ABSTRACT

Objective: To analyze regulatory and public policy, economic, agronomic, infrastructure, and technological barriers in the context of Geographical Indications.

Method: This study was carried out from the perspective of exploratory research since it is a conceptual approach, which investigates the main characteristics of the studied phenomenon. Considering the way in which the data were obtained, it consists of a bibliographical study of a qualitative nature, which has the cachaça productive chain as its central element.

Results and conclusion: It is observed that the foundation of the GI is based on the relationship between natural resources, the organization of social and economic processes, and cultural and power relations. The obstacles highlighted from the point of view of specialists directly affect the development process of the cachaça production chain, but it is a historically important activity for Brazil.

Research implications: They range from direct support to the cachaça industry and the formulation of public policies to the advancement of academic knowledge and the strengthening of regional culture and economy. It contributes to multiple aspects of society, highlighting the relevance of Geographical Indications.

Originality/value: The identification of critical obstacles in the cachaça production chain, deepening the understanding of the complex relationship between natural resources, culture, and social and economic processes in the formation of Geographical Indications (GIs) in Brazil fills an important gap in the context of the growing recognition of GIs in Brazil.

Keywords: Sugarcane Brandy, Geographical Indication, Obstacles and Hindrances, Indication of Origin

DIAGNÓSTICO E OBSTÁCULOS RELACIONADOS À CADEIA PRODUTIVA DA CACHAÇA NO CONTEXTO DAS INDICAÇÕES GEOGRÁFICAS

RESUMO

Objetivo: Analisar barreiras regulatórias e de políticas públicas, econômicas, agronômicas, de infraestrutura e tecnológicas no contexto das Indicações Geográficas.

Método: Este estudo foi realizado na perspectiva da pesquisa exploratória por se tratar de uma abordagem conceitual, que investiga as principais características do fenômeno estudado. Considerando a forma como os dados
Diagnosis and Obstacles Related to the Production Chain of Cachaça in the Context of Geographical Indications

Foram obtidos, consiste em um estudo bibliográfico de natureza qualitativa, que tem a cadeia produtiva da cachaça como elemento central.

Resultados e conclusão: Observa-se que a base da IG está baseada na relação entre os recursos naturais, na organização dos processos sociais e econômicos e nas relações culturais e de poder. Os entraves apontados pelo ponto de vista dos especialistas afetam diretamente o processo de desenvolvimento da cadeia produtiva da cachaça, mas é uma atividade historicamente importante para o Brasil.

Implicações da pesquisa: Vão desde o apoio direto à indústria da cachaça e à formulação de políticas públicas até o avanço do conhecimento acadêmico e o fortalecimento da cultura e economia regional. Contribui para múltiplos aspectos da sociedade, destacando a relevância das Indicações Geográficas.

Originalidade/valor: A identificação de obstáculos críticos na cadeia produtiva da cachaça, aprofundando a compreensão da complexa relação entre recursos naturais, cultura e processos sociais e econômicos na formação de Indicações Geográficas (IGs) no Brasil preenche uma lacuna importante no contexto do crescente reconhecimento das IGs no Brasil.

Palavras-chave: Aguardente de Cana, Indicação Geográfica, Obstáculos e Impedimentos, Indicação de Procedência.

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1 INTRODUCTION

The reference There are many versions that seek to demonstrate the origin of the productive activity of cachaça in Brazil. Throughout history, the emergence of this drink dates to the 16th century and hypotheses about its origin are divided into two versions. As for the first, it is believed that the Portuguese were the ones who began to produce a drink from the fermentation and distillation of sugar cane derivates. The second version shows that the slaves were the first to try a liquid extracted from boiling sugarcane, after verifying that, when thrown to the animals and consumed by them, they were more invigorated and willing (Instituto Brasileiro da Cachaça - IBRAC, 2021).

The registration of cachaça producing units has been growing every year and, according to data from IBRAC SI (2021), made available by the Ministry of Agriculture, Livestock and Supply (MAPA, 2021), the highest percentage is found in the Southwest region (68.7%), followed by the Northeast region (14.5%), in third place the South region (12.4%), in fourth the Midwest (3.7%) and finally the North region (0.8%). This study deepens the discussion regarding the performance of these cachaça producing units installed in the country and the configuration of their support network and partnerships.

The productive sector of Cachaça in Brazil is supported by Law nº 8.918, of July 14, 1994, and its production is divided into industrial and artisanal (Lei n° 8.918, de 14 de julho de 1994). The segment is still very much inserted in the context of informality, reaching about 85% of artisanal cachaça producers (Paiva, 2017; Jesus et al., 2016). The expansion process of cachaça’s production chain over the years has been experiencing difficulties. This study is based on the evaluation and validation by authors who are specialists in the subject, who identified obstacles, especially in terms of regulatory, public policies, economic, agronomic, infrastructure and technological.

