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## **POTENTIALITY OF GEOGRAPHICAL INDICATION OF LICURI FROM THE BAHIA SEMIARID UNDER THE VIEW OF THE BASED ON THE ORIGIN-LINKED QUALITY VIRTUOUS CIRCLE**

## **POTENCIALIDADE DE INDICAÇÃO GEOGRÁFICA DO LICURI DO SEMIÁRIDO BAIANO SOB A ÓTICA DO CÍRCULO VIRTUOSO DA QUALIDADE**

**Kelle Fernandes Silva<sup>1</sup>**

**Ângela Ferreira Lima<sup>2</sup>**

**Marcelo Santana Silva<sup>3</sup>**

### **Abstract**

This study aims to verify the potential, obstacles and other relevant aspects for the implementation of the Geographical Indication of licuri in the Semi-arid of Bahia. The methodology used was data triangulation, based on Origin-linked Quality Circle. The notoriety of the Semi-arid Region of Bahia was identified as regards the know-how of the licuri culture, as well as the weaknesses of this production chain, such as the lack of specific quality parameters in the processing of licuri. The most feasible type Geographical Indication of for the Region is the Indication of Source given the requirement of confirmed notoriety. It was concluded that there is historical and market evidence that prove that the Bahia Semi-arid is recognized by consumers and producers as a center for producing and extracting licuri.

**Keywords:** The Origin-linked Quality Virtuous Circle. Geographical Indication. Licuri. Bahia Semi-arid.

### **Resumo**

Este estudo tem como objetivo verificar as potencialidades, entraves e demais aspectos relevantes para a implementação da Indicação Geográfica do licuri do Semiárido Baiano. A metodologia utilizada foi da triangulação de dados, a partir do Círculo Virtuoso da Qualidade Ligado à Origem. Identificou-se a notoriedade do Semiárido Baiano quanto ao saber-fazer da cultura do licuri bem como apontou-se as fragilidades dessa cadeia produtiva, tal como a inexistência de parâmetros específicos de qualidade na etapa do beneficiamento. A modalidade de Indicação Geográfica mais factível à Região é a Indicação de Procedência, dado o requisito da notoriedade confirmado.

<sup>1</sup> Master's student in Intellectual Property (IFBA). Public Servant at the Federal Institute of Education, Science and Technology of Bahia, Salvador – BA, Brazil. Email: kellefernandes@yahoo.com.br

<sup>2</sup> PhD in Science, Energy and Environment (UFBA). Professor at the Federal Institute of Education, Science and Technology of Bahia, Salvador – BA, Brazil. Email: angela.lima@gmail.com

<sup>3</sup> PhD in Energy and Environment (UFBA). Professor at the Federal Institute of Bahia. Email: profmarceloifba@gmail.com

Concluiu-se que há evidências históricas e de mercado que comprovam que o Semiárido Baiano é reconhecido como centro produtor e extrator do licuri.

**Palavras-chave:** Círculo Virtuoso da Qualidade Ligado à Origem. Indicação Geográfica. Licuri. Semiárido Baiano.

## Introduction

The practice of taking into account the geographical origin of a given product is a tradition that has existed since ancient times of civilization and represented a way to differentiate it by attributes due to its reputation and quality (DUPIM, 2015). This practice progressed to a mode of recognition, conferring certain qualities that, linked to its geographical origin, may be the result of methods used to obtain or prepare the product, or resulting from the intrinsic conditions of the place of origin. This recognition mode is currently defined as Geographical Indication (NGO BAGAL; VITTORI, 2011; WIPO, 2019).

The licuri palm whose scientific name is *Syagrus coronata*, is a palm tree native to the Semiarid Region of the Northeast, withstanding long droughts and developing well even in unfavorable climatic conditions. However, it is in Bahia that almost all national production is concentrated (AROUCHA; LINS, 2013; CARVALHO, FERREIRA; ALVES, 2014; BRASIL, 2017a). From the fruit of the licuri palm, the licuri extract the licuri nuts from which various products are produced and extract the oil. Its production is extractive, and the culture and know-how are characteristic of the Semiarid Region of Bahia (DRUMOND, 2007; BRASIL, 2017a).

Geographical Indication (GI) as a resource for the protection and appreciation of agricultural products has great potential, given the rich Brazilian biodiversity resulting from its numerous biomes (PELLIN, 2019). However, according to Campos (2018), the scarcity in Brazil of information concerning this tool discourages requests for new records and, thus, the use of the full capacity of certain regions in the usufruct of the GI. Therefore, a deeper analysis of this instrument is of great value, considering its relation with regional development.

In this perspective, this work aims to verify the potential, obstacles and other relevant aspects for the implementation of the Geographical Indication of the licuri of the Semiarid Region of Bahia from the perspective of the Origin-Linked Quality Virtuous Circle.

