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Press Cheese Production in Mexico's Little Africa

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Abstract: The aim of this research was to determine the origin, know–how transmission and technological trajectory of press cheese production. In-depth interviews were conducted with key players in the production chain of this cheese made in the Costa Chica region of the states of Guerrero and Oaxaca, Mexico. It was found that the product has historical recognition and symbolic value dating back more than 100 years, and that the craftsmanship and tradition continue to this day, giving the product a stamp of originality. We concluded that although some modifications have been adopted over time, such as the use of whole rather than skim milk and the use of synthetic rather than natural rennet, the press cheese of Costa Chica is one of those that most preserves the traditional process.

Key words: press cheese, artisanal cheese, Little Africa, Afro-Mexicans, craftsmanship

1. Introduction

In the context of trade liberalization, where neoliberal policies have benefited those who sell a successful, fashionable product, those who produce low-cost, mass consumption goods and those that have been inserted in the international market and key marketing channels, small primary producers in rural areas, with high levels of marginalization, have been excluded and relegated to selling their products on a preferential basis only in local markets.

The aim of this study was to determine the source, know-how transmission and technological trajectory of the production of press cheese, a genuine, more than century-old Mexican product. The region where it is produced and the tradition in the know-how have bestowed upon it, over time, unique characteristics and attributes that give it typicality and genuineness, aspects that differentiate it from other products of the same type.

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The Costa Chica region is part of the states of Guerrero and Oaxaca and is characterized by being a coastal strip with a long farming tradition, and the presence of a sizeable Afro-Mexican population, for which reason it is known by the name of "Mexico's Little Africa" [1].

The population of "Mexico's Little Africa" is significantly composed of descendants of African slaves who arrived in New Spain starting in the late sixteenth century. Although the place of origin of the black population brought to New Spain was very diverse, the vast majority came from sub-Saharan Africa, an area comprising what today constitutes the countries of Guinea, Angola, Gambia, Mozambique, Congo and Senegal. Once they arrived in the colony, the slaves were assigned to work in the large Spanish haciendas, especially those dedicated to raising livestock; however, the Spaniards tended to settle in places where natural land conditions were very good, hence the black population was mainly concentrated in what is now known as the states of Guerrero, Oaxaca, Veracruz, Michoacán, Morelos, Baja California and Yucatán.

Today, the states that have the largest population portion of people of African descent are Guerrero (49%), Oaxaca (35%) and Veracruz (24%); however, it is the Costa Chica of Guerrero and Oaxaca which has the largest number of black Mexicans, estimated at about 90,000 inhabitants [2].

The term Afro-Mexican was first coined by Vaughn and Vinton [3], an historian and anthropologist respectively, who conducted several studies on the situation of blacks in the Costa Chica of Guerrero and Oaxaca. Their approach to negritude in Mexico led them to conclude that the ideological management that occurred in shaping a shared mestizo identity at the national level blurred the presence of Mexicans of African descent, in such a way that this prevented "recognizing" their existence and also their historical participation in the national construction of Mexico [4].

The Costa Chica region is traditionally considered as stretching from the east and southeast boundary of the municipality of Acapulco, Guerrero to Huatulco, Oaxaca. In the case of the state of Guerrero it comprises fifteen municipalities with an approximate area of 180 km^2, while in Oaxaca the districts of Jalmitepec (with 24 municipalities), Juquila (twelve) and part of the district of Pochutla (two) are those with the largest number of Afro-Mexicans.

The municipality of Cuajinicuilapa, belonging to the state of Guerrero, where this research was conducted, is a region with significant populations of Afro-Mexicans, mestizos and indigenous Mixtec, Amuzga and Chatino peoples. Similarly, it is an area of multiple traditions, within which the making of press cheese is an important culinary reference throughout the Costa Chica.

The name Cuajinicuilapa is made up of two Nahuatl root words and means "river or stream of cuajinicuiles", the latter being "... a tree of the leguminous family of the genus Inga ...". It is located between coordinates 16º08"and 16º36'NL and between 98º23 and 98º40WL and covers an 857.1 km^2 area. It has a warm, subhumid climate, recording the highest temperatures during the months of April and May (34 ºC), and the lowest (19 0C) during December and January; also, its rainfall "has monsoon-type characteristics due to the invasion of warm, moist air masses from the sea" [5].