The recognition of new products with Geographical Indication (GI) in different regions has been growing every year in Brazil. For cachaça, its possibility of registration was instituted by Decree nº 4.062/2001, which defined the expressions “cachaça”, “Brasil” and “cachaça do
Brazil” as Geographical Indications, elaborated based on TRIPS (Agreement Agreement on Trade-Related Aspects of Intellectual Property Rights) (Decreto n.º 4.062, de 21 de dezembro de 2001).

In this context, the literature demonstrates that the recognition of GIs by the National Institute of Industrial Property (INPI) is configured as a resource for the protection and enhancement of products, especially agricultural ones, with great differentiation in the market (Crescenzi et al., 2022). Moreover, it has the potential to develop a dynamic process of institutional innovation, acting as a tool for sociocultural and interactive development, while bringing together research institutions, associations, producers, and the community, in a commercial relationship that involves trust and strengthening of the territory (Chan-Yuan and Mergen, 2020; Oliveira, 2020; Silva et al., 2022).

Currently Brazil has three recognized GIs, Indication of Origin type, for cachaça. The oldest record is that of cachaça from Paraty in Rio de Janeiro, granted in 2007. Then, in 2012, the one from Salinas region, Minas Gerais and, more recently, in 2014m the Microregion of Abaíra, in Bahia – Chapada Diamantina.

Thus, considering the importance of expanding the number of GIs of cachaça recognized by INPI in Brazil, as well as the development of new strategic actions aimed to deal with the obstacles diagnosed along this production chain, the following question was raised: do obstacles related to the cachaça production chain make it difficult to recognize new Geographical Indications that have cachaça as a productive base?

This theme is justified since the economic potential of sugarcane has been explored for a long time, however, the productive segment encounters hindrance that limit its development in several aspects and in practically all states. At the same time, in terms of GI records, only the regions of Paraty, Salinas and the Microregion of Abaíra managed to achieve recognitions.

The research was carried out with the objective of analyzing regulatory and public policy, economic, agronomic, infrastructure and technological barriers in the context of Geographical Indications.

In addition to this introduction, the article is structured in five sections. In section two, a literature review is carried out on the context of the production chain of cachaça – characterization and production process, including the elements that relate this segment to Geographical Indications and the concepts of territory and territoriality. In section three, the methodology used in the study is presented. Section four shows the results and discussion. Finally, section five, with the conclusions of the study.

2 GI AND THE CONTEXT OF CACHAÇA PRODUCTION CHAIN

The recognition of GIs has been growing in Brazil in recent years. INPI is the institution responsible for registering GIs in the country. It is a collective constitution, supported by the uniqueness of a product or service, or even through natural or human factors, which present in their context the assumption of providing sustainable territorial development.

According to Flores et al. (2019), the potential of a GI is seen in face of the articulation between different agents who act in a given geographic space and contribute to the organization of a territory. It has support in the valuation of a product, which may be associated with the main economic element and the development of other activities, such as those related to tourism.

For the GIs, especially the agrifood ones, the production process, which has already been built by the territory over the course of several years, strongly contributes to its development. At the end of the 20th century, a diversity of these products has appeared (Brandão et al., 2012). Knowing the production chain of a given product, object of GI recognition, in all its stages, aligns the service to quality standards and to the training process.
of producers based on market requirements. (Belletti et al., 2017; Froehlich and Corchuel, 2017; Kizos and Vakoufaris, 2010).

2.1 Geographical Indication, Territory and Territoriality

GIIs are thought from the harmony and appreciation of local culture, preservation of biodiversity, growth of tourism, organization os producers and adding value to collective products (Vieira and Pallin, 2015). In this regard, according to Anjos et al. (2013), GIIs of agrifood have become a matter of great interest for rural promotion and development at national and international level, especially in Latin American countries, as for studies purposes, from an academic point of view and for financial purposes from development institutions and government.

The theme related to GIIs has been debated for a long time, also in Brazil (Bruch, 2008). According to Dutra et al. (2009), the first experiences of GI were introduced since the 1990s and from that period onwards, greater attention was given in terms of public policies, at national and state level, to agrifood product market. The researchers that reflect GIIs highlight the assumptions of the development of a defined geographic region, mainly associated with the concepts of territory and territoriality. The territorial dynamics according to Maiorki and Dallabrida (2014), increases the potential of local assets, present in this context the material and immaterial resources focused on guaranteeing better conditions of survival for the population of a certain region. For Arruda (2021), the impact on development can be observed from the moment when the dynamic process of the territory find reference in economic, environmental, social, and institutional bias. Bowen and Zapata (2009) mainly discuss the function of socioeconomic and environmental sustainability, evaluating, for example the context of Tequila’s GI in Mexico.

