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Sustainable Practices in the Production Process of Organic Cachaça: Case Study

Práticas Sustentáveis no Processo Produtivo de Cachaça Orgânica: Estudo de Caso

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Abstract

Organic cachaça is produced with raw materials grown without the use of pesticides or fertilizers, and with production processes that do not use chemicals such as acidifiers, anti-foaming agents, or supplements to speed up the process. Furthermore, the organic production plant reuses and redirects waste such as bagasse, vinasse, heads, and tails for reuse to reduce environmental impacts. The objective of this study was to describe the production process of an organic cachaça distillery, emphasizing sustainability practices, and to identify non-compliances according to Regulation No. 32/2010. To this end, observational, qualitative, and descriptive research was conducted based on a questionnaire, and a checklist was developed and adapted from the model provided by the aforementioned regulation to assess the production structure. At this company, the entire physical structure complied with thelegal requirements. Non-compliances classified as documentary and organizational flaws were identified, such as lack of good manufacturing practice documentation, lack of personal cleanliness, lack of activity flowcharts, and lack of proper division of activities among employees. Among the production characteristics, the facility's organic sugarcane cultivation stands out; in addition, the waste generated in the process was used for other activities. The results demonstrated the need to employ best practices to ensure product quality despite the sustainability practices adopted.

Keywords: Process. Environmental Impacts. Good Manufacturing Practices.

Resumo

A cachaça orgânica é produzida com matéria-prima cultivada sem o uso de agrotóxicos ou fertilizantes, e com processos de produção nos quais não se faz uso de produtos químicos como acidulantes, antiespumantes ou suplementos para acelerar o processo. Além disso, a fábrica destinada à produção orgânica reutiliza e redireciona resíduos como bagaço, vinhaça, cabeça e cauda para reaproveitamento visando reduzir os impactos ambientais. O objetivo deste trabalho foi descrever o processo produtivo de uma cachaçaria de produção orgânica, enfatizando práticas de sustentabilidade, e identificar as não conformidades de acordo a Normativa n° 32/2010. Para isso, foi realizada uma pesquisa observacional, qualitativa e descritiva a partir do preenchimento de um questionário, e um *checklist* que foi elaborado e adaptado modelo previsto na referida normativa para avaliar a estrutura de produção. Nessa empresa, toda estrutura física estava de acordo as exigências legais, não conformidades classificadas como falhas documentais e organizacionais como: inexistência de documentos de boas práticas de fabricação, limpeza pessoal, fluxograma de atividades e divisão delas entre os colaboradores foram encontradas. Dentre as características de produção pode-se destacar o cultivo de cana-de-açúcar orgânica na propriedade; além disso, os resíduos gerados no processo foram destinados para outras atividades. Os resultados demonstraram que é preciso empregar as boas práticas para assegurar a garantia da qualidade do produto apesar práticas de sustentabilidade adotadas.

Palavras-chaves: Processo. Impactos Ambientais. Boas Práticas.

1 Introduction

Cachaça is a typical Brazilian drink, obtained through the distillation of fermented sugarcane juice, whose alcohol content varies between 38% and 48% in volume at 20 ºC. According to Ordinance No. 539, of December 2022 (Brasil, 2022), cachaça is classified according to the production method into: industrial (or column) cachaça and still cachaça, which has as its main characteristic the use of a copper still in the distillation process. Alambique cachaça is usually produced on a smaller scale from manual or semi- mechanized processes and it is attributed greater sensory quality.

Despite existing records of cachaçarias with organic production, the current legislation does not have a definition for "organic cachaça". In this case, law nº 10.831 of December 2003 must be considered, which describes that an organic production system can be considered one whose purpose is to offer healthy products, preserving biological diversity, with activities that increase and promote the correct use of the soil, water and air, using methods that maintain the integrity and quality of the products (Brasil, 2003). The organic production seal is conferred by the SISorg (Brazilian Organic Conformity Assessment System), which verifies and checks the conformities and non-conformities of a factory and the associated processes to prove and identify certified products. There are three ways to authenticate the product: audit certification, participatory system and social control of direct sales (Organicsnet, 2020).