This region, like many others in the Mexican countryside, has developed, over time, a particular way of processing its foods, particularly those that due to their social nature have formed part of a cultural survival strategy and later became an item in local trade.

This is the case with cheese, which has a twofold purpose: on the one hand, to feed, and on the other, to trade; thus, it can be considered as a techno social result of the economic and cultural changes that occur in the place where it is made. This can be explained on the basis of what Levy Strauss [6] interpreted as the metaphorical transposition between the modes of cooking and the way of eating (raw, boiled, smoked) as a reflection of the cultural circumstances in which the social aspect develops, including, to a greater or lesser extent, the chronicles and myths built around the daily life of peoples and communities.

2. Methodology

To identify the origin of press cheese, a literature review was first performed, followed by the oral history methodology, which offers a dynamic yet simple option for the scientist to identify the symbolic value that some products have for a region's inhabitants and how they are considered as a legacy of our ancestors [7]. The main resources of oral history are therefore the memory and the story that the subject shares with the researcher, when the latter interviews the former and asks a series of questions about the affinity that has existed over time between the agri-food products and their territory [8].

Similarly, for the analysis of the role of families in the recovery of cheese-making know-how, we used the genealogical method, which involves the application of an instrument (survey or interview) to a single actor (company, person) or one or more families, in order to

collect information from their members (both ascendnats and descendants) around the central theme of the research. This information is systematized and plotted in a document called a genealogy chart; in it, the channel by which certain know-how was transmitted among related individuals can be deduced.

Finally, we used the technological trajectory method, which seeks to identify the innovations that have been incorporated into the productive units over time to verify the degree of persistence of the "technological tradition" in the making of the agri-food products, by assessing the effects that the innovations have had on the preservation or loss of their genuineness [9].

The research was conducted in 2013. For the fieldwork, interviews were conducted with key informants and cheesemakers in the municipality of San Marcos and the communities of El Tamale, San Nicolás, El Quizá, Colonia Miguel Alemán and El Pitahayo belonging to the municipality of Cuajinicuilapa; the two municipalities are part of the state of Guerrero. As for the size of the sample, a census of the 30 cheese factories that exist in the area was performed.

3. Results and Discussion

This paper proposes two different origins for the production of press cheese. On the one hand, its initial development is attributed to people of African descent as an expression of their ability to form a new food culture framed by the use of a seemingly zero-value resource, milk, which the hacienda is unable to integrate into its production scenario; on the other, it is a story entwined with the iron will of a family that produces and preserves it as a culinary tradition. The truth is that both origins arise from the popular imagination and endow the regional history of press cheese with new identity meanings that give it an undisputed territorial anchorage.

Who came up with its initial development? Who preserved it over time? Who endowed it with a regional identity?

All of these are valid questions whose historical constant is encapsulated in the vision, past and future, of those who continue to make it.

3.1 A First Origin: Cheeses and Afro-Mexicans

The Costa Chica of Guerrero and Oaxaca was characterized as being a settlement area for black Acasillados (semi-indentured laborers who lived with their family on permanent basis on a hacienda) and Maroons, the latter from other parts of the country. This region was made up of large-scale ranches that supplied the New Spain metropolises with meat, skins and wool. Fishing, copra gathering, milk production and cheese-making were complementary activities that were linked to a land-use model determined by the social, economic and technological conditions under which life developed during that part of the colonial period.

The great natural wealth of the region meant that despite the several subsequent armed conflicts and agrarian land redistributions that occurred throughout the region's history, it would become a focus of attraction for various European adventurers who came in search of a place that would enable them to improve their financial situation. By the end of the nineteenth century, Cuajinicuilapa and Ometepec, the two Costa Chica areas with the largest African-descended populations, had become municipalities where livestock farming in conjunction with cotton planting allowed the establishment of small soap factories, among which the Miller house, a soap emporium owned by Charles A. Miller, an American of German origin based in the municipality of Cujinicuilapa and owner of 125 thousand hectares of this area, stood out.

In this scenario, people of African descent became cowboys and thus worked in all the arts related to livestock farming: tanning and skin preparation, milk production and cheese-making when there were milk surpluses.