The concept of territoriality was presented by Araújo and Caldas (2019) based on the interdisciplinarity of interpretations, in the second half of the 20th century. Before being incorporated by Geographic Science, this concept permeated Biology, Ethology, Sociology, Anthropology, Political Science, Economics and Psychology (Araújo and Caldas, 2019). Clark and Kerr (2017) link the concept of territory to the understanding of terroir, demonstrating that its literal translation refers to terrain, soil or land.

According to Raffestin (1993), the understanding of the concept of territory occurs from a production of space, constituting itself as a space of multiple relationships.” Evidently, the territory rests on space, but it is no space. It is a production, from space. Well, production, because of all the relationships it involves, is inscribed in a field of power” (Raffestin, 1993, p.144). The existence of a relationship between multiple powers is evidenced through the correlation of forces involving the State, organizations and individuals, manifesting itself in regional and local strategies (Flores, 2015; Araújo and Caldas, 2019).

Territorial delimitation is one of the structuring elements of the GI. Products or services from this territory are identified based on their origin and characterized according to the type of GI required, whether Indication of Origin (IO) or Denomination of Origin (DO), in accordance with Art. 9º da Portaria/INPI/PR Nº 04 of January 12, 2022 (INPI, 2022).

According to Vieira et al. (2016), when the origin of a give product or service is related, this direction is associated with several elements of the identity and culture existing in a given geographic space. In this matter, intangible assets such as reputation, environmental factors and human skills are highlighted, allowing products to add value (Vieira et al., 2016; Silva et al. 2018, Hughes, 2006).

The process of mobilizing agents in favor of a collective constitution of territorial valorization, in the case of GI, involves a series of representatives and institutions that are distributed in the midst of an intellectual property right, developing an analytical structure to
study this collective action (De Rosa, Adinolfi and Vecchio, 2017). In Brazil, Law nº 9.279 of May 14, 1996, refers to protection of Geographical Indications, through the IO or DO modalities (Lei n.º 9.279, de 14 de maio de 1996).

Almeida (2015) defines that obtaining the registration of recognition of the GI does not require the integration of rural producers in a cooperation network. These producers interact in the territory with other agents, that is, the cooperation network allows for an articulation with other agents in the local area, in the political, economic, and also social field (Almeida, 2015; Tashiro, Uchiyama e Kohsaka, 2019). It is observed that, as highlighted by Bérard et al. (2016), local agricultural knowledge presupposes the establishment of links between participants through a collaborative network aimed at achieving unified standards.

As a structuring element, the human factor, linked to the constitution of the GI, is characterized from the network relationships that are formed around a specific product Flores et al. (2019) highlight the participation, ownership and, involvement of local agents in the process of recognizing a GI.

The relationship between the GI and the configuration of its territories allows a global understanding of the implementation and development policies of this intellectual property asset, starting from the pillars of sustainability and the articulation of entities that have the role of contributing to the valorization of the specific production chain area, as well as the development of the population involved in each (Ingram, Hansen and Bosselmann, 2020).

However, it is possible to perceive the GI inserted in a territory where there is an interaction between people and things, being possible to establish control mechanisms in this environment. Territoriality comprises the set of relations between man, space, and time, as highlighted by Raffestin (1993). It can also be seen as a geographic strategy that awakens influence and control in the group and in the territory. Santos (2009) evidences territoriality as the institutional action developed within the territory, with the function of understanding processes and directing resources.

Summarizing, while the territory is understood from the delimitation, territoriality is the control strategy and the element of social cohesion (Grelle, 2021; Santos, 2009). The GI positions itself as an element of control of a given geographical area, in which it is possible to use a given geographical name (Grelle, 2021).

2.2 Characterization of Cachaça Production Chain

Normatively, the productive sector of cachaça in Brazil is supported by Law nº 8.918 of July 14, 1994, which provides for the standardization, classification, registration, inspection, production and inspection of beverages and authorizes the creation of the Intersectoral Beverage Commission (Lei n.º 8.918, de 14 de julho de 1994). Within the scope of the registration of Intellectual Property assets, in 2001 Ministerial Decree nº 4.062 of December 21, 2001, was published, which defines the expressions “cachaça”, “Brasil” and “cachaça do Brasil” as Geographical Indications. In its Art. 3º, the legislator reaffirms the importance of complying with the rules established by Law nº 8.918/1994, regulated by Decree nº 6.871 of July 4, 2019, restricting the use of expressions only to producers established in the country (Lei n.º 8.918, de 14 de julho de 1994).