## Theoretical Reference

Geographical Indication (GI) is a branch of Industrial Property that seeks to distinguish a product by its geographical origin (INPI, 2021) and is divided into two modalities, namely: the Indication of Source whose registration demonstrates the region's notoriety as the center of extracting, producing or manufacturing the product; and the Appellation of origin characterized by the linking of product attributes to the geographic environment, which is related to natural and human factors (BRASIL, 2018a).

Geographical Indication, due to its multidimensional characteristics, can play a significant role in regional development (MENEGAZZO, 2015; CAMPOS, 2018; BEZERRA; SARTORI; SANTOS; SEGUNDO, 2019), due to its potential to bring benefits to the production chain and actors involved, prioritizing local autonomy and broad improvement objectives in every community (DALLABRIDA, 2011; DUPIM, 2015; WILKINSON; CERDAN; DORIGON, 2017). So, there are benefits to producers, which are extended to other segments, such as providers suppliers, transport, tourism and complementary services around a GI (NASCIMENTO; NUNES; BANDEIRA, 2012; MAIORKI; DALLABRIDA, 2015).

Maiorki and Dallabrida (2015), when studying GI experiences in the wine sector in Southern Brazil, point out, more specifically, that tourism is "an extremely relevant point for the success of GI, a marketing strategy" (MAIORKI; DALLABRIDA, 2015, p. 21) serving as a means of promoting the product.

## Bahia Semiarid and Licuri Identification

The Semi-arid Region was created from Federal Law No. 7,827 (BRASIL, 1989). However, Resolution No. 115/2017 (BRASIL, 2017) defined the current regional configuration of the Semi-arid Region. Based on this Resolution, in total of 417 cities in Bahia, 278 are in the Semi-arid Region, which corresponds to 66.6% of the cities.

Due to the edaphoclimatic characteristics of the Semi-arid Region, which comprises part of the State of Minas Gerais, Bahia, Sergipe and Alagoas, the cultivation of licuri palm is favored (LA SALLES *et al.*, 2010; CARVALHO; FERREIRA; ALVES, 2014; BRASIL, 2017a; LISBON *et al.*, 2020). However, the strong tradition of this culture is predominant in Bahia. (BRAZIL, 2017). In this perspective, the Semi-arid Region of Bahia presents itself as a potential region to have a record of the Geographical Indication of licuri. It is noteworthy that Law No. 13.572/2016, regulated by Decree No. 17,951, of September 22, 2017 (BRASIL, 2017), institutes in Bahia the Policy of Coexistence with the Semi-arid, aiming at sustainable development in the Semi-arid Region of Bahia through initiatives from different areas, according to the reality experienced in this region (BRASIL, 2017).

The cultivation of the licuri palm stands out for being a culture that, over time, plays an essential role in the support of populations with lower purchasing power, for favoring a better quality of life and for highlighting the traditionalities of the Semi-arid Region of Bahia (NOBLICK, 2017; SANTOS, 2017). Its fruit is named by traditional communities as “licuri”, “ouricuri” (AROUCHA; LINS, 2013; SOUTO, 2014) or even as “green gold from the Semi-arid” (BRASIL, 2017a), among other names.

This fruit is classified in the group of oilseeds (IBGE, 2018), as it is broken down to extract the licuri nuts which is widely used in the manufacture of oil, as it presents approximately 49% of lipid constituents and around 11% of protein (CREPALDI; ALMEIDA-MURADIAN; RIOS; PENTEADO; SALATINO, 2001). The licuri nuts is eatable and sweetened, being widely used in human and animal food (ANTONIASSI *et al.*, 2005; LA SALLES *et al.*, 2010). Thus, it is a valuable raw material in the preparation of handcrafted products with exotic appeal and organic characteristics (BELVISO *et al.*, 2013; CASTRO; RYBKA, 2020). The flavor of the licuri seeds and oil resembles that of coconut (*cocos nucifera*) (BELVISO *et al.*, 2013; LISBOA *et al.*, 2020).

A unique aspect of licuri is that all of its parts are usable. Its licuri nuts can be used as raw material in various preparations such as: granola, biscuits, ice cream, candy, liquor, beer, complemented bread, among others (SLOW FOOD BRASIL, 2016; BRASIL, 2017a; GOMES; APLEVICZ, 2020). The oil is widely used for food preparation, soap manufacturing (LISBOA *et al.*, 2020) and biodiesel used even as a raw material in the production of aviation fuel (LA SALLES *et al.*, 2010; ARAÚJO; MAIA; CORDEIRO; GONDIM; SANTOS, 2019). The licuri peel is used for the production of handicrafts and fuel for a wood-burning oven and in the manufacture of roof tiles (FAPESB, 2016; BRASIL, 2017a).

The licuri palm has a huge fruitful potential, producing four tons of licuri nuts annually, also called coquinhos (BRASIL, 2017a) or coquilhos (IBGE, 2018). According to Lisbon *et al.* (2020), the fruiting of licuri occurs over long periods of the year and it is possible to offer the fruit throughout the year according to the different locations. (CREPALDI; ALMEIDA-MUDARIAN; RIOS; PENTEADO; SALATINO, 2001; AROUCHA; LINS, 2013; NOBLICK, 2017).

