



## FROM LEAF TO CUP: CRITICAL POINTS OF HALAL COMPLIANCE IN ARTISAN TEA

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### ABSTRACT

Tea is the most popular beverage in the world. In recent years, artisanal tea has gained popularity due to creative blends of tea leaves with natural ingredients like herbs, fruit, and spices. The production of artisanal tea is largely based on plants; however, the various stages of production present critical control points that could affect halal. This research used a descriptive-qualitative approach, direct observation, interviews from producers, literature review, and a decision-tree assessment from LPPOM MUI, combined with hazard analysis and critical control points (HACCP) system principles. The results indicate that while the main raw materials (green tea, mint leaves, and cardamom) are natural halal products, critical control points occur during manual mixing, packaging, and keeping the product dry. Across the packaging materials, plastic pouches and nylon teabags had the highest risks of non-halal additives or migrating contaminants, while glass jars were considered safe. The outcomes suggest that comprehensive halal assurance systems need to be implemented for not just raw materials and the production process, but also packaging and distribution. These efforts are necessary not only to protect the halal integrity for a Muslim consumer, but to improve competitiveness in the halal domestic and global markets.

**Keywords:** Tea, Artisan Tea, Halal Critical Points, Halal

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### INTRODUCTION

Tea is one of the most popular beverages in the world (Debnath et al., 2021; Sanlier et al., 2018), and has a long history of crossing cultural and traditional bounds (Bohne, 2021; Pan et al., 2022). Tea, including green tea, black tea, and oolong tea, is one of the most commonly consumed beverages as well as a daily necessity in many countries (Pan et al., 2022), and has been integrated into the culture of different ethnic groups. The rising world interest in tea can be attributed largely to the regular use of tea among people of all races and cultures. The world consumed 6.63 million tons of tea in 2021, which is expected to go up to 7.74 million tons by 2025 (ITPC Osaka, 2022).

Indonesian society also has a variety of unique tea drinking traditions. Almost every region has different tea drinking traditions, both in terms of how it is served and the type of tea served. The trend of consuming tea as a herbal drink has increased since the COVID-19 pandemic, where there has been a shift in lifestyle, along with an increase in public awareness of healthy living (Budiyoko et al., 2024). This condition affects the amount of domestic tea consumption. Based on data from the Indonesian Tea and Cinchona Research Center (2022) In 2022, the total per capita tea consumption in Indonesia reached 0.38 kg, with a total consumption volume of nearly 100 tons. Between 2011 and 2020, there was a 3.68 percent increase in per capita tea consumption. This data shows that tea is still one of the most widely consumed beverages by Indonesians, even though, when viewed macroeconomically, the tea industry in Indonesia is considered to be in its sunset phase (Ardiansyah, 2024; Sapto, 2024).

One type of tea that is becoming increasingly popular, especially among young people and tea lovers in Indonesia, is artisan tea. This is because artisan tea offers unique flavors and production

methods, as well as high-quality ingredients. Artisan tea itself is a beverage that combines tea leaves (*Camelia sinensis*) with other natural ingredients, such as flowers, fruits, and herbs or spices (Suprihatini et al., 2021). These non-tea leaf natural ingredients are also known as tisane, which can enrich the flavor of tea leaves and provide a distinctive aroma and health benefits (Budiyoko et al., 2024; Priya & Veeranjanyulu, 2016).

In addition to consumer consumption and preferences, the development of artisan tea is also inseparable from the dynamics of the global halal industry. According to the Global Islamic Economy Report 2022, the halal product market continues to show significant growth, with projections reaching more than USD 2.8 trillion by 2025. In this regard, food and beverage products contribute the largest proportion (Dinar Standard, 2022). This offers artisan tea-based products a strategic chance to break into the international market, especially in Muslim-majority countries. Tracing important halal points from upstream to downstream is one way to improve adherence to halal standards, which is necessary to compete. Therefore, halal analysis of artisan tea has wide-ranging consequences in the context of international trade in addition to being pertinent to satisfying domestic consumer needs