For cachaça, considering it a final product, obtained from sugarcane, Oliveira (2017) demonstrates that the legislation does not establish a distinction between the two production processes, be it that of alembic cachaça, be the industrial cachaça. However, when considering the concept of both production processes, as well as the practice established in the units, a great deal of difference can be seen. While in industrial production the process is concentrated in medium and large industries, on the other hand, artisanal cachaça is commonly produced by small family farmers, which have limited resources (Cardiere, 2013).
According to Santos (2021), the characteristics that surround artisanal cachaça, associated with the appreciation of its production process, is what makes the drink, based on “peculiar sensory qualities”, be characterized as a “heritage of the history of Brazil”, expanding the quantity of supporters nationally and internationally (Santos, 2021, p. 45).

In this process, the cultural, social and economic relevance of Brazil in the cultivation of sugarcane stands out, which dates back to the sugar industry from the colonization period to the present day (Silva et al., 2018; Schoeninger et al., 2014). Cachaça is an essentially Brazilian product, and its production chain is responsible for the fabrication that reaches the national and international market. Schoeninger et al. (2014) consider the production chain of cachaça from the obtaining process, the market, and the configuration in the certification stages. They involve the processes of “selection of sugarcane plantation, cutting and storage of stalks, grinding, fermentation, distillation, storage and aging” (Schoeninger et al., 2014, p. 292).

Considering only cachaça producers, registered in MAPA in 2020, the number of producing establishments reached 955, against 894 registered in 2019. The state of Minas Gerais remains at the top of the ranking, followed by São Paulo, as shown in Graph 1. Bahia appears in 10th place. Among the Brazilian regions, the Southeast initially stands out, followed by the Northeast, South, Midwest and finally, the North region (MAPA, 2021).

In recent years, there has been an advance both in the number of records of cachaça producing establishments and in the number of states in the federation. In 2021, compared to 2020, according to the release of the cachaça yearbook by MAPA, the number of registered establishments increased by 6.4% in percentage terms and, moreover, the states of Acre and Amazonas were able to carry out their first record, with only the states of Amapá and Roraima remaining without registered producers (MAPA, 2021).

3 METHODOLOGY

This study was carried out from the perspective of exploratory research, since it is a conceptual approach, which investigates the main characteristics of the studied phenomenon. Themes of this nature seek to investigate a particular subject, guiding the setting of objectives and the formulation of hypotheses, focusing on the discovery of a new type of focus or even the improvement of ideas (Gil, 2010; Prodanov and Freitas, 2013).

Considering the way in which the data were obtained, it consists of a bibliographical study of a qualitative nature, which has the cachaça productive chain as its central element. Table 1 details the data collection steps.

<table>
<thead>
<tr>
<th>Table 1 - Data collection stage</th>
<th>Phase</th>
<th>Stage</th>
<th>Description</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Characterization of the cachaça production chain</td>
<td>Appropriation of legislation pertinent to the productive activity of cachaça and identification of its process.</td>
<td>Legislation analysis and bibliographical research</td>
<td></td>
</tr>
<tr>
<td>Exploratory-descriptive</td>
<td>Validation of obstacles</td>
<td>Identification of obstacles that prevent the development of the cachaça production chain, as well as the registration of new GIs for this product.</td>
<td>Bibliographic research and secondary data.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors (2022).
Initially, bibliographical research was carried out in secondary sources with the purpose of elaborating the theoretical-methodological foundation of the study, identifying authors who approach the concepts of territory and territoriality.

Aligning the material available in books, dissertations, theses, as well as publications in journals and scientific articles with the object of study focused on the production of sugarcane cachaça, allowed a direct contact with the literature already developed on this theme, as well as the characteristics that involve the concept of GI and the recognition of products linked to this segment in Brazil.

The qualitative approach resulted from the search for information and systematic analysis of scientific productions carried out through bibliometric prospecting on the Web of Science, accessed through the Periodicals Portal of the Coordination of Superior Level Staff Improvement – CAPES, in September 2022, containing the following keywords: Geographical Indication (GI), Territory and Territoriality, all applied in English. Advanced search was used, considering the search limitation in scientific articles type documents and without temporal delimitation. Considering the first and the second searches, a total of 42 documents were retrieved from the Web of Science database.

Therefore, still in the exploratory phase, analyzing the legal framework by which the cachaça segment is submitted and the bibliographical research itself, allowed a better visualization of this productive chain, the different stages that make up its productive process and the main hindrance existing in the sector, seeking to propose alternatives that enable its development in terms of recognizing new GIs.

To understand the need for cachaça production chain, it was necessary to describe, analyze and validate the main obstacles, which are: regulatory, public policy, economic, agronomic, infrastructural, and technological. The validation took place from the perspective of specialist authors in this subject.