Therefore, it can be said that organic cachaça meets the quality standards described in ordinance 539 of December 2022 and uses a process for obtaining raw materials and production in which

chemical products are not used (agrochemicals and chemical fertilizers in the cane field or acidulants and antifoam) to accelerate or control its production chain, from structure to obtaining the final product.

In addition to meeting the standards of organic production, organic cachaça must also meet the requirements established in Ordinance No. 539, of December 2022, of MAPA, which deals with the standards of identity and quality of cachaça (Brasil, 2022). In addition, in 2005 the RAC - Cachaça Evaluation Regulation was created from which a quality seal was created with the objective of recognizing, adjusting and identifying cachaça produced correctly. Thus, small producers would have subsidies to compete with brands that eventually have been on the market for a longer time. This program is fundamental, as it allows product traceability, in addition to being an aid in relation to formalizations and records, process control and quality of the final product (INMETRO, 2005).

The implementation of sustainability practices in cachaça factories can improve the performance of the product commercialization (Worthington; Patton, 2007), considering the consumers' growing niche demanding products generated from companies with social and environmental awareness. According to the United Nations Industrial Development Organization - UNIDO (2002) and Paulo *et al*. (2025), various environmental actions can generate financial returns, highlight the cleaner production (CP), as an efficient approach to improving economic and environmental performance. These strategies are based on preventive and integrative tactics that can be applied throughout the production process to: increase productivity by providing the most efficient use of water, raw materials and energy, promote greater environmental performance and reduce environmental impacts, which improves the company's image in the market.

Studies such as Khalili *et al*. (2015), Santos *et al.* (2022) and Machado, Cutrim, and Soares (2025) reinforce that CP directly contributes to achieving sustainable development objectives because, by promoting more efficient and less polluting production processes, it strengthens occupational health conditions and the brand's positioning among conscious consumers.

Considering the demands of the consumer market and the relevance of cachaça production in Brazil, it is important to analyze the opportunities and challenges of the sector, since the consumer market is influenced by several factors such as personal taste, tradition, quality, variety, price and availability of the product. In addition, the producer has been looking for ways to deliver a product

with greater added value, as there is a growing niche of internal and external consumers who are looking for differentiated products, with quality and that, in fact, show the producer's identity. However, there is still a lack of relevant information that helps in decision-making and the creation of new businesses, so research is needed in this area to develop strategies that can contribute to the strengthening of the cachaça production chain, thus generating more knowledge and value to the product consumer,and therefore enabling greater competitiveness with other beverages in the Brazilian market.

Studies involving the production of organic cachaça are still scarce, and therefore the objective of this work was to analyze and describe practices of the productive process of organic cachaça, techniques and difficulties, identifying possible adversities and non-conformities of the process that could lead to loss of quality and standard of the products.

2 Material and Methods

This work has a qualitative, descriptive case study to understand the internal practices related to the production process and quality control, focusing on an organic cachaça producer located in Zona da Mata – Minas Gerais, Brazil. Qualitative research is a set of practices that transform the visible world into representative data, and can be conducted in its natural environment, with the researcher as a data collection instrument (Creswell, 2010).

Data collection was carried out in August 2021 during a two-week technical visit to the production unit, where the organic cachaça production process was monitored, along with information collected from the owner and five company employees, in addition to the recorded direct observation. For this, the case study method was used, which is an investigation that examines a phenomenon in depth, to clarify context and phenomenon.

The unit studied has organic compliance certification (Figure 1) issued by an organization accredited by MAPA, where IMA (Instituto Mineiro de Agropecuária) was responsible for managing the certification process, attesting that the processes follow technical criteria such as exclusive use of organic sugarcane, sustainable practices, waste control and traceability at all stages of production.

Figure 1 - Organic production certificate


Certificado de Conformidade

Nº 508/163

Com base em auditoria, o IMA, por meio deste, certifica que o(s) produto(s) abaixo listado(s), atende(m) aos requisitos para produção orgânica.
Based on an audit, the IMA hereby certifies that the product(s) listed below meets the criteria for organic production.