Although made from various plant-based and natural ingredients, artisan tea still has critical points of halal compliance in its production (Jumiono et al., 2023). This is one of the important issues (Zuchrillah et al., 2023), considering that the majority of Indonesians are Muslims, who prioritize the halal and *thayyib* aspects of every food and beverage they consume (Rohim & Priyatno, 2021). The unique and often manual nature of artisan tea production means that the process is not standardized, posing challenges in ensuring halal compliance. The urgency of identifying critical halal points in artisan tea includes: (a) Efforts to identify and control critical points in artisan tea can ensure that the artisan tea products produced by manufacturers meet halal standards, thereby increasing consumer confidence (Atsila et al., 2023; Kristanto, 2022); (b) To obtain halal certification, producers must be able to demonstrate that they have identified and controlled all critical points in the production process (Fuadi et al., 2021; Puspita et al., 2021). In addition, this certification is not only important to meet legal requirements in several countries, but can also increase product competitiveness in the international market (Budiyoko et al., 2022); (c) Identification of critical points is not only important for halal but also for product safety and quality (Kurnia et al., 2023; Mail et al., 2021). A well-controlled process will produce more consistent and safe products for consumption; (d) By understanding critical points, producers can more easily comply with these regulations and avoid legal problems (Rahayu & Yusup, 2022).

Furthermore, studies on critical points of halal certification in artisan tea are also important from the perspective of sustainability and consumer trust. Several studies show that Muslim consumers not only consider price and quality, but also prioritize halal aspects in their purchasing decisions (Ambali & Bakar, 2014; Bonne & Verbeke, 2008). Therefore, artisan tea products that are able to demonstrate compliance with halal standards will be more readily accepted by the market and have competitive added value. On the other hand, producers also benefit from an improved brand image and consumer loyalty.

This study aims to identify and analyze critical points of halal compliance in the artisan tea production process. Information on critical points of halal compliance in artisan tea can serve as literacy for consumers and producers. Consumers can be more careful and selective in consuming artisan tea. Meanwhile, for producers, this can be a concern to ensure that every stage of the production process complies with halal principles. Thus, research on identifying critical points of halal in artisan tea can contribute to strengthening the halal ecosystem in Indonesia, while supporting efforts to make local products more competitive. Consumers can be more careful and selective in consuming artisan tea. Meanwhile, for producers, this can be a concern to ensure that every stage of the production process complies with halal principles. Thus, research on the identification of critical halal points in artisan tea can contribute to strengthening the halal ecosystem in Indonesia, while also supporting efforts to make local products more competitive.