In the context of approaching the research problem, it encourages the verification of obstacles with indication of actions capable of overcoming them, enabling territorial development and the recognition of new Geographical Indications that have cachaça as a productive base. According to Gil (2010), in research of this nature, the categories of analysis are constantly reexamined in order to obtain more comprehensive and meaningful ideas.

**4 RESULTS AND DISCUSSIONS**

**4.1 Identified Obstacles in Cachaça Production Chain**

This section aims to address the main obstacles observed in cachaça production chain. The validation of the appropriate obstacles to this analysis occurred through the conceptual approach suggested by reference authors in this theme. The observed problem appears as limiting factors to the expansion of the productive activity of the chain, as well as the conquest of new recognitions of Geographical Indications by INPI. The consulted literature made it possible to define the main categories of obstacles, through the authors referenced in Table 2:

<table>
<thead>
<tr>
<th>Obstacles</th>
<th>Detailing</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory and Public Policies.</td>
<td>Taxation</td>
<td>Oliveira, 2017; Araújo et al., 2010; Oliveira Neto, 2005</td>
</tr>
<tr>
<td></td>
<td>Regulation and</td>
<td>Jesus et al., 2016; SEBRAE/BA, 2016; Oliveira e Costa, 2014</td>
</tr>
<tr>
<td></td>
<td>competition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Associativism and</td>
<td>Queiroz et al., 2021; Schoeninger et al., 2014; Mafra, 2008</td>
</tr>
<tr>
<td></td>
<td>cooperativism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Credit lines for the</td>
<td>Oliveira, 2008; Oliveira Neto, 2005; Costa et al., 2005</td>
</tr>
<tr>
<td></td>
<td>sector</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Renegotiation of</td>
<td>Costa et al., 2005; SEBRAE/BA, 2016</td>
</tr>
<tr>
<td></td>
<td>debts</td>
<td></td>
</tr>
</tbody>
</table>
Diagnosis and Obstacles Related to the Production Chain of Cachaça in the Context of Geographical Indications

4.1.1 Regulatory and public policy obstacles

The first obstacle addressed in this study is linked to regulatory and public policy elements, which were validated through the studies of: Oliveira, 2017; Araújo et al., 2010; Oliveira Neto, 2005; Jesus et al., 2016; SEBRAE/BA, 2016; Oliveira e Costa, 2014; Queiroz et al., 2021; Schoeninger et al., 2014; Mafra, 2008.

Here, the obstacles of cachaça production chain itself will be presented, as well as those associated with the particularity highlighted in the diagnoses carried out in the GIs of cachaça recognized in Brazil by INPI, as it is the case of Paraty, Salinas Region and Microrregion of Abaíra, and also in other producing territories that have potential for recognition of this product.

Within the scope of regulatory obstacles and public policies linked to the cachaça production chain, the evaluation of its legal aspects and the results obtained are condensed in Table 3, which lists the problem situation, the main comments and their consequences.

<table>
<thead>
<tr>
<th>Situation-Problem</th>
<th>Comments</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxation of the superior product in still cachaça, in relation to industrial cachaça (incidence of IPI and ICMS).</td>
<td>Brazilian entrepreneurs and consumers have borne a high tax burden over the years.</td>
<td>1. Instead of receiving incentives from the government, the small producer lives with high taxation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Reduction in the competitiveness of artisanal beverages compared to industrialized ones.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Interest in revenue overrides the social aspect of the production units in generating jobs.</td>
</tr>
<tr>
<td>Lack of regulation and competition from irregular stills.</td>
<td>Causes of informality in stills: cultural aspects, bureaucracy for registration and excessive tax burden.</td>
<td>1. Enterprises operating without proper registration with the competent bodies.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Offering low quality products at very low prices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Misinformation and low purchasing power of consumers.</td>
</tr>
<tr>
<td>Insufficient level of articulation and associativism.</td>
<td>Deficiency in articulation that does not help producers, research institutions, governments, and the cachaça industry</td>
<td>1. Decisions are made unilaterally.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Difficulty in enabling the registration of geographical indication.</td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors (2022).
Based on Table 3, the problem situation that involves the issue of taxation of the cachaça production chain is initially highlighted. The study found a high taxation directed at this productive sector, which is configured as a limiting factor to the growth of alembics, at first taking as an example the case of Salinas, Minas Gerais. There is a difference regarding the incidence of taxes on artisanal and industrial cachaça (Oliveira, 2017). The authors refer to studies by Associação Mineira dos Produtores de Cachaça de Qualidade (AMPAQ), demonstrating the incidence of the Tax on Industrialized Products (IPI), which represents about 30% of the average price of a liter of artisanal cachaça and the Tax on the Circulation of Goods and Services (ICMS), with a rate of 12% per unit sold (Oliveira, 2017; Nunes and Oliveira Neta, 2010). These values represent an effective impact on artisanal cachaça producers, who end up being discouraged from competing in the market.