With stockbreeding and the production of crops associated with feeding livestock being the main

economic activities of the municipality, production intended for the self-sufficiency of local indigenous and African-descended families was composed of corn, which was planted in plots belonging to local estate owners, fruits and wildlife, which were harvested and hunted in the same territories, and the processing of milk, which, as is later pointed out, was a product that had no established commercial value, so the diet of the villager came to include artisanal cheese, giving rise to a cheese-making tradition that continues to this day.

Originally cheese production was an activity that was part of the daily routine on which the domestic economy of the Afro-Mexican cowboys and their families was based. Thus, it was an activity mainly carried out by the cowboys, as a result of the development of a regional livestock model in which the use of the meat produced predominated and the commercial use of milk and its derivatives was left aside, so they became a surplus commodity that came to compensate for the meager monetary income earned by workers of large estates in the region.

The use of the press for cheese preservation represented a socio-technical step forward, which made its production more efficient, and in tandem made it possible to expand the scale of production, which popularized it among the consumers of the community and allowed it go beyond community barriers to serve as an item of trade between the closed-off environment of people of African descent and the inhabitants of neighboring indigenous and mestizo communities, as well as with regional estate owners, who were regular consumers and external promoters. Thus, the old culinary preferences, by being "culturally selected, become a core of collective wisdom, ecologically correct, economically efficient, and food-safe" [10].

In the stories told later it can be seen that the cheese, as a culinary object and food, remains in the cultural and commercial practices of the people of this region, because it formed part of their daily life, this being understood as "the set of activities that characterize the particular reproduction of men, which together create the possibility of social reproduction", as an expression of their "values, beliefs, aspirations and needs" [11].

3.2 The Miller Estate

Reference was made during the oral histories collected to a person that had a great impact on the establishment of livestock farming in the region: mechanical engineer Charles Miller, an American of German descent, who came to Cuajinicuilapa as a technician to repair a machine that belonged to the Pérez Reguera trading company; he settled in the town because he married Laura Reguera, daughter of one of the company partners named Adolfo Reguera (Personal communication)[1].

The engineer Sánchez Miller, the last direct descendant of the Miller family, recounted that his great-grandfather was an adventurous spirit in that he dared to travel to distant lands, at a time when there were few means of transport. The engineer Miller settled in the hacienda of Cuajinicuilapa, Guerrero and formed his family; due to the influence of his father-in-law, he became a member of the company and began buying large tracts of land. Subsequently he acquired the Pérez Reguera trading company and over time became the owner of approximately 125,000 hectares. It was in 1878 when the Miller House was officially established [12].

The main economic activity of the Miller family was buying cotton from the villagers; they separated the cotton fibers from the seeds and shipped the product in carts pulled by oxen to the pier located in Punta Maldonado and in Barra de Tecoanapa, from where it was sent by river to Acapulco, Guerrero (Personal communication)1.

Aguirre-Beltrán [1] described the economic relationships that prevailed at the time as being part of an "economía de terranía" meaning a system under which a large estate owner set the conditions under

[1] Eng. Ciro Sánchez Miller, great-grandson of Eng. Charles Miller, in an oral history interview in the former estate of Cuajinicuilapa, Guerrero (June, 2013).

which others could use his land. The landowner was Eng. Miller, who owned all the lands, but because of their vast size, they became common-use lands; in order to have effective control over his properties, Miller extended credit to the settlers. They could make use of the land area they wanted, but due to the technological limitations of the time, they could not effectively use more than two hectares per family; they could graze their animals in any area and plant what they wanted, all without paying any rent; they could also build their houses, which at the time were just simple straw and mud structures called "rendondos" (round huts), which were typical of their African heritage. In return, they had to sell all their cotton production to the landowner, who is said to have paid well for crops and livestock. In addition, he provided them with loans in times of scarcity, and to the people who were honorable with him, he gave them fine fabrics that he had brought from factories located in the city of Puebla and with which they could dress well. These privileges were only given to the black residents. Whites had to pay rent for land and livestock. The engineer Charles Miller was also acquiring cattle, which remained on the plains and fed on native grasses. There was no division of land because everything belonged to the family.