Although other states have favorable edaphoclimatic characteristics, according to data from the Agricultural Census of the Instituto Brasileiro de Geografia e Estatística (IBGE) for 2018, there is only record of production of the licuri nuts resulting from plant extraction in the state of Alagoas, which produces 113 tons (10.49%), and in Bahia, with 1,078 tons (89.51%) (IBGE, 2018), with all producing municipalities located in the Semi-arid Region.

There are a variety of normative acts about licuri, corroborating with the importance of this culture for communities in the Semi-arid Region of Bahia, such as Law No. 13.908/2018, of the State of Bahia, which establishes the licuri as a biocultural heritage, making it immune to cut; and Interministerial Ordinance No. 284/2018, which institutes the list of sociobiodiversity species for the purpose of *in natura* commercialization or of their derived products within of operations carried out by the Food Acquisition Program – Programa de Aquisição de Alimentos (PAA) which the licuri is part (BRAZIL, 2018b).

## Licuri Notoriety Survey

The notoriety of licuri and the importance of its production chain for local communities foments regional development, observed in the diversity of events, programs and multifaceted

discussions covering fields such as: "civic, religious, artistic, recreational, gastronomic, commercial, generational and educational" (CARVALHO; FERREIRA, 2015, p. 6), as can be seen in **Table 1**.

**Table 1:** Survey of documents on the notoriety of licuri

Title	Date	Source / Author	Availabel at:
The jewel of the Semiárid Region of Bahia	09/15/2009	Estadão	<a href="https://www.estadao.com.br/noticias/geral-a-joia-do-semiarido-baiano.3330">https://www.estadao.com.br/noticias/geral-a-joia-do-semiarido-baiano.3330</a>
Licuri extractivism is an income option in the country's Semiárid Region	11/05/2010	Globo Rural	<a href="http://revistagloborural.globo.com/Revista/Common/0,EMI185056-18080,00-EXTRATIVISMO+DE+LICURI+E+OPCAO+DE+RENDA+NO+SEMIARIDO+DO+PAIS.html">http://revistagloborural.globo.com/Revista/Common/0,EMI185056-18080,00-EXTRATIVISMO+DE+LICURI+E+OPCAO+DE+RENDA+NO+SEMIARIDO+DO+PAIS.html</a>
Licuri's production chain improves the living conditions of women in Bahia	12/04/2013	Diário do Sudoeste da Bahia	<a href="http://www.dsvc.com.br/2013/12/cadeia-produtiva-do-licuri-melhora-condicao-de-vida-de-mulheres-na-bahia/">http://www.dsvc.com.br/2013/12/cadeia-produtiva-do-licuri-melhora-condicao-de-vida-de-mulheres-na-bahia/</a>
Licuri Festival brings together hundreds of farmers in Caldeirão Grande	07/13/2015	Governo do Estado da Bahia	<a href="http://www.bahia.ba.gov.br/2015/07/noticias/desenvolvimento-rural/festival-do-licuri-reune-centenas-de-agricultores-em-caldeirao-grande/">http://www.bahia.ba.gov.br/2015/07/noticias/desenvolvimento-rural/festival-do-licuri-reune-centenas-de-agricultores-em-caldeirao-grande/</a>
Licuri Festival: Space for Non-Formal Education in the Semiárid Region of Bahia	2016	Aurélio José Antunes de Carvalho; Marcio Harrison dos Santos Ferreira	<a href="https://www2.ufrb.edu.br/revistaentrelacando/edicoes-entrelacando">https://www2.ufrb.edu.br/revistaentrelacando/edicoes-entrelacando</a>
Licuri – the coconut from Bahia that feeds and cures	10/05/2016	GreenMe	<a href="https://www.greenme.com.br/usos-beneficios/4176-licuri-coquinho-da-bahia-alimenta-e-cura/">https://www.greenme.com.br/usos-beneficios/4176-licuri-coquinho-da-bahia-alimenta-e-cura/</a>
The Bahia Semiárid Party: Our Host is Licuri Syagrus coronata (Mart.) Becc., Arecaceae	07/02/2017	Núbia Oliveira da Silva, Marcio Harrison dos Santos Ferreira, Aurélio José Antunes de Carvalho	<a href="http://sabeh.org.br/?mbdb_book=revista-ecologias-humanas-no-2">http://sabeh.org.br/?mbdb_book=revista-ecologias-humanas-no-2</a>
Licuri Festival: valuing culture, its people and their knowledge	08.2017	Movimento dos Pequenos Agricultores (MPA)	<a href="https://mpabrasil.org.br/noticias/festa-do-licuri-valorizacao-da-cultura-de-seu-povo-e-seus-saberes/">https://mpabrasil.org.br/noticias/festa-do-licuri-valorizacao-da-cultura-de-seu-povo-e-seus-saberes/</a>
Gastronomic expedition gives visibility to licuri produced by family farmers	06/29/2018	Secretaria de Comunicação Social da Bahia	<a href="http://www.secom.ba.gov.br/2018/06/146344/Expedicao-gastronomica-da-visibilidade-a-licuri-produzido-por-agricultores-familiares.html">http://www.secom.ba.gov.br/2018/06/146344/Expedicao-gastronomica-da-visibilidade-a-licuri-produzido-por-agricultores-familiares.html</a>
Licuri is featured on the first day of Mesa Bahia	07/04/2018	Secretaria de Comunicação Social da Bahia	<a href="http://www.secom.ba.gov.br/2018/07/146389/Licuri-e-destaque-no-primeiro-dia-do-Mesa-Bahia.html">http://www.secom.ba.gov.br/2018/07/146389/Licuri-e-destaque-no-primeiro-dia-do-Mesa-Bahia.html</a>