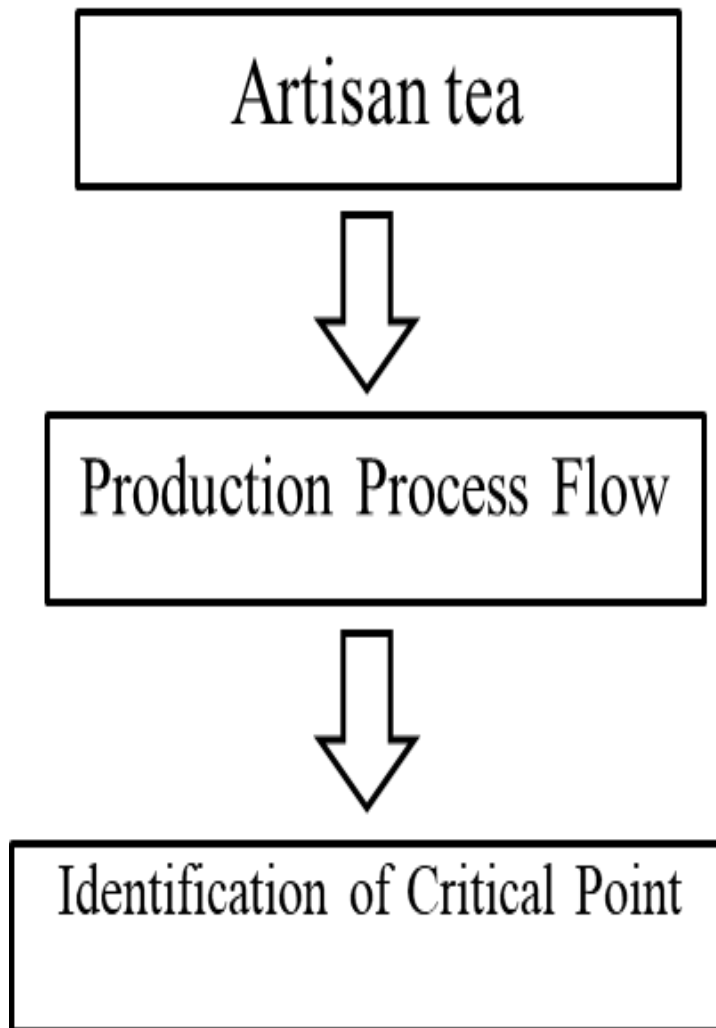
## METHODOLOGY

The research conducted in March-April 2024 in Purwokerto, Central Java, used a descriptive-qualitative approach. This research had two main stages, namely the creation of a flowchart or flow diagram of the artisan tea production process and the identification of critical halal risk points in the



artisan tea production process. The artisan tea product sample studied was Maghrebi dash by Calmantea tea, produced by CV BMB. The selection of tea variants and producers was done deliberately (purposive), considering that the company is one of the artisan tea producers in the Purwokerto area, Central Java Province.

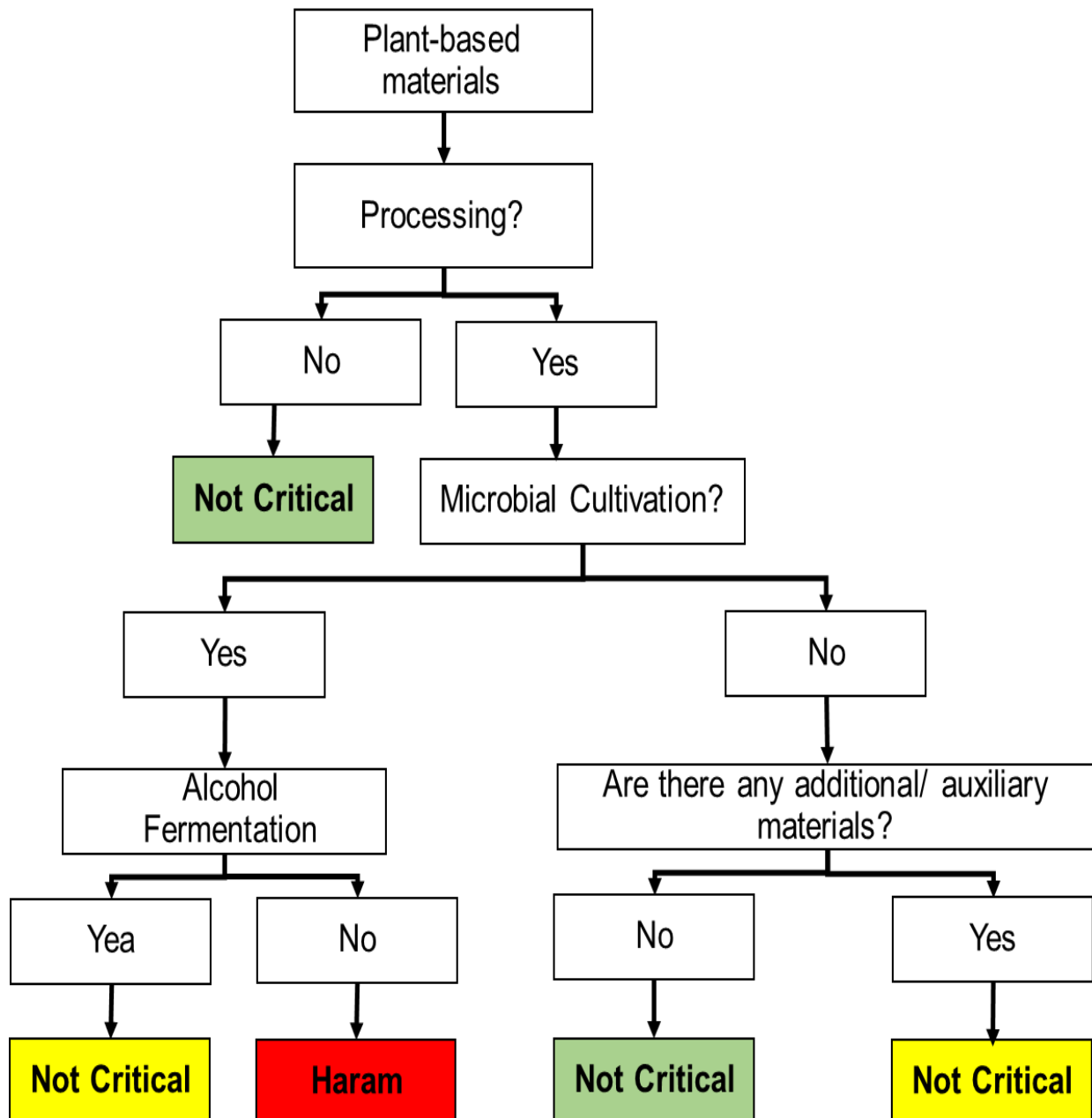
The flowchart of the artisan tea production process was created based on interviews and direct observations with artisan tea craftsmen from CV BMB. This flowchart serves as a template for identifying processes and critical points of halal compliance in artisan tea production. Next, critical halal points were identified and analyzed based on these stages or processes and the plant-based ingredients used in artisan tea production. After that, mitigation and control efforts for these critical points were identified. The stages in the analysis of critical halal points in artisan tea can be seen in Figure 1.



