

## **Determination of critical control points on the chocolate bar production process in pt. cocoa chocolate, bandar lampung**

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**Submitted: 22-04-2021**

**Reviewed: 23-08-2021**

**Accepted: 29-09-2021**

### **ABSTRACT**

PT. Aneka Coklat Kakao is one of the food industries engaged in the food processing of chocolate products in Bandar Lampung. Chocolate products are processed food that is easily contaminated by microorganisms and processes their production is a risk to food safety, so it is necessary to handle it which is good to prevent this risk. That is the basis of the need for effort supervision of the chocolate bar processing process to minimize the possibility of the occurrence of danger. Hazard Analysis and Critical Control Point (HACCP) is a guaranteed system of food safety based on that hazards can occur at the point or stage of production certain, but the danger can be controlled. Its control measures for ensuring food safety are based on existing principles for identifying possible dangers at any stage of the food chain. One of the steps in applying HACCP is the determination of critical control points (CCP) by a method used in determining this critical control point: a decision tree diagram. Based on the results of the study, it was obtained that the critical control point is in the process of roasting, grinding, ball milling, packaging, and storage.

**Keywords:** *Chocolate, Critical Control Point, Decision Tree.*

### **INTRODUCTION**

Cocoa (*Theobroma cacao*, L) is a plantation crop that has long been known in Indonesia since 1560. However, it was only in 1951 that it became an important commodity and had bright prospects for development. Cocoa plants belong to the Sterculiaceae family that grows well in climates with regular and moderately humid climates. Cocoa beans can be processed into various food products, of course before they can be consumed the cocoa beans will undergo various stages of processing processes (Andasuryani et al., 2015). Cocoa beans are an important element of chocolate making and are one of the horticultural crops that play an important role in the country's economy and a source of income for farmers (Wahyudi et al., 2008).

PT. Aneka Chocolate Kakao, Bandar Lampung is one of the companies engaged in the food business with modern technology supported by skilled human resources and standardized machines, so it is very suitable to increase knowledge in the field of food technology. This practical work will increase the knowledge and work experience of students.

Food safety is an important condition needed to prevent food from possible biological, chemical, and other contaminants that can interfere, damage, and endanger human safety. Safe food is food that is free from biological, chemical, and other contaminants that can inhibit, harm, and endanger human health and does not conflict with religion, belief and community culture to be able to live a healthy, active and productive life so that it is safe for consumption (Badan Ketahanan Pangan, 2018).

Based on this, a food safety control system is carried out, namely the HACCP method, which is used to categorize hazards and determine a control system that focuses on prevention (Muhandri &

Kadarisman, 2012). One of the important reasons for implementing HACCP in the food industry system is that during the production process there are opportunities for biological, chemical, and physical contamination that can harm consumers.

Furthermore, determining the CCP is a stage or point where controls can be applied to prevent or eliminate food safety hazards or reduce them to an acceptable level. Not all stages of the process are used as CCPs, the stages that are used as CCPs are every point, stage, or procedure where biological, chemical, and physical hazards can be controlled.

## MATERIALS AND METHOD

### Place and Time

The implementation location is PT. Assorted Chocolate Kakoa, Bandar Lampung, held on October 28 – November 27, 2021, located at Jalan Ikan Mas No. 46/48 Auction Warehouse, Kangkung Village, Bumi Waras District, Bandar Lampung City, Lampung Province.

### Method of Collecting Data

Methods of data collection by observation or direct observation during production. A literature study is done by looking for other sources on the internet to find out and understand so that it can complement the data obtained.

### Data Analysis

Data analysis was carried out using the decision tree method. Briefly describe the research method used. If there are methods that are not commonly used, describe them in detail. The procedures used in research can be described in the form of flow charts, pictures, or other diagrams that support them.

## RESULT AND DISCUSSION

### Hazard Analysis

HACCP is a management system used to protect food from biological, chemical, and physical hazards. This system ensures that all potential hazards in food are systematically controlled at each processing (Rauf, 2013). To minimize the occurrence of hazards and ensure food safety can be overcome by hazard analysis and determination of critical control points (Marques et al., 2012).

Table I. Determination of Critical Control Points

	Hazard Potential	P1	P2	P3	P4	Description
Raw Material Receipt	F: Foreign object K: - B: Aflatoxin	Y	T	T	-	Not CCP
Roasting	F: Foreign object K: - B: Aflatoxin	Y	Y	-	-	CCP
Refrigeration	F: Foreign object K: - B: -	Y	T	T	-	Not CCP
Winnowing	F: Foreign object K: - B: -	Y	T	T	-	Not CCP
Grinding	F: Foreign object K: -	Y	T	Y	T	CCP

	B: -					
Ball Mill	F: Foreign object K: - B: -	Y	Y	-	-	CCP
Tempering	F: Foreign object K: - B: -	Y	T	T	-	Not CCP
Printing	F: Foreign object K: - B: -	Y	T	T	-	Not CCP
Cooling	F: Foreign object K: - B: -	Y	T	T	-	Not CCP
Packaging	F: Foreign object K: - B: -	Y	Y	-	-	CCP
Storage	F: Foreign object K: - B: -	Y	Y	-	-	CCP

Description:

F = Physical

K = Chemical

B = Biological

Y = Yes

T = No

CCP = *Critical Control Point*

**Food Safety Hazard**

Based on the analysis using a decision tree (Table I), it is known that there are 5 critical points in the roasting, grinding, ball mill, packaging, and storage processes. Roasting is defined as a critical point because at this stage cocoa beans are the main raw material with hazards identified as biological hazards for mycotoxin pathogenic bacteria, namely aflatoxins. Mycotoxins cannot be damaged or lost only through processing because they tend to be stable and resistant to heat, so these compounds are still present in agricultural products (Maryam, 2006). At this stage, the roasting is only designed to eliminate the danger of pathogenic bacteria that cannot be removed at the next stage of the process.

**CONCLUSION**

Based on the analysis results obtained, the critical control points in the chocolate bar production process are roasting, grinding, ball milling, packaging, and storage.

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## JOURNAL OF HALAL SCIENCE AND RESEARCH

ISSN: 2715-6214

Journal homepage: <http://journal2.uad.ac.id/index.php/jhsr/index>

doi: 10.12928/jhsr.v2i2.6816

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