Cliente / Customer: Cachaçaria [
Estabelecimento / Property: Fazenda Barra do P
Endereço / Address: Br 482 – K antigo KM 58 - Zona Rural Cep: 36480-000
Município / County: Piranga - MG
Coordenadas Geográficas / Geographic Coordinates: S - 20°41'11.51" – Wo - 43°23'12.07"
Escopo / Scope: Produção Primária Vegetal –PPV / Processamento de Produtos de Origem Vegetal (PPOV)
Área / Area: 3,55 Hectares
Data de emissão / Date of issue: 08/10/2020
Normas / Standards: Lei Federal 10.831/2003; Decreto Federal 6323/2007; Instruções Normativas 18/2009 MAPA/MS; 19/2009 MAPA/MS; 46/2011 MAPA; 24/2011 MAPA/MS; 02/2013 MAPA; 17/2014 e 18/2014.
Produtos / Products: Cana-de-Açúcar, Cachaça.
Validade / Validity: 07/10/2021

Diretor - Geral
Instituto Mineiro de Agropecuária

Source: provided by the owner (2025).

This certification guarantees that the entire sugarcane production process is sustainable, meaning that it does not use pesticides, chemicals, or additives. With this certification, the company gains authorization to use Brazil's official organic product seal (Figure 2), granting legitimacy to the product in the consumers' eyes .

Figure 2 - Organic product seal.

Source: Organic Intelligence Center – CI Orgânicos (2025).

The certification documentary evidence was provided by the company, validating the exclusive use of organic raw materials and the adoption of sustainable practices throughout the production process. During the study, information on agronomic soil management was obtained through an interview with the owner, who is responsible for production, as well as from the documentation submitted with the organic certification.

The evaluation of the organic cachaça production structure was carried out by completing a *checklist* (Table 1) prepared based on the requirements of Normative Instruction Nº 32 (Brasil, 2010), which deals with production processes in Annex XVI - report of inspection, with adaptations, in which

it must meet the requirements described in Ordinance No. 126, of June 24, 2005 (INMETRO, 2005).

Table 1 - *Checklist* for the evaluation of the production structure of organic cachaça using the model of Normative Instruction Nº 32 (Brasil, 2010), with adaptations

Quality Control and Traceability of Products	**W**	**Nc**	**At**
Good Manufacturing Practices Program - GMP			
Integrated Pest Control Program – CIP			
Means for quality control according to the official parameters established in the PIQs			
Means for quality control of raw materials and ingredients from suppliers			
Means for production records and stock movement			
Means to control the traceability of product batches			
Do you wear a uniform suitable for the activities?			
Personal cleanliness (washing hands, short nails, no shaving, protected hair)			
Do you wash your hands before starting an activity and during the process?			
Pops and Guidelines for proper hand washing			
Hygiene guidelines that you should not sneeze or cough inside the process rooms			
Correct equipment for the production line (vaults)			
Equipment in good condition			
Impermeable and non-contaminating utensils and equipment? (stainless steel, and copper)			
Each sector has a person in charge, avoiding cross-contamination			
Location free from undesirable odors, smoke, dust and other environmental contaminants			
Means to control and prevent the access of rodents, insects, birds and environmental contaminants			
Internal traffic routes			
Waste storage system before disposal			
Effluent and wastewater disposal system			
Place to store hygiene and cleaning products			
Availability of clothing for carrying out the activities			
Temperature recording devices in refrigerated places			
Correspondence with the Industrial Plant and the Descriptive Memorandum of Facilities and Equipment			
PPHO Water Availability of potable water for handling and preparing products			
Potable water tank			
Availability of separate pipes for potable and non-potable water			
Drinking control system			
Dressing rooms, bathrooms and other facilities			
Lighting System			
Ventilation system			
System for capturing and draining liquids (channels, siphoned drains , etc.)			
Availability of a water point for cleaning operations			
Sinks equipped with elements for washing and drying hands			
Hand washing warning sign			
Space for carrying out operations			
operations flowchart			
Floor			
Walls and Ceiling			
Doors, Windows and other openings			
electrical distribution network			
Equipment, containers and utensils			
Raw material unloading location			
Selection and disposal system			
Means to avoid the accumulation of polluting gases during loading and unloading operations in the section			
Raw Material, Ingredient, Container, Container Seal And Label Section			
Means of transport			
Refrigerated place for storage of raw materials and ingredients that require controlled temperature			
Container Washing and Rinse Section			