**Figure 1.** Research Flow

In addition to interviews and direct observation, data triangulation was also conducted to enhance the validity of the research findings. This triangulation involved comparing information obtained from producers with academic literature and relevant halal certification guidelines. In this way, the analysis does not rely on a single source of information, but rather obtains a more comprehensive picture of potential critical points of halal. This approach is in line with Denzin (2012) view that triangulation in qualitative research plays an important role in reducing researcher bias while increasing the credibility of research results.

As the ingredients used in the production of artisan tea are products from plants, the identification of critical points of halal compliance will be done based on a decision tree of the Indonesian Ulama Council's Food, Drug, and Cosmetics Assessment Agency (LPPOM MUI) (2008). The decision tree particularly aims at the analysis of plant products based on the source of the ingredients, the processing process, and the possible addition of additives. The model has been applied in several previous studies, such as Jumiono et al. (2023) and Hidayat et al. (2023). The analysis process is carried out in stages based on the source of the ingredients and the processing or manufacturing process. The decision tree for determining critical points for plant-based ingredient halalness is illustrated in Figure 2.



**Figure 2.** Decision Tree for Identifying Critical Points in Plant Materials

Risk identification was also done using the Hazard Analysis and Critical Control Point (HACCP) system as a conceptual basis. Although HACCP is mainly used for food safety, its principles are also suitable for halal analysis because it can monitor possible hazards at every stage of the production process. The dangers of this study are thought to encompass the use of haram substances, contamination, and the inclusion of additives with unknown origins. This is in agreement with the results of Bonne & Verbeke (2008) and Dashti et al. (2024), which emphasize that halal analysis needs to be integrated into food quality management systems for the purposes of achieving consistency, safety, and compliance with halal principles.