Eng. Sánchez Miller says he is convinced that his great-grandfather never knew how much he had, since there were so many animals and so much land. The cattle raised were for meat production; about 5,000 head annually were herded to Puebla for sale. Milk was not a business for the Miller family, but rather it was the settlers who used it to make cheese for their own consumption. When the Mexican Revolution came, the hacienda was looted and burned and few cattle were left; in addition, the lands were redistributed for the subsequent formation of ejidos. Despite the losses suffered, the Miller family managed to recover and Mr. Germán Miller, son of Eng. Charles Miller, continued with the family business and pioneered the introduction of Zebu breeds to improve local herds. The first breed used was the Indo-Brazilian, which had suitable features to adapt to the area, both for its structure and its resistance to heat and disease. However, cattle breeding remained rudimentary, as the animals were only branded and then released onto the plains.

Eng. Sánchez Miller recalls that his father still branded calves, an activity that took three months of work on the plains. The cheese that the cowboys produced was fresh; however, upon seeing the need to save it for the dry season, presses were designed to increase its shelf life; it is inferred that this was the time, around the year 1900, when press cheese emerged. Another key informant, Mrs. Justina Mendoza, recalls that her mother bought cheese from the wife of one of Mr. Germán Miller's cowboys, who lived on a ranch owned by the family. There, besides the press cheese, they made a ring-based fresh cheese that they enveloped with a huichicata (a local plant) leaf in which different foods are preserved. Today this cheese is also still being produced under the name of queso de hoja de la Costa Chica (Costa Chica leaf cheese) [13].

3.3 A Second Explanation of the Origin of Press Cheese

The origin of press cheese is related to one family, and its oldest living descendant is Mrs. Justina Mendoza. Mrs. "Tina" was between seven and eight years old when she helped her father and uncle to make cheese. She notes that by nine o'clock in the morning they had finished milking. Then they carried the milk in buckets from the corral to the house, which was not more than 20 meters away, and emptied it into long, wooden canoes that had some handles where they tied the cloth to strain the milk when emptying it. In the same canoe there were some boards on which the curd was "grated". They partially skimmed the milk because the Mendoza family sold cream; later natural rennet was added and it was left to stand.

Once the curd solidified, it was cut crosswise to separate the whey. Uncle Amador was the one who "handled" the curd; he broke it up, made it into a ball to

remove the whey, salted it and took it out in quarter pieces that he left to stand on wooden boards; subsequently they put it into the mould and pressed it. The whey was not used; it was either given away to the neighbours or thrown away. In the Mendoza home they made press cheese and obtained buckets of cream that they sold in the town of Ometepec, where they went to in horse-drawn carts. People sought out the cream which they called "jocoque".

In 1950, at the age of 18, Mrs. Tina married Abel Marín and the couple bought some land from the Miller family in the town of "El Tamale". There they continued with the production of press cheese and other products such as bread, and they also slaughtered cattle and pigs for meat sales. At first they only had one cow, but over time the number of head increased; Mrs. Tina's children helped her produce the cheese. They used a type of crude, gravity compression system press; they used the weight of stones to achieve a given force.

In 1970, Mr. Abel passed away and in 1973 Mrs. Tina bought land in the municipal seat of Cuajinicuilapa, where she built a hotel with the money that she received from her husband's life insurance policy. Today she still resides in this locality, and the cheese is made by her children. Mrs. Justina ended the interview with the following:

> "The main thing about [press] cheese is that it must be given pressings. Well pressed to come out good. The milk should curdle and the curd should be handled so that it does not take on a bad taste, a bad odor, you have to handle it quickly; after it's salted, it can be left out for an hour, two hours; otherwise, fungi get on it and it takes on a bad taste. Other people do it that way, but they do not have the experience and so it's cheap" (Personal communication)[2].

3.4 Characteristics of the Cheese Factories

Press cheese is produced in a total of 30 factories, distributed in seven municipalities in the states of Guerrero and Oaxaca. Altogether they process 15,000 L of milk each day. According to Boucher and Riveros [14], they are considered artisanal rural agribusinesses.

The cheese factories were grouped according to the volume of milk processed per day, taking as a reference the categories proposed by Gómez [15]. Table 1 shows the cheese factories grouped by size: 77% are classified as very small as they only process from 10 to 500 liters of milk daily, with an average of 217.37 L, accounting for 35% of total production in the region; 10% of the cheesemakers are classified as small, processing from 501 to 1,000 liters of processed milk per day, with an average of 866.66 L, accounting for 18% of total production; 13% of the cheese factories are classified as medium-sized, processing more than 1,001 liters per day, with an average of 1712.5 L, representing 47% of regional production.