Means to control and prevent the access of rodents, insects, birds and environmental contaminants			
Availability of a water point for cleaning operations			
Section hygiene and disinfection program			
Use of potable water in carrying out operations			
Hot wash equipment functionality			
Functionality of cold washing equipment			
Water reuse system in the container washing and rinsing process			
Container constitution material			
Safety of containers regarding the risk of transmission of undesirable substances to the product			
Control of the entry of materials into the section: packaging, lids, utensils, etc.			
Container inspection system after washing and rinsing			

C - Compliant; NC - Non-compliance; NA - Not applicable.
Source : research data.

Sanitary quality control, applied to the production of organic cachaça, was evaluated with the aid of the questionnaire presented in Table 2, developed based on Law nº 10.831, of December 2003, which deals with organic production and Ordinance Nº 126, of June 24 of 2005, which deals with the regulation of conformity in the process of obtaining cachaça (Brasil, 2003; INMETRO, 2005). The questionnaire was administered to five company employees directly involved in the production process. The questionnaire was administered through on-site interviews conducted in the workplace, ensuring real-time observation of operational practices. The questionnaire contained 33 questions distributed according to the cachaça production process, sugarcane cultivation, milling, fermentation, distillation, traceability management, waste management, and good manufacturing practices. The questionnaire aimed to understand and obtain information about the process and quality control methods through transcribed responses, organized into categories and findings. This study was approved by the ethics committee under CAAE: 57221222.1.0000.5153.

Table 2 - Questionnaire designed to control the quality of organic cachaça production

1-	Which product is certified organic?
2-	What are the difficulties maintaining the process? And the product?
3-	Is sugarcane received with many impurities? Ex : Earth, straw.
4-	Does the cane have good thickness?
5-	How tall is the sugar cane?
6-	What are the sugar cane buds like?
7-	Does the sugar cane have good sanity? Free from disease and pests ?
8-	What type of cut is carried out in the cane field? Manual or mechanized?
9-	After cutting, does the sugarcane field receive any treatment? Irrigation, fertilizer.....?
10-	What is the time between harvesting and processing?
11-	Is the quantity compatible with the structure?
12-	How is the cane transported? What is the distance between the cane field and the factory?
13-	What type of mill? Is it sanitized? How?
14-	After milling, does the juice pass through a sieve?
15-	What type of yeast is used and why?
16-	Preparation time for the foot of the tub
17-	Form of process control and what is controlled?
18-	Fermentation duration time
19-	Do you use any additives or compounds to speed up or control the process?
20-	What are the utensils and what is it made of, for fermentation?

21-	How is the broth transferred during the process?
22-	What is used as a heat source for distillation? And by what material?
23-	Which instrument is used for steam generation?
24-	Do you quantify the alcohol in the fermented broth?
25-	Does distillation separate fractions? Head, tail and heart?
26-	Do you carry out any tests on the cachaça at the factory?
27-	Does the establishment register the process? What is registered?
28-	What is done with the waste generated? Water, yeast, bagasse, vinasse, head and tail.
29-	Is there on-site cleaning?
30-	Are the pipes cleaned?
31-	Is the equipment cleaned?
32-	Is there identification of each sector?
33-	There is a responsible for each sector

Source: research data.

Data were analyzed using the content analysis technique, which assimilates a set of communication analysis strategies, employing systematic procedures and objectives for describing the messages content (Bardin, 2011).