Title	Date	Source / Author	Availabel at:
11th of the Licuri Festival, in Capim Grosso, BA	08/20/2018	Universidade Federal do Vale do São Francisco	<a href="https://portais.univasf.edu.br/videos/tv-caatinga/11a-da-festa-do-licuri-em-capim-grosso-ba">https://portais.univasf.edu.br/videos/tv-caatinga/11a-da-festa-do-licuri-em-capim-grosso-ba</a>
Licuri, the Wealth of the Sertão	03.2019	Companhia de Desenvolvimento e Ação Regional (CAR)	<a href="http://www.sdr.ba.gov.br/sites/default/files/2019-04/bahia%20produtiva_revista.pdf">http://www.sdr.ba.gov.br/sites/default/files/2019-04/bahia%20produtiva_revista.pdf</a>
Campo Formoso: Lagoa da Roça village to promote the 2nd Licuri Fair	08/14/2019	Campoformosonoticias.com	<a href="https://www.campoformosonoticias.com/v5/2019/08/campo-formoso-povoado-de-laqa-da-roca-vai-promover-2a-feira-do-licuri/">https://www.campoformosonoticias.com/v5/2019/08/campo-formoso-povoado-de-laqa-da-roca-vai-promover-2a-feira-do-licuri/</a>
Licuri's Productive Chain receives reinforcement with investments from the State Government	11/28/2019	Companhia de Desenvolvimento e Ação Regional	<a href="http://www.car.ba.gov.br/index.php/noticias/cadeia-produtiva-do-licuri-recebe-reforco-com-investimentos-do-governo-do-estado">http://www.car.ba.gov.br/index.php/noticias/cadeia-produtiva-do-licuri-recebe-reforco-com-investimentos-do-governo-do-estado</a>
Documentary 'Mulheres do Licuri'.	07/06/2020	Ponto Crítico	<a href="https://pontocritico.org/06/07/2020/documentario-mulheres-do-licuri-mulheres-semiarido-e-empoderamento/">https://pontocritico.org/06/07/2020/documentario-mulheres-do-licuri-mulheres-semiarido-e-empoderamento/</a>
Licuri becomes an ingredient in cosmetics and increases the income of families in Bahia	07/14/2020	Globo Rural	<a href="https://revistagloborural.globo.com/Noticias/Agro-EDelas/noticia/2020/07/licuri-vira-ingrediente-de-cosmeticos-e-aumenta-renda-de-familias-na-bahia.html">https://revistagloborural.globo.com/Noticias/Agro-EDelas/noticia/2020/07/licuri-vira-ingrediente-de-cosmeticos-e-aumenta-renda-de-familias-na-bahia.html</a>
Licuri consolidates in Bahia with qualification and valorization of production	08/26/2020	Companhia de Desenvolvimento e Ação Regional	<a href="http://www.car.ba.gov.br/noticias/licuri-se-consolida-na-bahia-com-qualificacao-e-valorizacao-da-producao">http://www.car.ba.gov.br/noticias/licuri-se-consolida-na-bahia-com-qualificacao-e-valorizacao-da-producao</a>

Source: Prepared by the authors (2020)

It is worth mentioning the Project “Social Technologies for Strengthening the Licuri Production Chain in the Semiarid of Bahia” (SANTOS, 2017; SILVA, 2012) and within the scope of Industrial Property, it is worth mentioning the patent granted in 2019, “Machinery for Breaking Coconut Licuri and Similar” (DA SILVA, R.; DA SILVA, I.; GUERRA, 2018), both with the purpose of remedying technological bottlenecks in the licuri production chain.

## Methodology

This is a research with a qualitative approach, with an exploratory objective. As investigation technique, the case study was used (GIL, 2008).

## Data collect

Individual interviews were conducted, through videoconference, with five entities with notorious operations in the Semiarid Region of Bahia. The entities were: an institution that works with public policies, with projects dedicated to strengthening the licuri production chain in the Semiarid Region of Bahia (PJ1); a company that uses licuri nuts as the main raw material in its products, headquartered in the city of Caldeirão Grande (PJ2); a cooperative located in the territory of Sisal (PJ3); a private institution of public interest, whose unit provides support in the process of implementing a GI (PJ4); and a cooperative located in the Piemonte Region of Diamantina (PJ5).