## RESULTS & DISCUSSIONS

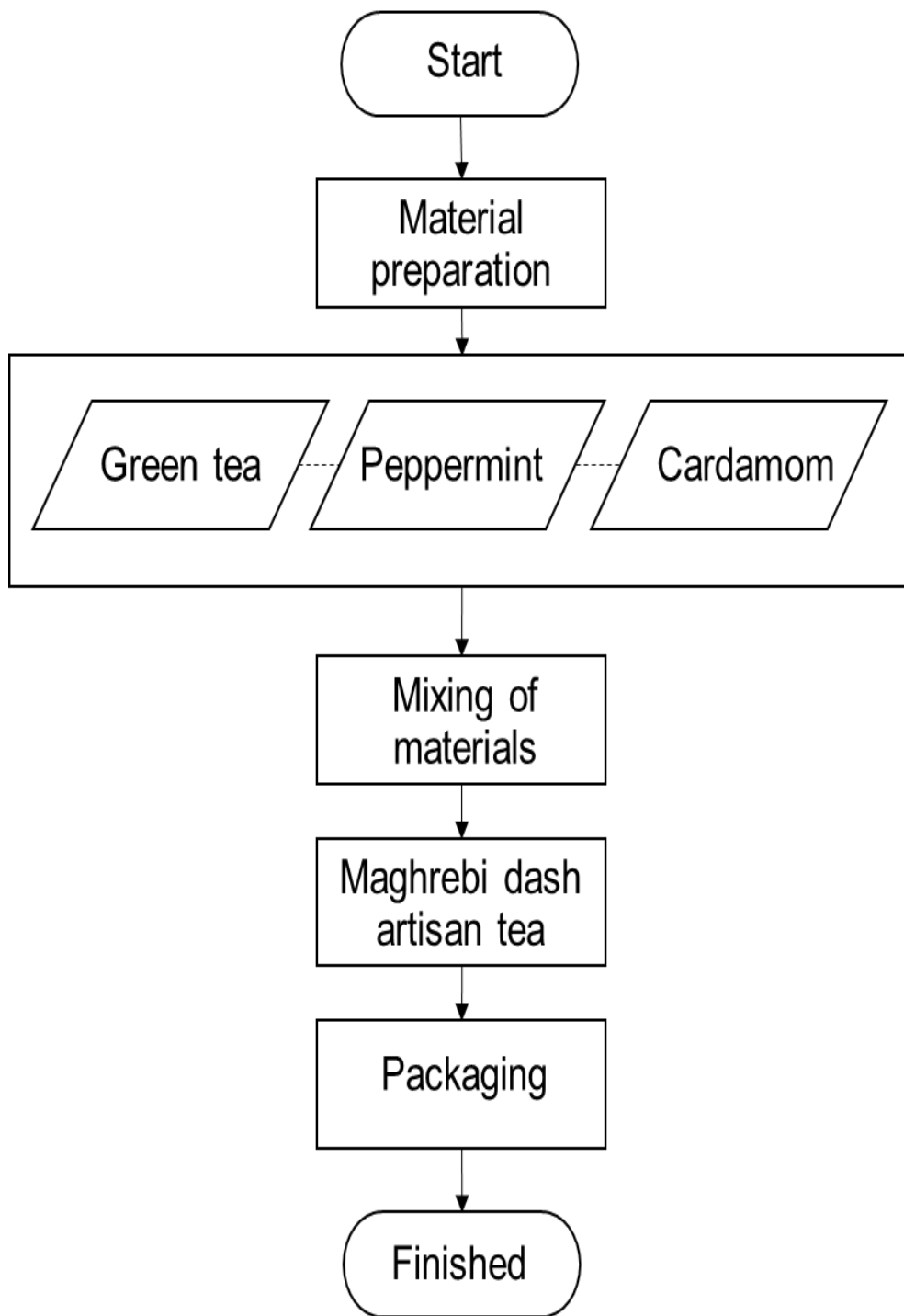
### The Artisan Tea Making Process

One of the fundamental things that distinguishes artisan tea from other types of tea is the raw materials used and the manufacturing process. Artisan tea generally uses premium ingredients, namely pekoe tea leaves, which are mixed with other natural ingredients (Budiyoko et al., 2024; Putri, 2021). The distinctive taste and aroma, attractive appearance, and health benefits offered are added values of artisan tea.



**Figure 3.** Maghrebi Dash by Calmantea in Various Packaging Forms

Maghrebi dash by Calmantea (Figure 3) is one of the artisan tea variants produced by CV BMB. This tea variant combines the benefits of green tea, which is rich in antioxidants (Musial et al., 2020), with mint leaves and cardamom, providing a fresh sensation with a hint of spice aroma. In addition to aesthetic reasons and enriching the flavor, the use of peppermint and cardamom is known to have many health benefits (Cárdenas Garza et al., 2021; Chakraborty et al., 2022; Nayik et al., 2022). In general, the process of making Maghrebi dash artisan tea can be seen in Figure 4.