The activities carried out are: starting at 7:00 am, they receive the milk and begin the process that can take up to 5 hours. The cheese receives up to 6 pressings during the day and part of the night; it remains in the press from 24 to 48 hours depending on whether the customer asks for it to be drier. Once finished, the cheese made one day is ready to be marketed the next.

Table 1 Number of cheese factories by volume of milk processed per day.

Range volume (liters per day)	Number of cheese factories	%	Average volume of milk processed (liters per day)	%	Type of cheese factory
10 - 500	23	77	217.37	35	Very small
501 - 1000	3	10	866.66	18	Small
>1001	4	13	1,712.5	47	Medium-sized
Totals	30	100	14,449.49	100	

Source: Author-made from interviews

In terms of gender, 70% of the cheese factories are headed by women and 30% by men, indicating the feminization of this activity in the region. The average age of the cheesemakers is 53.10 years, with an average of 23.3 years' experience in the industry.

[2] Mrs. Justina Mendoza in an oral history interview in the Hotel Marín, Cuajinicuilapa, Guerrero (June, 2013).

3.5 Commercialization

The beginning of wholesale press cheese commercialization goes back to one person: Renato Pérez, originally from the municipality of Teloloapan, Guerrero (northern region of the state). Mr. Renato comes from a family of merchants and first came to San Marcos, Guerrero, on a business trip with his father in 1952. He stayed to live there, and in 1959 was appointed mayor of the municipality of San Marcos.

He married in 1961, at the age of 28; he then opened a grocery store and it was there where some people who came from Cuajinicuilapa offered him press cheese. Realizing that the locals liked the cheese and that it sold well, he established trade relations with these cheesemakers, who delivered their product, not in sufficient quantities but steadily, to his store. At first, they brought him the cheese, but later he went to the cheese factories to buy it. Mr. Germán Herrera, a resident of the locality of "Colonia Miguel Aleman", recalls that as a child he used to see his truck, loaded with cheese, pass by.

Mr. Renato always bought cheese from the Marin brothers, being a good, clean and high-quality product. He bought and kept cheese but not much because he did not always have the money to buy it. At the age of 14, Mr. Renato learned the techniques for storing cheese thanks to Romeo Cuevas and Alejandro Cuevas, who were engaged in the trade; they bought tons of cheese, kept it and marketed it. On the way in which Mr. Renato learned how to store cheese, he says:

> "The cheese is very, very delicate; with a speck on the piece, if left it marks a big piece and it's no good, for just a speck, so you have to be very careful. Where I kept it, there was a mosquito net so that no fly could get onto it; it's a way of keeping it. The fresh cheese is placed on a clean board and a fan is put there also; on the third day the piece is turned over and then after another three days it is turned over onto the other side, and after that every month it is turned over once, so it dries, and it may take 8, 10 months, a year. It does not spoil; this is a way to keep it. Another is to cover it in paraffin. The chili sprinkling is not for storage purposes, but so the flies don't sit on cheese"(Personal communication)[3].

When the cheese is removed, it is washed, dried and cleaned, and is then ready to be sold. Mr. Renato says that the people of the town like press cheese:

> "People here call it costeño cheese and it is clean without any chemicals. Healthy, clean, tasty, and it is how the people like it" (Personal communication).

A trait that all genuine Mexican cheeses share in common is that they are products with history. Grass [16], in a study of three cheeses (Poro of Balancán, Tabasco, Tenate of Tlaxco, Tlaxcala, and that of Chiautla de Tapia, Puebla), found that all of them have been produced for more than 100 years, and that only one, the Tenate cheese, is in danger of disappearing because the only people who produce it have no offspring, so the know-how will not be transmitted. For its part, the press cheese of Costa Chica has also been made since the decade of the 1900s, making it more than 100 years old, during which time it has undergone few modifications; therefore, it has retained its unique elements that distinguish it from other genuine Mexican cheeses.

The legal protection of products with geographical identification (GI) is a lever for activating the dynamics of local development and defending territorial production systems with a high degree of site specificity. However, achieving these dynamics is not a simple process and requires concerted efforts [17]. There are many initiatives by producers of traditional cheeses globally to strengthen the identity of their product, as is the case with the Parmigiano Reggiano cheese producers' group in Italy, which is promoting the differentiation of its product in the market [18].