3 Results and Discussion

3.1 Characterization of the factory structure

The factory structure was compliant, according to the parameters established by Ordinance No. 126 (INMETRO, 2005). The establishment was built with easy-to-clean finishes, has window protection against rodents and has physical separation and continuous flow for different stages of the process, avoiding manipulation of two stages in the same place, which could lead to cross-contamination or mixing of components. In compliance with the ordinance mentioned above, the site has an isolated place for the disposal of vinasse, one of the residues generated in the process.

The equipment and utensils used during the process were made of stainless steel, resistant to corrosion, easy to clean and disinfect. Each section of the process used its own equipment, shown in Figure 3. In the reception and grinding section, the presence of a mill (mill) and a rotating sieve that filters the broth was observed, thus allowing a smaller amount of impurities for the decantation stage. In the fermentation section, the presence of stainless steel vats was observed, and in the distillation section, the presence of a stainless steel reception box, a copper still and a stainless steel distiller were observed, in which the production of fuel alcohol was carried out using the residues generated during the distillation to obtain the cachaça. The traffic carried out between the sections used stainless steel and gravity pipes, thus avoiding energy consumption. To monitor the production process of organic cachaça, the company had measuring equipment such as a thermometer, saccharimeter and alcoholometer.

Figure 3 – Types of equipment present in the structure of the factory for the production of organic cachaça

Milling section: Milling (mill) (A); rotating sieve (B); decanter (C) ; Juice standardization section: Stainless steel vat (D) ; Fermentation section: Stainless steel vat (E and F) ; Distillation section: Still (G), stainless steel column (H) ; Steam generation: Boiler (I) ; Energy generation: Solar panels + solar battery (J)
Source: the authors.

Equipment maintenance and cleaning were carried out before the beginning of the harvest and when there was a need for cleaning, with no schedule for carrying out these activities, except for the fermentation and milling vats. The mills were sanitized every day at the end of the activities with a high-pressure pump, allowing for greater cleaning of the mill; the vats were washed manually, at each fermentation cycle, with multipurpose sponges; the alembic was cleaned up to twice a week with lemon juice, steel wool and neutral soap; to rinse the utensils, a high-pressure pump was used; running water and steam passed through the pipes at each fermentation cycle.

3.2 Quality management

Quality control in cachaça production should be understood as the set of measures and actions aimed at standardizing technological processes and ensuring the product's sanitary and sensory safety. Thus, quality management aims to maintain production that minimizes costs and offers consumers a product of sensory quality. For this to happen, it is necessary to systematize, raise awareness, train and monitor the production process.

In this case, several non-conformities were observed, namely:

- There was no adequate hygiene of the employees' hands among the fermentation, distillation and milling sectors: cleaning was irregular and incorrect when used. Hand hygiene must be regular during the production process, or whenever you touch a surface or come into contact with products, for example; Employees must wash their hands whenever: touching their mouth, eyes and nose, carrying out activities in different sectors. Examples: the same

employee who was in the milling section moved to the fermentation section to feed the vats; the same employee who was feeding sugarcane bagasse into the boiler went to the fermentation or distillation section with bagasse residue in his or her suit.

Hand cleaning must cover all parts, and remove objects present in them, such as watches, rings and bracelets, the employee must wash their hands with soap, and lather the entire palm of the hand between the fingers, and exposed parts of the arms, keep nails trimmed, rinse and dry with paper towels, hands must be washed in sinks exclusively for this purpose, in addition, the use of 70% alcohol is recommended, as it acts against bacteria and fungi and denatures cellular proteins (Lopes, 2024 ; Word, 2009;).