Araújo et al. (2010) highlight the impact of IPI on the formation of the sale price of artisanal cachaça in Salinas and its direct impact on the informality condition of several producers. In the study carried out, since 2015 the IPI rate represented 25% of the cachaça producer’s revenue. In 2022, through Decree Nº 10.979 of February 25, 2022, this rate was reduced to 18.75% (Decreto n.º 10.979, de 25 de fevereiro de 2022). However, associated with other taxes, including ICMS, PIS, COFINS, IRPJ, CSLL, still make many small producers unable to legalize their productive activity. As a result, those producers who find themselves “outside the law prefer to sell the cachaça in a granel to other producers with registered alembics which is subject to the ICMS, that is deferred to the producer or company that purchases the cachaça in a granel” (Araújo et al., 2010, p. 13).

Changes in the tax system and the advantages of industrial production over artisanal production end up harming producers and discouraging the sector. According to Oliveira Neto (2005), the state of Pernambuco faced difficulties in the tax issue of sugarcane production. To highlight the fact, the author explains that the mandatory fees are more directly charged on alembic or artisanal producers, since there is the incidence of IPI and ICMS, once the legislation does not allow the sale of the product in barrels or bottles, that is, needs to be properly bottled (unless directed to bottlers). There is a “benefit” to the producer if he transfers his product to the bottler, as he avoids paying the IPI (Oliveira Neto, 2005).

In Bahia, the highlighted situation is similar to the findings evidenced in Minas Gerais and Pernambuco. In the study by SEBRAE/BA (2016), there is uniformity in the tax incidence of cachaça from alembic and any other industrial, but differentiation is linked to the issues of bottling and the incidence of IPI (Oliveira, 2017; Oliveira Neto, 2005). The general obstacle, diagnosed by producers in Bahia, is the high tax burden for the product, which is considered the highest among industrialized products – lower only than tax levied on cigarettes. This situation mainly penalizes small, legalized producers, producing quality cachaça, and contributes to increase of informality (SEBRAE/BA, 2016).

Regarding the aspect of informality, the lack of regulation creates unfair competition between producers, both artisanal and industrial cachaça. This reality is verified in all Brazilian states, and it is estimated that more than 90% of cachaça alembic producers in Brazil operate clandestinely. In Bahia, SEBRAE estimated that there are approximately 7,000 cachaça producing establishments and that 99% are informal. In Minas Gerais this percentage is higher than 85% (SEBRAE/BA, 2016; Oliveira and Costa, 2014).

The concept of informality is defined by SEBRAE as the attitude of certain enterprises to operate without having the proper registrations in the competent bodies. Among the factors that lead to this condition, there are the cultural aspects, the difficulty in registering (costs and bureaucracy), as well as excessive taxation (SEBRAE/BA, 2016).

Jesus et al. (2016) presents the situation of informality and competition from irregular alembics described by the Association of Artisanal Cachaça Producers of Salinas/MG (APACS) as the main obstacle to the advancement of the sector. Bearing in mind that there is a
requirement for formalization for members, they end up suffering “unfair” competition, since many consumers buy the product without worrying about formalization and without government supervision, discouraging producers from getting involved with APACS and with Salinas region IO Associação dos Produtores Artesanais de Cachaça de Salinas/MG (APACS) (Oliveira, 2017; Jesus et al., 2016).

Evaluating the aspect of obstacles caused by the insufficient level of articulation of producers and associations Queiroz et al. (2021) point out that, associated with the high degree of informality in the segment, there are difficulties for producers to articulate among themselves, with research institutions, governments and the cachaça industry itself. This collaboration aims to train and strengthen the network in the process of disseminating information and monitoring (Queiroz et al., 2021). Corroborating with the author above, Schoeninger et al. (2014) show that associativism and cooperativism directly impact the conditions of production and expansion of marketing channels through partnerships with various entities, including Universities and Research Institutes (Schoeninger et al., 2014).

The finding of the importance of associativism in the relations of cachaça production chain is confirmed by Mafra (2008). With regard to the way in which a GI is constituted, the collective nature cannot be limited to a single producer. They disseminate traditional knowledge, put it into practice in an organized manner and direct protection measures to the producers themselves, as well as to consumers. (Mafra, 2008; Martínez-Arnáiz, Baraja-Rodríguez and Herrero-Luque, 2022).

4.1.2 Economic obstacles

Table 4 summarizes the main obstacles diagnosed in the economic field, focused on cachaça production chain, validated through the studies of: Oliveira, 2008; Oliveira Neto, 2005; Costa et al., 2005; SEBRAE/BA, 2016. They are related to the problem situation, complementing its main comments and consequences, also identified within the scope of the GI registered with INPI, that is, IO Paraty, IO Salinas region and IO Microregion of Abaíra.