In this regard, the analysis by Kokthi, González Limón, and Vázquez Bermúdez [19] showed that consumers of feta cheese in Albania are willing to pay from 15-20% more for the origin of the cheese.

[3] Mr. Renato Pérez in an oral history interview at his home in the municipality of San Marcos, Guerrero (June, 2013).

3.6 The Know-how Associated with the Production of Press Cheese and Its Generational Transmission

According to the genealogical method, Mrs. Justina Mendoza is the ego (initial node) because from her the ascendants and descendants involved in press cheese production were identified. Amador, Beatriz and Fausto were the siblings of the Mendoza Morales family, who from the early twentieth century made press cheese in Cuajinicuilapa, Guerrero. That start time can be fixed because Mrs. Justina's memory corroborates it; she learned to make cheese through the teachings of her parents and uncles. When she reached adulthood, she married Abel Marin, whose family also made cheese and were livestock farmers. Together they had six children, two daughters, Marta Olivia and Maria Elena, and four sons: Arnulfo, Alejandro, Arturo and Miguel. The know-how was passed on to all their children, as they helped their mother in production when they were young.

When the males were married, the know-how was transmitted from the matriarch to the daughters-in-law. Thus, Berta Acevedo, Lilia Jiménez and Lourdes Andraca still make press cheese, which they learned to do when they married Mrs. Tina's sons. The marriage of Lourdes Andraca and Arnulfo Marín resulted in four children; Mrs. Lourdes transmitted the knowledge to two of her daughters, Veronica and Alejandra, who currently produce press cheese. During her life, Mrs. Justina passed down to her daughters-in-law the screws that are used for the presses. They are made of metal, some are corroded, they are more than 100 years old, and they are the same ones as those used by the Mendoza Morales family when they first began pressing cheese.

In the research a kinship was found between Mrs. Maria Mendoza and the Mendoza Morales siblings; according to Mrs. Justina, she was a cousin of their father, so it can be deduced that she acquired the knowledge from the same source as the Mendoza siblings. Mrs. María married Mr. Felipe Cortés with whom she had three children, two sons, Heriberto and Peter, and a daughter named Enemoria. Mrs. María transmitted the know-how to her daughter and her daughter-in-law Isabel, Peter's wife. Enemoria married Gustavo Guerrero and had five children, three sons, Eduardo, Antonio and Thomas and two daughters, Natividad and Eva. Mrs. Enemoria transmitted the know-how to her daughter-in-law, Guadalupe Campos, who married her son Thomas. Today, Mrs. Guadalupe is the largest cheese producer in the town of Cuajinicuilapa, but her daughters are not involved in production.

On the other hand, Pedro married Isabel Rodríguez with whom he had six children, two sons and four daughters. The know-how was transmitted from Mrs. Isabel to her daughters, but only Matilde and Olga make press cheese today. Fig. 1 shows the genealogy of the cheese-producing families, starting with the ascendants of Mrs. Justina Mendoza.

The symbols used for constructing the genealogical chart are described below:

✪ Refers to the people who make the cheese
Δ Represents the male sex
Represents the female sex
✓ Refers to the person who has knowledge of and/or produces press cheese
Is the person referred to as the know-how transmitter

Referring once again to the study by Grass [16], only the aged cheese of Chiautla de Tapia and the Poro cheese of Balancán have been able to survive over the years thanks to the generational transmission of know-how. Tenate cheese is in the process of disappearing due to the lack of offspring of those who produce it; for its part, press cheese know-how is being retained because most of the people who produce it are women, with an average age of 50 years, who are engaged in cheese-making as their sole economic activity, and all of them have passed on their know-how to their offspring.