From this, the data were structured with the recognition of the categories that are the steps of the Origin-Linked Quality Virtuous Circle methodology (FAO; Siner-GI, 2010) and a triangulation of methods was performed (YIN, 2005). This methodology is divided into:



Identification, Qualification, Remuneration, Reproduction and Public Policies, as shown in **Figure 1**.

**Figure 1:** The Origin-Linked Quality Virtuous Circle



Source: Fao; Siner-gi (2010)

In the 'Identification' stage, the relationships between the product, the communities involved and the environment are established.

In 'Qualification' information is obtained from the actors directly involved in the production process, who better know the characteristics and cultural aspects that involve it.

'Remuneration' is the stage related to the sale of the product and requires a collective strategy to manage the assets common to all, with the objective of adding value and taking advantage of reputation, including through non-commercial mechanisms.

The 'Reproduction' means that the resources will be preserved, renewed and improved throughout the Virtuos Circle, in order to enable its long-term sustainability.

Finally, the 'Public Policies' stage, which represents and feeds all the others, and offers legal and institutional support (FAO; Siner-GI, 2010).

## Results and Discussion

### Analysis and Diagnosis of the Potential of Licuri in the Semi-arid Region of Bahia

In this section the results are presented, framing them from the parameters defined by each step of the Origin-Linked Quality Virtuous Circle methodology.

#### 1st Step: Identification

In this phase, three sub-steps were observed, which will be dealt with below.

In the Identification of Local Resources, the licuri was presented by all interviewees as a fruit with great socioeconomic importance for communities in the Semi-arid Region, as shown in the studies by Noblick (2017) and Santos (2017), despite not having received the due appreciation for a long time, according to PJ2, PJ3 and PJ5 and corroborated by Santos (2017).

There was consensus among interviewed about the specific characteristics of licuri linked to its geographical origin, including the cultural and human resources of the Semi-arid Region of Bahia, which was reinforced by the survey of notoriety in this study and demonstrated by Carvalho and Ferreira (2015).

Interviewees PJ2, PJ3 and PJ5 highlighted the diversity of products obtained from licuri, including "in natura" licuri nuts or roasted with salt and oil for food and cosmetic purposes, as attested by La Salles *et al.* (2010), Slow Food Brasil (2016), Brazil (2017a), Araújo, Maia, Cordeiro, Gondim and Santos (2019) and Gomes and Aplevicz (2020).

In relation to the Link with the Territory, PJ1 highlighted the scope of the licuri culture. The entity reported support for fourteen cities, distributed in four territories of identity in the Semiarid Region: Bacia do Jacuípe, Piemonte da Diamantina, Piemonte Norte do Itapicuru and Sisal. This large territorial coverage is ratified by Brazil (2017), which states that it is in the Semiarid Region of Bahia that the tradition of this culture is predominant, that aspect could be observed by surveying the region's notoriety.

In the Identification of the Actors involved, PJ1, PJ3, PJ4 and PJ5 pointed out as essential: a private company and cooperatives, which have the know-how and have achieved relevant results with licuri for the region's image.

PJ3 highlighted the development of self-sustainable production and coexistence with the Semiarid Region, based on the principles of the Solidarity Popular Economy. He also highlighted partnerships with Cooperative Centers. PJ3 and PJ5 reported having support from Education and Research Institutions and PJ2, PJ3 and PJ5 stated technical support from PJ4 when necessary.

PJ2 develops social projects aimed at communities. It supplies its residues to other companies: straw for the production of thermal energy in the cement sector, according to FAPESB (2016); and the bran for the production of cookies, attesting to the total use of the parts of the fruit, according to Brazil (2017a).

As external actors interested in licuri-based products, PJ2, PJ3 and PJ5 reported: restaurants, where licuri is used by renowned chefs; supermarkets; natural food stores; cosmetics factories and retailers, which purchase for their own consumption or for the production of cosmetics in Bahia, São Paulo, Rio de Janeiro and Minas Gerais.

## 2nd Step: Product Qualification

All interviewees highlighted that licuri is obtained in an extractive way by quilombola communities in the region and farming families. This aspect was pointed out by Anjos and Drummond (2010); Brazil (2017a); and Castro and Rybka (2020). PJ2 and PJ3 reported that in some localities, by law, access is allowed to farms where the licuri producers are located, on which extractivists harvest the licuri at will, as discussed by Almeida (2008) and Souto (2014). In places where this authorization is not available, the licuri is used by the cattle or is lost. PJ2, PJ3 and PJ5 stated that the licuri nuts undergoes quality control at all stages of processing from harvesting, but did not provide details on how this is done. They reported that there is no resistance from extractive workers to adopting Good Manufacturing Practices (GMP). PJ3 and PJ5 revealed that they do not have a structure set up in their routine for measuring microbiological and physicochemical parameters of raw material and final product. To do so, they sporadically rely on the support of Education, Research and Extension Institutions, mentioned in the 1st Stage (Identification).