<table>
<thead>
<tr>
<th>Situation-Problem</th>
<th>Comments</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial resources directed to micro and small producers</td>
<td>Producers live with difficulty in accessing credit or even bureaucracy in this access.</td>
<td>1. Difficulty in ensuring regularization with the competent bodies, which require a sanitary standard for the production process. 2. Development of the productive activity only with own resources or partnerships.</td>
</tr>
<tr>
<td>Difficulty in renegotiating debts and accessing new credits.</td>
<td>Producers contribute their own resources or those of partners to the activity and often end up going into debt.</td>
<td>1. Situation that compromises the sector’s expansion. 2. Difficulty getting organized to apply for GI registration.</td>
</tr>
<tr>
<td>Difficulty accessing new markets.</td>
<td>Small producers encounter several barriers to access markets, especially if they are not organized.</td>
<td>1. Commitment to the distribution and marketing of products. 2. Dependence on large bottlers that control the purchase price of production.</td>
</tr>
<tr>
<td>Production costs</td>
<td>Production costs are still high.</td>
<td>1. The lack of knowledge and organization impacts logistics and raises production costs.</td>
</tr>
</tbody>
</table>
2. Competitors that operate in informality have low production costs.

**Source:** Elaborated by the authors (2022).

The growth of the sugarcane cachaça productive sector and its importance for agriculture purposes that access to credit by producers is wide and under easy conditions. As previously discussed, the vast majority of Brazilian producers are still in an informal situation with the supervisory bodies of their productive activity. This situation is reflected in the management of productive units without funds from loans from official banks, that is, using only their own funds or through informal partnerships.

More recently, credits have been earned for formal producers in various segments, including Inovagro from National Bank for Economic and Social Development (BNDES) and Moderagroo Banco do Brasil, also considering cachaça producers, financing their production chain. Two recent initiatives to encourage the production of artisanal cachaça were directed by the Government of the State of Rio Grande do Sul, through Development Agency BADESUL and in Espírito Santo by State Development Bank of Espírito Santo (BANDES). The element that limits access is related to the regulation of alembics. It is observed that the main criterion for the concession is the regularization of the productive activity (Oliveira, 2008).

Indebtedness and default of producers are serious problems that directly affect the sector, acting as a limiting factor to the expansion of productive activity, the development and solidification of a structure that supports the achievement of records, such as the GI. In this sense, the production chain is negatively impacted by absence of an articulated governance structure to support the enterprises in financial management (SEBRAE/BA, 2016; Oliveira Neto, 2005).

Given the economic difficulty, high production costs appear to make it difficult for agricultural sugarcane growers to access new markets. This is a situation identified in most production units, especially with small producers.

The commercialization of production and access to new markets, nationally and internationally, are still obstacles for the productive segment of cachaça, mainly artisanal, characterized by small producers. This reality is demonstrated by Oliveira Neto (2005), since many small producers have not yet reached an organization stage capable of articulating marketing and expanding business. Allied to this reality, the lack of a market structure and logistics raise production costs (Oliveira Neto, 2005).

### 4.1.3 Agronomic obstacles

Table 5 condenses the main highlighted agronomic obstacles, linked to cachaça production chain, relating the problem situation, the main comments and their consequences, also observed in the scope of the GIs registered with INPI. Of the obstacles analyzed, those that refer to the qualification of the workforce in production units and the supply of raw materials were selected.

**Table 5 - Identified obstacle in agronomic field**

<table>
<thead>
<tr>
<th>Situation-Problem</th>
<th>Comments</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualification of the agro-industrial workforce.</td>
<td>Producers need capacity building and training.</td>
<td>1. Difficulty in managing projects.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Inefficiency in complying with food safety rules and good practices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Limited to SEBRAE support and</td>
</tr>
</tbody>
</table>

Diagnosis and Obstacles Related to the Production Chain of Cachaça in the Context of Geographical Indications

Training.

Raw material supply. Product quality is linked to the supply of quality raw materials.

1. Often in production, the assessment of soil conditions, fertilization and choice of cultivars is not carried out.

2. The conditions of machines, equipment and logistics are directly linked to the quality of the raw material.

Source: Elaborated by the authors (2022).

The aspect of labor qualification is seen as an obstacle to the development of cachaça production chain under two aspects addressed in this study. In general, for the productive segment of cachaça, SEBRAE/BA (2016) refers to the importance of offering technological and management courses aimed at qualifying rural entrepreneurs. Corroborating this, Oliveira Neto (2005) demonstrated that, for the productive activity of cachaça in Pernambuco, the qualification of the workforce is a preponderant factor to raise productivity levels and product quality.