IFAD [20] states that the importance of women in agricultural activities stems from the fact that they are effective development agents since they are more willing than men to become involved in the early

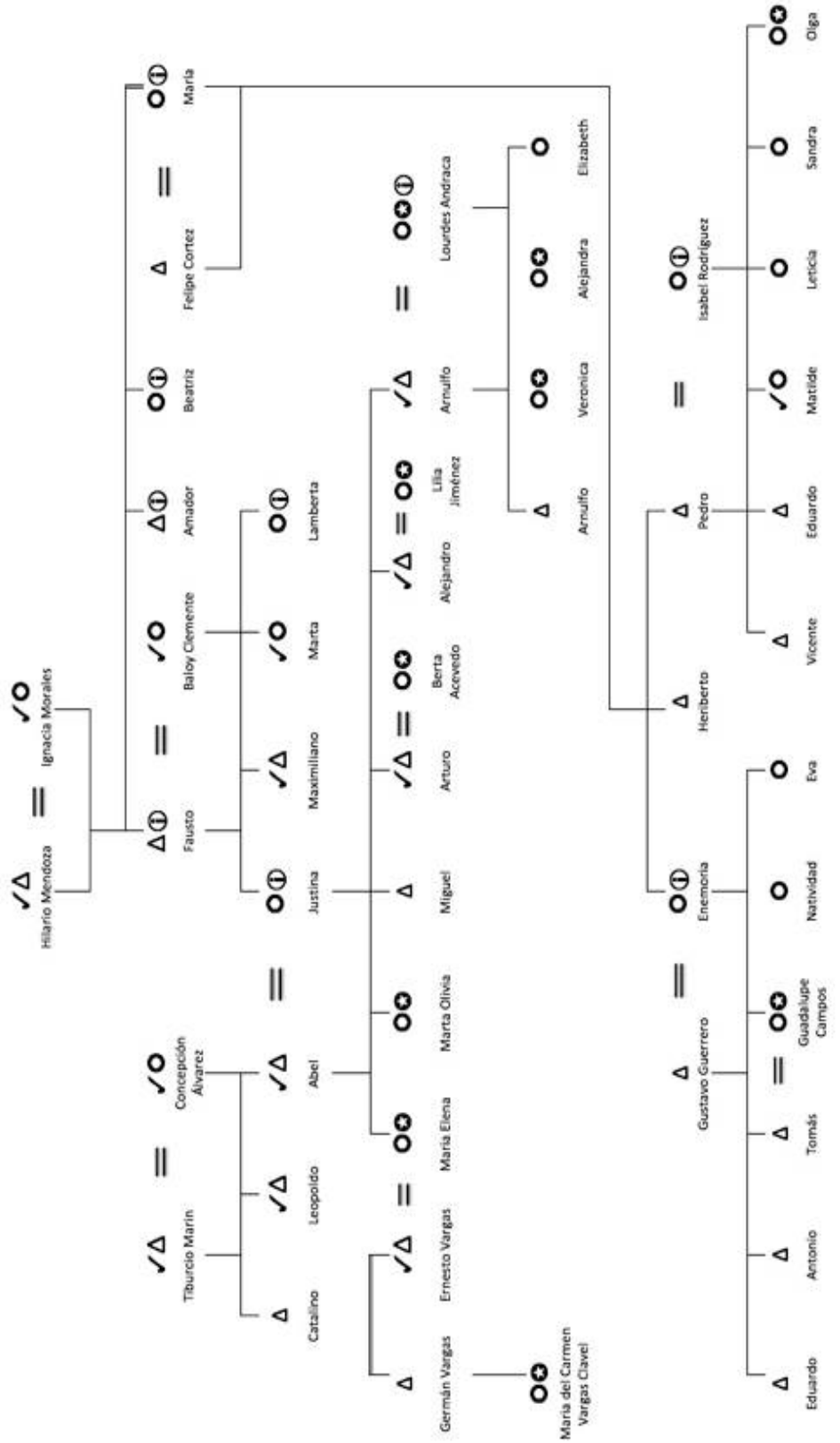

Fig. 1 Genealogy of the cheese-producing families.

(Source: Author made from interviews)

adoption of new technologies. Several studies confirm that women ensure the continuity of production and improve the quality of life, given mainly by greater spending on food and education for their children. Thus, small-scale agricultural activities, carried out by women, have significant effects on the nutrition and livelihoods of small producer households.

Internationally, Bouche and Moity-Maïzi [21] suggest that the survival of cheese factories in Corsica, France requires a genuine entrenchment in the understanding of genetics, methods of using a natural environment and implementation of specific cognitive and relational processes, all of which could necessarily be networked by "cultural" inscriptions, enabling them to be activated and transmitted.

Palmero cheese (La Palma, Spain) is a quality product linked to its region; it is produced under very traditional manufacturing practices, but recently there have been some changes to adapt to health regulations, such as the refrigeration of fresh cheeses and a gradual shift from traditional to commercial rennet [22].