**Figure 4.** Flowchart of Artisan Tea Production

The first step in making this artisan tea is preparing the ingredients, which are green tea, mint leaves, and dried Indian cardamom. The ingredients are thoroughly dried to keep the moisture content low and prevent microbial growth. After that, the ingredients are sorted to ensure that only the best quality parts are used and cleaned of any dirt or foreign particles that could affect the quality of the final product.



Then hand blending is carried out, and in this case, there is control over the quantities of ingredients, consistency of appearance, and sampling for aroma. No added artificial ingredients such as flavorings and colorings, meaning that this version relies only on the inherent flavors of the ingredients. Blending is carried out in sanitarily clean containers of small capacity to ensure the blend is consistent and in line with the desired range of taste.

After being thoroughly mixed, the artisan tea is then packaged in three main forms, namely tea bags, tea in glass jars, and tea in pouches. Each packaging form is chosen to suit consumer needs, both in terms of practicality and aesthetic presentation. The packaging process is carried out with attention to hygiene and the quality of the packaging materials so as not to affect the taste or aroma of the tea. In addition, the choice of packaging type also serves to maintain the shelf life of the product and provide added value in the form of an attractive visual appearance for consumers.

### Identification of Critical Points for Artisan Tea

The determination of critical points for the quality of Maghrebi dash by Calmantea products is carried out through a series of processes to identify critical points in raw materials, known as Critical Control Points (CCP). This process is carried out from the moment the raw materials are obtained until the product is ready to be marketed. This description is necessary to identify critical points for quality, both in terms of raw materials and the production process.

The main raw materials used in Maghrebi dash by Calmantea are green tea (*Camellia sinensis*) mixed with dried mint leaves and Indian cardamom. These three main raw materials are naturally not potentially haram. Green tea is tea that has undergone a partial fermentation process, which produces a distinctive taste, aroma, and appearance (Chaturvedula & Prakash, 2011). The fermentation process itself does not use fermenters or animal additives, so it can be classified as non-CCP (LPPOM MUI, 2008). Fermentation in green tea production is a series of withering, oxidation, and drying processes so that the natural enzymes in tea leaves (polyphenol oxidase) spontaneously ferment and oxidize the tea leaves.

Furthermore, mint leaves and Indian cardamom are classified as plants or spices included in the positive list of non-critical products (LPPOM MUI, 2008). However, several points must be considered during the production process until the product is marketed. Artisan tea producers need to verify the halal certificates of their dried ingredient suppliers, considering that there are dried spice producers who manufacture more than one product or use third-party facilities that have the potential for cross-contamination between products if non-halal ingredients are also processed in the same production area. The halal certification issued by green tea and herbal ingredient producers is important as a form of validation that there are no contamination or contaminants during the process of picking leaves/herbs until they are packaged and marketed.

In addition, the critical point of halal status for artisan tea ingredients generally lies in additives, such as flavorings or essences (Stephanie & Rahmawati, 2021a). Artisan tea producers need to check the halal status of the flavorings or essences used, especially for synthetic flavorings. This is because synthetic flavorings are usually made from various mixtures of ingredients that are potentially haram, such as solvents containing alcohol. However, Maghrebi dash by Calmantea does not use these additives, making it relatively safe and halal-certified. The strong aroma of mint leaves and Indian cardamom is sufficient to produce a distinctive aroma and flavor without the addition of flavorings.

Furthermore, the production process of Maghrebi dash by Calmantea is carried out manually. Starting from the preparation of ingredients, weighing of raw materials, mixing, and packaging. The critical point in the production process is to ensure that the production area meets good manufacturing process (GMP) standards and that the containers and production equipment are sterile and free from non-halal contamination. Maghrebi dash by Calmantea production uses special containers that have been confirmed to be clean and halal, and the production area does not contain any non-halal products that could potentially cause contamination. Therefore, the production process carried out by CV.BMB is confirmed to have no critical points.