PJ5 informed that it is developing new products aiming at the diversity and expansion of the market. PJ2 already reported that the objective currently is to increase the oil production line, while PJ3 is focused on the effectiveness of sanitary records, including in relation to the other chains with which it works, such as the umbu chain. PJ2, PJ3 and PJ5 reported having their own brand, packaging and labels with necessary information about the product and that they are interested in organic certification records, and this process has already been performed by PJ2 before, however it was not renewed due to high costs.

## 3rd Stage: Remuneration

PJ5 stated that the members benefit from the sale of the licuri nuts, since the added value in its processing is just enough to maintain the production structure. PJ2 acquires the licuri nuts for R\$ 5,00 for food purposes, while PJ3 differentiates this raw material as follows: when it is intended for cosmetic purposes, the value of 1 kg of licuri nuts is R\$ 5,00 but when it is for the food sector, the kilo reaches R\$ 10,00. Thus, it is possible that this price difference between the entities is due to the Solidarity Economy mode of production, whose practices also aim at a more equitable distribution of benefits along the value chain.

PJ3 entity sells its products through a network of its own stores in the cities of Monte Santo, Itiúba and Nordestina, in shop-windows to demonstrate its products and those of partner cooperatives in other cities, which favors dissemination and sale. Furthermore, it has partnerships with stores in other cities in Bahia and in the state of São Paulo, in addition to virtual marketing, through a partnership with a startup, which facilitates the flow of products throughout Brazil.

The interviewee PJ5 highlighted the agreement with a carrier, in addition to the partnership with the Distribution Center (DC) in Salvador financed by the State Government, which favors marketing and good logistics in the wholesale sales process. As for retail sales, difficulties in the process were reported, which have been relieved by the partnership established between the cooperative and a startup through virtual sales.

PJ2 reported that its products are sold through its own website for other states, which it supplies to some companies, including a renowned one that works with the licuri pie in the organic product line and, more often, to the final consumer. He also stated that a difficulty in the commercialization process is the logistics, as the cost of shipping is high and this discourages buyers.

PJ3 does not have precise information regarding the production volume (kg/month), since there is a great diversity of products and they usually stock up on raw material and “process according to the commercialization demand”. Even so, PJ3 reported that it managed an average of 1,000 jars of candy per month until the start of the covid-19 pandemic in March 2020. The candy and roasted licuri are exclusive products of entities that process licuri. PJ5 claimed that as the licuri is a seasonal crop, there is no monthly control of production. Thus, the oil is produced and stored for use during the period of greatest raw material scarcity.

PJ2 reported an average of 5.7 tons of oil traded over the past five years, but reported that in 2020-2021 there was a drop due to the impacts of the covid-19 pandemic. As for the other periods, this drop was attributed to the long droughts in the Semiarid Region, which is corroborated by Seyffarth and Rodrigues (2017). As for the competition over licuri oil, PJ2 and PJ3 reported that this occurs in relation to *cocos nucifera* oil as they have similar properties. This aspect is pointed out by Belviso *et al.* (2013) and Lisboa *et al.* (2020).

Regarding the prices of licuri-based products, the entities informed that they charge similar prices, only PJ3 informed that they sell the oil in a 250 ml package for fourteen reais, on average. The producing entities reported that the price variation sometimes occurs due to the cost of shipping, but PJ2 and PJ3 reported a profit margin of approximately 15% on the products sold.

#### **4th Stage: Local Reproduction of Resources: Economic, sociocultural and environmental sustainability**

The interviewees highlighted the extractive nature of licuri, which makes its collection difficult when the licuri palm nut are located on large private properties, to which there is no access permission for collectors, as confirmed by Brazil (2017b).

PJ2, PJ3 and PJ5 reported that, due to the intense work of raising awareness, extractivists currently follow good management practices, favoring organic sustainable extractivism and, so, the environmental sustainability of this production chain.

The producing entities informed that the licuri is seasonal, being abundant between December and April. However, the fruit is available for processing in the period with the lowest harvest, as the licuri continues to produce in smaller quantities, in addition to being possible to store the raw material and thus guarantee continued production and compliance with the signed contracts. This favorable aspect of licuri is supported by Crepaldi, Almeida-Muradian, Rios, Penteadó and Salatino (2001); Aroucha and Lins (2013); Noblick (2017) and Lisboa *et al.* (2020).

A limiting factor to the licuri chain presented by the interviewees is the predominantly manual process for obtaining the licuri nuts, in which the stone is used to break the licuri, in small and inadequate environments. However, with PJ1 support, adequate structures have been set up for larger scale production, with a view to offering quality products and expanding the market. From this way, the PJ1 entity has taken technology to farmers, with the acquisition of machines such as breakers and peelers. These improvements in production favor the economic sustainability of the licuri production chain, improving processes.