3.7 Technological Trajectory: Preserving the Tradition of Cheese-making Know-how

Since its inception, the making of press cheese has undergone several changes in response to recommendations that cheesemakers have received from other producers, relatives and through private and public training courses, as well as the result of market demands (e.g., a lower amount of salt and use of natural rather than "synthetic" rennet). Table 2 shows the main innovations from the origin of the cheese until the establishment of the first modern cheese factory in the region. In some cases, the reason for which these innovations were introduced and the effect they have had on marketing are described. While press cheese retains a high degree of craftsmanship, given largely by the process itself where traditional utensils and an infrastructure adapted to the conditions of the cheesemaker's home are made use of, the innovations presented are intended to make the process easier and more effective.

Table 2 Main innovations made since the origin of press cheese.

Year	Innovation	Motive	Effect
1900	Origen of press cheese by the Mendoza Morales family. Skim milk used. Milk curdled in canoes made of mahogany or *parota*. Presses were also of wood.	To preserve surplus milk.	
1970's	Mass marketing of the cheese by Mr. Renato Pérez, who buys it from the children of the Marín Mendoza family.	Product is accepted by local consumers	Increased sales
1980's	Rennet washing and use of plastic tubs for curdling the milk.	To improve food safety	
1990's	Use of lyra for cutting curd instead of knives, change from wooden to concrete press. Use of seal and paraffin.	To reduce curd handling time and workload.	
2000	Introduction of stainless steel equipment.	To improve safety	
2003	Change from natural to commercial rennet. Introduction of PVC and metal molds.	Recommended	Increased sales
2007	Use of whole instead of skim milk.	Recommended	
2008	Some cheese factories begin producing cheese with less salt.	Suggested by some customers	
2009	Mrs. Natalia Sánchez starts using lactic cultures as press cheese preservatives.	Recommended in a training course	
2010	The first technified cheese factory is established in the community of Ciruelo, municipality of Santiago Pinotepa Nacional.	Federal government initiative	Large-scale marketing of press cheese in the cities of Pinotepa Nacional and Acapulco.

Source: Author made from interviews

In this regard, Lengard Almli [23] concluded that consumers of traditional cheeses in France and Norway prefer cheese in its most traditional form, as opposed to versions that have incorporated innovations such as heat-treated milk, ecological production and increased omega-3 fatty acids.

Villegas and Torres [24] showed the characteristics of Poro cheese production in the Rivers' region in Tabasco, Mexico and highlighted the collaborative networks among cheesemakers, which are slightly strengthened due to the presence of two streams of producers: ones who wish to preserve the traditional way of making cheese and those who want to make changes to the process, and also perhaps to the product. However, researchers are raising questions such as these: To what extent should changes be implemented in an artisanal process? Is it not the artisanal process itself which makes the product unique? The same question is valid for all artisanal cheeses when one wishes to preserve and give value to their unique and distinctive features. In the case of press cheese, the innovations that have been introduced to improve the production process are not considered to have undermined the specificity of the product.

In an ethnographic study conducted in the United States Paxson [25], artisanal cheesemakers describe their practice as a balance between art and science. For them, the art in cheese-making is the creative expression in the product, while the science is reflected in the empirical observation, the measurement to keeprecords and the steps taken to ensure product safety. They point out that scientific knowledge (relating to milk chemistry, acidification, and microbial succession in rind development) is crucial to understand how "nature" behaves in order to complement the habitual art of the traditional cheesemaker.

4. Conclusions

Based on the testimonies of the cheesemakers and key informants, it can be said that the press or "costeño" cheese of the coastal area of Oaxaca and Guerrero, Mexico, has been made since the early twentieth century. The Mendoza Morales family is the originating node in the production of this cheese, initiating its development in the community of Cuajinicuilapa, Guerrero. The technological trajectory indicates that although some modifications have been adopted over time, such as using whole instead of skim milk and synthetic rather than natural rennet, the press cheese of the Costa Chica is one of those that most preserves the artisanal process in Mexico.

The patience and extreme dedication required to make this product have allowed it to remain over time a cheese with outstanding organoleptic characteristics, developed in conditions that could be adverse to mainstream cheese manufacturing, so we believe that it is unlikely that this delicious food will stop being produced in the area.

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