Maghrebi dash by Calmantea is marketed in three types of packaging: plastic pouches, glass jars, and tea bags. The halal status of packaging materials is very important to consider, given that the packaging comes into direct contact with the product. The critical point in plastic packaging stems from the halal status of the auxiliary materials used (Habibah & Juwitaningtyas, 2022). Auxiliary materials



are needed to stabilize the plastic manufacturing process. Some stabilizers have the potential to be non-halal because they are derived from animals, such as pork and beef fat. Non-halal materials in plastic packaging do not have strong polymer bonds, so they have a high potential to migrate/mix with the packaged material (Bizplus.id, 2024; Marangoni Júnior et al., 2023). The plastic packaging used by CV BMB is pouch packaging sourced from manufacturers that have halal certification.

As for glass jar packaging, this packaging product is classified as non-critical because glass production does not typically use animal-based materials as additives. Meanwhile, for tea bag packaging, the types used are nylon and corn fiber tea bags. This type of packaging is popular because it is practical to use. The critical point of tea bag packaging is in its plastic mixture. The two types of tea bag packaging used by CV BMB do not yet have halal certification. CV BMB has difficulty finding information on tea bag manufacturers that have halal certification.

In addition to raw materials and packaging, storage and distribution also play a role in maintaining product halal status. Artisan tea must be stored in dry and cool conditions to prevent microbiological contamination. If stored together with non-halal products, the risk of cross-contamination may increase. Research by Rohaeni & Sutawijaya (2020) confirms that distribution is an important part of the halal supply chain, so control at this stage is essential. The identification of critical points regarding the halal status of Maghrebi dash by Calmantea and efforts to control them can be seen in Table 1

**Table 1.** Identification of Critical Points for the Halal Status of Artisan Tea and Control Measures

Name of Material/Process	Critical Point of Halal Status	Control Measures
<b>Bahan:</b>		
Green Tea	Green tea raw materials are included in the positive list and have halal certification	-
Dried Mint Leaf	Dried mint leaf raw materials are included in the positive list and have halal certification	-
Dried Cardamom	Cardamom raw materials are included in the positive list and have halal certification	-
<b>Tahapan:</b>		
Mixing Materials	The process is carried out manually, posing a risk of contamination from hands or equipment	Ensure that the production area meets GMP standards and that the equipment used is clean and free from impurities
Packaging	The tea bag packaging used does not yet have halal certification	Find and use alternative tea bags that are halal certified
Distribution and Storage	Artisan tea is stored in a dry and cool place to maintain its quality before being distributed to the market. Distribution must also ensure that the product is not contaminated during shipping	Storage and distribution must be monitored to avoid contamination from non-halal ingredients or unclean environments

In relation to other plant-based beverages, the critical factors of halal certification for artisanal tea have some unique features. With artisanal tea, which combines green tea, herbs, and spices, there is not much risk in regard to the main ingredients since all components come from plant sources. Critical points arise with regard to the artisanal tea packaging aspects related to the manual production process and storage in plastic pouches or nylon tea bags. These aspects introduce the risk of cross-contamination and the use of additives from unknown sources that necessitate tighter control than just ensuring all raw materials have halal-derived status.





In coffee products, critical points of halal compliance are more often found in the post-harvest and additional processing stages (Stephanie & Rahmawati, 2021b). Coffee beans themselves are not problematic because they are plant-based, but the roasting process sometimes involves the use of machine lubricants that may not be halal. In addition, modern coffee product innovations such as coffee capsules add complexity because the capsules may contain animal gelatin or synthetic polymers that are not necessarily halal (Faridah & Susanti, 2018; Nazira & Utami, 2025). Thus, although coffee in its traditional form is relatively safe, the development of modern product forms has created new critical points that need to be monitored.