At the same time, when approaching the supply of raw material, it is worth noting the conditions of the land where the sugarcane is planted, since factors such as the genetic potential of the plants, the climatic conditions, the management of the production, as well as the logistics used in the activity are interconnected and directly impact the quality of the final product and the competitiveness of the segment (Schoeninger et al., 2014; Oliveira Neto, 2005).

The study by SEBRAE/BA (2016) shows a deficiency in Bahia, with regard to the quality of raw materials for the development of productive activity in the state. There is a low availability of suppliers, but almost 100% of the alembics have their own sugarcane field, coexisting with fragility in research, fertilization, irrigation, preparation to fight and prevent diseases (SEBRAE/BA, 2016).

4.1.4 Technological and infrastructure obstacles

Table 6 condenses the most relevant infrastructure and technological obstacles, aimed at cachaça production chain, relating the problem situation, the main comments and their consequences, also identified within the scope of the GIs registered at INPI.

<table>
<thead>
<tr>
<th>Situation-Problem</th>
<th>Comments</th>
<th>Consequences</th>
</tr>
</thead>
</table>
| Lack of modern machinery and equipment.                | In order to effectively increase productivity, it is necessary to use modern machines and equipment. | 1. Many producers are unable to insert modern machines into their production.  
2. Many producers are not capitalized for new investments. |
| Need to expand technological innovation.                | Producers still use inadequate machinery and equipment.                   | 1. Difference between the provision of technology for industrial and craft activity.  
2. Many producers do not have access to technologies developed in research centers. |
| Logistical difficulties in distribution and commercialization of production. | Absence of structure organized by producers for commercialization and distribution, creating dependence on middlemen. | 1. Transportation is still inadequate in many production units.  
2. Logistic difficulties and the lack of nearby distribution centers make products more expensive. |

Source: Elaborated by the authors (2022).
The approach to technological obstacles, especially those related to infrastructure, presupposes a dichotomy between industrial and artisanal productive activity. While the large industry manages to articulate with research and technological improvement centers, for small producers, the use of technologies and specialized assistance is outdated (Oliveira Neto, 2005). Schoeninger et al. (2014) argue that not the entire artisanal cachaça production sector can maintain the same standard of technological development, since there is interference in the process by technical, economic, social and cultural aspects.

According to SEBRAE/BA (2016), the development of processes and production technology are still quite concentrated in the Southeast region, with emphasis on the states of Minas Gerais and São Paulo, basically concentrated in Public Institutions. This reality obstructs the work of producers in Bahia, who often carry out their activity without technical agronomic and technological assistance.

Oliveira Neto (2005) and Schoeninger et al. (2014) detail that, most of the time, the expansion of productive activity is the final objective of producers and the entire chain involved in production. This expansion does not always require an increase in costs or in the cultivated area, but it is necessary to modernize the machines that support the increase in production.

5 CONCLUSIONS

The registration of Geographical Indications associates elements of collective constitutions, which involves rural producers, associations, cooperatives, and institutions linked to public and private power.

The concepts worked had as a basic principle the aggregation of different agents (rural producers, associations, public and private power) and make it clear that to the extent that intellectual property protects local production, consequently within the scope of consumers of these products, it sees an effective search for quality signals. The territory delimited by the GI allows the opening of discussions about market, economy and the influence of such elements on social and environmental aspects, that is, the collective constitution serves as access to the conformation of development.

The territorial outline drawn in this study was shaped from internal and external forces, consisting of four d: physical, economic, symbolic and sociopolitical. These dimensions highlight the fundamental elements for the development of the GI from the territory and territoriality, encompassing natural resources, the organization of social processes and economic valuation, as well as cultural and power relations.

Through this study, sharing through the knowledge of specialists, it was possible to assess the regulatory and public policy, economic, agronomic, infrastructure and technological obstacles, starting from the approach of the context of Geographical Indications and the concepts of territory and territoriality.

In regulatory and public policy atmosphere, obstacles are related to the tax assessment of cachaça production chain, associated with discussions about competition by irregular producers and the importance of guaranteeing associativism and cooperativism. Broadly, in the economic area, the main highlight is access to credit lines for the segment, making it possible to expand markets, and issues involving the reassessment of production costs.

Agronomic, infrastructure and technological obstacles linked cachaça production chain to a broader discussion that involves the qualification of the workforce, the availability of raw materials for production, in addition to issues related to the logistics of distribution and commercialization of the products derived from it.

From the experience of the three GI of cachaça registered at INPI, in the regions of Paraty, Salinas and Microregion of Abaíra, it was verified that the production of cachaça is
historically important for Brazil and, despite having positive initiatives registered in some states and regions, it can still be enhanced from the operation of important development institutions.

REFERENCES


Diagnosis and Obstacles Related to the Production Chain of Cachaça in the Context of Geographical Indications


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