PJ3 and PJ5 stood out that licuri is presented, mainly, as an income supplement for families in the Semiarid Region. This aspect negatively impacts the appreciation of culture, but it has been mitigated by the strengthening of the image of licuri and the Semiarid Region of Bahia with the execution of projects and events.

In the sociocultural issue, it was identified that women predominate in the licuri production chain. This was attributed to the fact that men generally seek activities that more satisfactorily guarantee family support. It was highlighted that the activities with the licuri provided some



autonomy to these extractivists, having a fundamental role in female empowerment, which is corroborated by the documentary 'Mulheres do Licuri' (BARBOSA, 2020).

About to the practices that value the licuri culture and local know-how, the entities are very active, promoting and/or participating in national and international parties and events in which the licuri is a protagonist. These actions also achieve benefits from an environmental point of view, since that it awakens the sense of belonging in extractive farmers regarding the preservation of licuri palm.

Cattle farming was presented as harmful to the preservation of licuri, both in a cultural and environmental sense, as it is a financially more attractive activity, which is confirmed by Brazil (2017b). It is worth noting the existence of legal mechanisms to deal with threats to the species, such as the elevation of licuri to the status of biocultural heritage in Bahia.

PJ2, PJ3 and PJ5 pointed out that there was once the bottleneck of water scarcity, which for a long time characterized the Semi-arid Region, as affirms Seyffarth and Rodrigues (2017). However, currently, communities have a sufficient supply of water through cisterns or piped water, which is essential for the production process.

A relevant aspect in an economic, sociocultural and environmental sense, mentioned by PJ3 and corroborated by Santos (2017), is the development of social technologies for application in the licuri production chain. This provides opportunities for resources to be improved and shared by various communities, strengthening the licuri chain. Noteworthy is the functioning of PJ3 and PJ5 under the pillars of the Solidarity Economy, with social and cultural scopes that favor modes of collective action, according to Gaiger (2014).

## 5th Stage: Public Policies

Only PJ1 said that has participated in conversations about the Geographical Indication of licuri for the Semi-arid Region of Bahia. However, the other interviewees showed interest in taking part in these discussions. With the exception of PJ4, the interviewees presented an unrealistic view about GI, as they only pointed out benefits in the implementation process, such as the improvement and standardization of quality parameters, product valuation and dissemination at national and international level.

In reference of the legal (legislative and regulatory) and institutional framework, which allows for the recognition and protection by a GI of the licuri for the territory, it was informed by all the interviewees that there is no specific tool. However, the existence of Public Policies aimed at strengthening the licuri production chain was mentioned, which, in fact, is essential to consider the application for registration of a GI.

PJ3 pointed out that the implementation of public actions allowed a certain measure of development for the licuri chain, despite not being exclusive to this one, such as the continuous supply of water and energy in the communities, implementation of policies such as the Food Acquisition Program (Programa de Aquisição de Alimentos PAA). For PJ2, PJ3 and PJ5, some municipal governments do not act satisfactorily in favor of this chain, acting, above all, in a compulsory manner, in compliance with programs instituted by the Federal Government.

The Bahia Produtiva Project was identified as the only public policy that allocates part of its resources exclusively to the licuri chain. This policy is under the responsibility of PJ1 who reported the crucial role of this stage in strengthening the chain and the amplitude of its positive actions, from the collection of raw materials to the final distribution of licuri-based products. Thus, producers have obtained support with machinery, equipment, civil works, training, technical assistance and support for marketing, in order to bring these products to the market.

PJ2 emphasized the importance of policies being implemented in a way that their potential is fully exploited and, *a posteriori*, allows autonomy to the producing entities. The interviewees reported PJ4's support for private companies and cooperatives that benefit licuri through capacity, training and organic certification and trademark registration processes, operating in this area as a public policy.

## Diagnosis-Based Improvement Propositions

It is essential to define which product would be more interesting to apply for GI registration, whether licuri oil or its licuri nuts, and, based on that, devise the necessary strategies. There are indications that licuri nuts would be the most interesting product, as it reaches a greater number of

beneficiaries along the value chain. So, it is necessary to create a working group with the predominant involvement of internal actors to discuss the viability of the GI implementation process for the Semiarid Region.

After the formation of a working group, the elaboration of the product specification to be registered is essential, guaranteeing the participation of local actors in establishing the 'rules of the game'. Thus, achievable standards must be defined.

It is necessary to establish the geographic delimitation of the GI, as it is one of the criteria for applying for this registration, according to Brazil (2018a). There is the possibility of delimiting the entire Semiarid Region of Bahia, since there is a culture of licuri with knowledge shared throughout the region, or even defining an area within this that encompasses the cities where there are entities that are more articulated with each other and with a more entrenched culture.