The critical points of halal compliance for herbal beverage products are primarily at the extraction and formulation phase (Roswiem, 2015). The solvent extraction of active compounds from plant materials typically uses alcohol solvents, most notably ethanol. Additionally, the fermentation process used to produce certain herbal beverages also provides the opportunity to create halal compliance issues if not controlled adequately (Alfath, 2023; Majidah et al., 2022). In addition, many herbal products are marketed in capsule form, where the capsule shells contain gelatin that may have been derived from non-halal animals (Herdiana et al., 2024; Zin et al., 2021). Therefore, the critical points of herbal product compliance are more related to process technology and dosage form than to their raw materials. Table 2 shows a comparison of the critical points for artisan tea products with coffee and herbal beverage products.

**Table 2.** Comparison of Critical Points of Halalness in Plant-Based Beverage Products

<b>Beverage Products</b>	<b>Main Raw Materials</b>	<b>Critical Point Potential of Raw Materials</b>	<b>Critical Points in the Production Process</b>	<b>Critical Point of Packaging</b>
Artisan tea	Tea leaves, herbs, dried fruit, spices	Relatively safe (plant-based, dry)	Manual mixing (risk of contamination), equipment hygiene (Jumiono et al., 2023b; Marangoni Júnior et al., 2024)	Plastic pouch, nylon tea bag, packaging ink/glue
Coffee	Coffee beans	Generally safe, risks with synthetic flavors	Roasting is safe, risks to engine lubricants (Ab Talib et al., 2016; Shafie & Othman, 2014)	Plastic, foil, coffee capsules (gelatin) (Faridah & Susanti, 2018; Nazira & Utami, 2025)
Herbal drink	Herbal simplisia, roots, rhizomes, flowers	Relatively safe, risk of alcohol extraction solvents	Extraction/fermentation (ethanol), equipment cleanliness (Majidah et al., 2022; Riaz & Chaudry, 2003)	Plastic bottles, herbal capsules (gelatin)

Implementation of the LPPOM MUI decision tree has proved useful in the identification of significant points of raw materials. However, for process and packaging purposes, interaction with the hazard analysis and critical control point (HACCP) system is required. HACCP enables a more systematic evaluation of potential hazards from both halal and food safety aspects (Bonne & Verbeke, 2008). Through the combination of these two approaches, producers can guarantee the halal compliance, safety, and consistency of their products at once. Furthermore, identifying critical halal points in artisan tea is very important, not only for regulatory compliance but also to increase consumer confidence. With the implementation of a comprehensive halal assurance system covering raw materials, processes, packaging, and distribution, artisan tea products can strengthen their competitiveness in the domestic and global halal markets.



## CONCLUSIONS

The critical points for the halal status of artisan tea products can be seen from two criteria, namely ingredients and processes. In terms of ingredients, all plant-based ingredients used in the production of Maghrebi dash by Calmantea are relatively safe and have no critical points. Meanwhile, in terms of process, the critical points for halal status are found in the stages of mixing ingredients and packaging. The use of hygienic equipment and the cleanliness of the blender are important points to ensure that the ingredients used are not contaminated with impurities or other particles. In terms of packaging, the use of supporting materials such as tea bags has critical points of halalness, especially due to the plastic content in them. This study shows that the critical points of the halal status of Maghrebi Dash by Calmantea artisan tea can be analyzed from the aspects of raw materials, production process, packaging, storage, and distribution. In terms of raw materials, the green tea, mint leaves, and Indian cardamom used in dry conditions are considered safe because they come from plant-based ingredients that are naturally halal. However, the manual production process, particularly at the mixing stage, has the potential to become a critical point if the hygiene of equipment and workers is not optimally maintained.

Packaging is one of the most significant factors in halal critical point analysis. Plastic pouches and nylon-based tea bags may contain additives of unknown origin, while glass jars are relatively safe but still require monitoring of the lid and storage hygiene. In addition, storage and distribution are also critical points that must be considered, especially to prevent cross-contamination with non-halal products. Thus, control of halal critical points in artisan tea must be carried out comprehensively through the implementation of an integrated halal assurance system from upstream to downstream. This effort is not only important to ensure the halal status of products for Muslim consumers, but also provides competitive added value in the domestic and international markets. The results of this study can be a reference for artisan tea producers in improving production standards while strengthening competitiveness in the era of global halal industry growth.

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