need to achieve a better articulation of tourism that is performed towards Gorgona Island, main tourism attraction in the Pacific Coast of the Cauca Department, where presently Pasabocas de Coco are not sold, losing the potential for commercialization with a target public such as adventure tourism who have interest in purchasing artisanal, organic and biocultural identity products, which characterize this coconut product.

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