- Employees in the fermentative sector, the "clean area" of production, did not wear uniforms and caps, although they were available for use.
- Personal Protective Equipment (PPE), such as lab coats and masks, were not mentioned by employees who work in the process to obtain the product, as well as field employees did not mention receiving tools and PPE such as pruning hooks for cutting sugarcane and gloves, hat and shin guards for protection.
- Overload of activities on a single employee, who performed several activities such as: grinding the cane, checking fermentation, carrying out distillation and feeding the boiler to generate steam, which can lead to cross contamination.
- SOPs (Standardized Operating Procedure) were not available for hand hygiene, utensils and equipment accessible to employees.
- It was noticed that during the weekend the vats remained with fermented wine, or without receiving sugarcane juice, which can lead to contamination and cause other problems, such as fermentation with time over 24 hours.
- In production, it was noted that fermentation lasted 72 hours, this occurs due to factors such as fermented wine in the vat for more than 24 hours for fermentation and distillation, which can damage yeast cells that are intolerant to high alcohol concentrations, in addition to the fact that contamination by bacteria from feeding the vats can occur with sugarcane juice that has been waiting for more than 12 hours.
- Absence of an operations flowchart available on site for consultation and review of the process, which is important as it makes it possible to review the steps, allowing the traceability of a problem if it occurs.

Some of the items listed above are easy to correct and can be used in the company, at a reduced cost, and could add value to the process, leading to the generation of higher quality products and processes with greater standardization and safety for employees. Below are the items that can be

implemented:

- Trainning and guidance (use posters, illustrative images, etc.) employees on hygienic care within the clean areas of cachaça production and correct hand washing and hygiene.
- To provide and require the use of PPE and uniforms for employees, and offer awareness actions about their importance.
- To invest in hiring employees and their training. By dividing tasks, overloading employees and the occurrence of errors and cross-contamination is avoided. Nunes, Adami and Fassina (2017) and Abranches (2022) described that theestablishments must have quality, that is, well-designed facilities, separate and identified sectors, appropriate utensils, signage and identification of sectors, rational production flow in order to avoid the crossing between clean and contaminated areas, in addition to being maintained in adequate hygiene conditions, as cross-contamination does not only occur with incorrect handling practices, but also through the handlers' uniforms, hands, saliva splashes, and sneezes.
- To perform periodic maintenance of equipment, such as a sugarcane weighing scale, etc.
- To train employees in the use of equipment such as a pH meter, optical microscope and ebulliometer, available at the plant, to monitor and verify parameters such as pH measurement, yeast count and alcohol content during the cachaça production process.
- To update the Good Manufacturing Practices Manual and prepare SOPs . These documents must be prepared; easy to understand and freely accessible to employees for any queries.
- To mapthe production process: Providing the flowchart allows you to identify and track opportunities for improvement. In addition, to carry out the process monitoring record at all stages: milling, fermentation and distillation. For example, in the cachaça factory, the raw material, sugar cane, was received, ground, but no entry and exit record book was identified.
- To carry out activity planning. During the evaluation, it was observed that there was no planning of daily activities, and the lack of organization led to problems such as the process being stopped or delayed for 6 hours or more. Problems related to: sugarcane waiting for extraction undergoes biochemical reactions, with loss of sugars, which favors the formation of the fermentation process inhibitors. Microbiological deterioration caused by the presence of polluting fungi and bacteria that can lead to loss of efficiency and industrial yield. Lack of sugarcane raw material that compromises the process because the vats are left without receiving juice for fermentation, or when the fermented juice is on hold to be distilled (Cardoso, 2020).
- For weekends and long holidays, with no forecast of a fermentation process, it is recommended that the producer remove the fermented wine and put water in the foot of the

vat, so the cells will remain hydrated.