Cattle farming, identified as a threat to the licuri production chain, affects the environmental and economic sustainability of this chain, as it leads to deforestation and the possible extinction of licuri palm. The solution to this obstacle involves a process of continuous awareness and inspection by the public authorities, especially the municipal authorities, to ensure compliance with the various existing laws aimed at protecting this species.

To stimulate wholesale sales, it is necessary to improve divulgation strategies. Although there are some federal and state programs that aim to make production flow on a larger scale, it is necessary to encourage wholesale trade.

One aspect to be resolved is the contribution to quality control, which requires a well-established laboratory structure for constant monitoring by the producing entities, which can be implemented from the Bahia Produtiva Project, which is already under development.

As for the devaluation of licuri, it is interesting to strengthen the association between the licuri and umbu chains. This Local Productive Arrangement (APL) will allow greater diversification of production and, thus, long-term economic sustainability, which is essential to enable a GI implementation process.

One of the strengths observed is the existence of well-organized collective entities, which even form mutual partnerships for the commercialization of their products. However, greater integration is needed between the actors, who have shown themselves willing to unify interests and join forces, considering that currently each entity has very individualized processes. From there, it is possible to define who will be responsible for requesting the register as a representative of the others.

Although PJ2, PJ3 and PJ5 have their own brand, a collective brand could be created initially and the registration of organic certification could be carried out, concurrently with the validation of the know-how, since the successful registration of the IG requires that the identified lacuna are remedied. The table below provides a summary of the obstacles and opportunities identified in the licuri production chain.

**Table 2:** Synthesis of the diagnosis of bottlenecks and proposals for improvement

Dimension of the Origin-Linked Quality Virtuous Circle	Diagnosis of bottlenecks or opportunities	Proposed Strategies
IDENTIFICATION OF LOCAL RESOURCES	The socioeconomic importance, culture and know-how establish the link with the Semiarid Region.	–
	Licuri has market potential and notoriety.	–
	Disagreements on which product stands out the most in the licuri	Create a working group to define the most advantageous product to be claimed by the GI.
	The Territories of Identity: Bacia do Jacuípe, Piemonte da Diamantina, Piemonte Norte do Itapicuru and Sisal.	Conduct discussions between the producing entities and other actors for the geographical delimitation of the production area in favor of the potential implementation of the GI, paying attention to the non-exclusion of small producers who wish to participate.
PRODUCT QUALIFICATION	Lack of standardization regarding the procedures to carry out the quality control of products.	Prepare the Technical Specifications Book with the production rules that guarantee the quality of the product and are achievable by small producers, with representatives from all phases of the Origin-Linked Quality Virtuous Circle
	Lack of laboratories for monitoring microbiological and physical-chemical parameters	Build and equip laboratories for those monitoring.
REMUNERATION	Lack of Strategies to Leverage Wholesale Sales.	Develop marketing plan for dissemination and wholesale sales.
	Licuri devaluation	Policies aimed at giving outflow to production on a larger scale.
		Strengthening the productive arrangement between the licuri and umbu chains, as a management strategy aimed at local development.
	Producing entities have their own brand, individual packaging and labels.	Working on collective trademark registration and organic certification.
LOCAL REPRODUCTION OF RESOURCES	Existence of well-organized collective entities, which even form partnerships among themselves for the commercialization of their products.	Define who will be the representatives to act in favor of collective interests.
	Extractivists follow good management practices, with organic sustainable extractivism.	–
	Threat of extinction brought about by cattle farming.	Implement an ongoing process of awareness and effective inspection by the government and integrated rural development policies.
PUBLIC POLICY	Little knowledge about GI	Actions for discussions and dissemination on the topic Geographical Indication.
	Ensuring the continuity of the effects of the policies that have been implemented	Actions that encourage the protagonism and autonomy of communities.
	Little action by municipal governments	Engagement of municipal governments in complying with policies implemented by other government bodies and developing others of municipal initiative.

Source: Prepared by the authors based on data collection (2021).

## Conclusions

The present study reached the objective of identifying the potentialities of licuri being the object of a Geographical Indication implementation process for the Semi-arid Region of Bahia. This potential is due to the species' representativeness for the region's culture, as well as the notoriety of the Semi-arid Region as an extractive center and a licuri producer. It was found that throughout the territory of the Semi-arid Region of Bahia, this culture is present and that there are cooperatives that are well-organized and articulated among themselves, capable of intensifying a positive engagement in strengthening the production chain and in enabling the GI of licuri. The sense of belonging of the communities was observed, with emphasis on women extractivists in the region.

The research had the limitation of not precisely defining the geographic area of a potential GI for the Semi-arid Region. Thus, studies that focus on geographic delimitation are of great value.

However, all the evidence of natural and human factors related to the culture of licuri, it was observed that, when the weaknesses pointed out in the results are remedied, the most viable GI modality will be the Indication of Source. This recommendation is established based on the confirmed notoriety requirement and because it is more feasible to the reality of the licuri culture. From this perspective, there were historical and market evidences that prove that the geographic name analyzed is recognized by producers and consumers as an extractive and processing center for licuri.

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