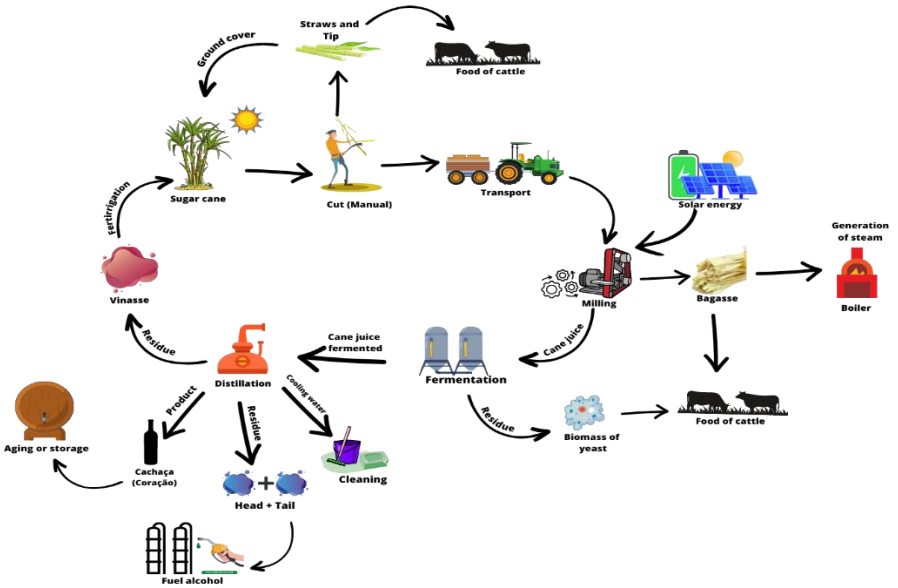
According to INMETRO (2005) the owner of the establishment must have responsibilities that aim at good working conditions, properly care for the environment, carry out quality control throughout the production chain. In addition, it must meet the criteria and procedures defined in the RAC (Regulation for the Evaluation of cachaça), for validating the cachaça conformity.

3.3 Sustainability practices

One of the factors for the denomination for organic cachaça is the sustainability practices developed during the process. The main one is the correct disposal of waste generated by the company. Silva, Maciel and Freitas (2013) and De Souza *et al*. (2021) characterized as waste everything that was generated during the processing stages that go from harvesting to the final product and that cannot be used in human activities.

Figure 4 shows the company's production process flowchart, highlighting the practices adopted for cleaner production.

Figure 4 – Organic cachaça production mechanism – Sustainability cycle



Source: the authors.

As shown in Figure 2, the mill was powered by solar energy, one of the few in Brazil that uses this practice. In addition, it can be seen that the company has an organic production process, as it carries out practices such as: straw and cane tips cut in the sugarcane field are used to feed the cattle or cover the soil of the sugarcane field, the bagasse for steam generation is used in the process for distillation of the fermented must, the water used to cool the vapors in the distillation is reused to

clean the factory floor, the vinasse is destined for fertirrigation of the cane field present in the locality, the head and tail fractions of the process are used to generate fuel for the factory itself, the yeast (yeast biomass), when not reused in the process, is used to feed cattle.

It can be noted that the company uses raw material planted and harvested on its property, without the use of chemicals and pesticides in its development, thus resulting in an organic raw material. However, sugarcane with thin thickness, different sizes and small buds was observed (Figure 5 a,b) even with the use of vinasse and bovine manure, which were not enough, as nutrients, to meet the needs of the crop in addition to health affected (Figure 5c) because the use of chemicals in pest control is not allowed in organic crops.

Figure 5 - Morphological characteristics of post-harvest organic sugarcane.

Organic sugar cane (a) and (b); affected health of organic sugarcane (c).
Source: author, 2021.

Cultural treatments, such as: weeding and pest control, were not mentioned, which according to CHBAGRO (2020) is necessary for a good sugarcane development. Cardoso (2020) describes that after each cut, care is needed in the culture to maintain good yields, because with each cut, over time, the sugarcane field loses productivity. CONAB (2015) and Soares Filho andSoares (2023) reported that sugarcane productivity is related to soil, agronomic, management and climatic factors such as: temperature, solar radiation, water availability, as it is a tropical plant which requires temperatures above 22 °C for its development.

4 Conclusion

It can be concluded that with the data obtained from the applied questionnaire and *checklist* , it was possible to describe the organic cachaça production cycle and its characteristics such as sustainability practices that involve reuse of waste, in addition to the non-use of chemical products during obtaining the raw material and process in order not to compromise the certification obtained by these methods.

However, it was clear that in view of the verification carried out, the factory does not comply with good manufacturing practices in relation to documentation records and task distribution, which may lead to a product outside the health and safety quality standards required by law. Therefore, it is

important to make the necessary corrections in quality management.

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