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7. Analysis of Hazard Analysis Critical Control Point in the Serabi Solo Shop

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Analysis of Hazard Analysis Critical Control Point in the Serabi Solo Shop

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ABSTRACT

Food is a basic human need, so that food hygiene needs to be considered so that it does not have a negative impact on human health. Many kinds of food are sold outside, such as regional food. To find out the critical point of food, it is necessary to study literature, observations and interviews with small industries. The purpose of this research is to identify the preparation of HACCP (Hazard Analysis Critical Control Point) application on small industries, which is Serabi solo shop. From the observations made, a critical point hazard analysis will be carried out starting from the preparation of the Serabi solo material to packaging. The results show that the Serabi solo shop had 34.78% Prerequisite Programs. So the Serabi solo shop need more improvement to meet the standards of food safety management.

Keywords: Serabi solo, hazard, safety

Introduction

Food is a basic need for humans to be able to carry out daily activities. Each region has food that characterizes each region, which is commonly referred to as traditional food. Traditional food is food and drink that is usually consumed by certain people, with a distinctive taste that is accepted by that community. Many traditional snacks are sold in shops and markets, but sometimes they are unhygienic and have the potential to cause health problems. According to Kepmenkes 1096 of 2011 concerning guidelines for hygiene and sanitation requirements for street food, food traders must meet these requirements (Kemenkes, 2011).

From the research that has been done by Triyanni (2016), the research method used is descriptive which is done by examining the analysis of work and activities on an object. The steps taken in this research are literature studies, interviews, and field observations on the Tofu Making Industry located on Jl. Raya Tandang. The result states that the Tofu Making Industry is still not feasible. The second research, namely the food at the Tanjung Emas Port, Semarang passenger terminal, was carried out using the observation method. The results obtained that meet the requirements are only 27.8%. So food at the Tanjung Emas port terminal still does not meet the requirements of Minister of Health Decree 1096 of 2011 (Ari, 2016).

The third research was conducted by surveying the rerbian meat industry to be able to see the HCCP in that industry. The results obtained still do not meet the requirements of the ISO 9001 certificate, namely 36.4% (Radovanovic, 2013). The next research is research on restaurants. The method used is by surveying to obtain data. The results obtained are 40% and still do not meet the standards (Bas, 2006).

The Hazard Analysis Critical Control Point (HACCP) concept in particular food preparation is a systematic approach to identifying, evaluating and controlling hazards. HACCP was developed by the Codex Alimentarius Commission (Karaman et al., 2012). The key to the successful implementation of HACCP will depend on four basic pillars. There are commitment, education, training, availability of resources, and external pressure (Mortlock et al., 1999; Panisello et al.,

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2001). HACCP is intended to address hazards that are of such a nature that their elimination or reduction to acceptable levels is essential to the production of safe foods (Orriss et al., 2000). It uses a proactive approach to controlling critical points in food handling to prevent food safety problems, identifying specific hazards and measures for their control. Theoretically, a properly implemented HACCP system leads to greater involvement of food handlers in understanding and ensuring food safety, and thus provides them with renewed motivation in their work (Wilson et al., 1997).

From previous research, a Hazard Analysis Critical Control Point analysis will be carried out on the Serabi solo shop. Serabi solo is a typical snack from Solo made from coconut milk mixed with a little flour. Usually, it is also sprinkled with pieces of banana, jackfruit, or even chocolate and cheese. The serabi solo shop that will be used as a sample for observation is in Jombok Kesamben, Jombang. The owner of this solo pancake shop is Mrs. Utila.

Material and Methods

This study was conducted using a qualitative approach. Where will be conducted literature study first? Next, observations were made on the Serabi solo shop to find out the manufacturing process and the environment at the production site. After that, interviews were conducted regarding the implementation of food management, hygiene, and sanitation in making Serabi solo. The data obtained were then analyzed for raw material risk assessment, prerequisite programs from the production site, and critical hazard analysis of control points for each process and presented in a table.

Results and Discussion

Production process serabi solo First, prepare the ingredients. The ingredients needed are 500 grams of rice flour, 1/2 tsp of baking soda, 250 grams of liquid sugar, 1 egg yolk, 750 ml of thick coconut milk, 100 cc of pandan water, 600 cc of water. After that, let stand for 45 minutes. After that, the dough is cooked in a hot pan. While cooking, add toppings as desired. Remove the dough from the pan when the pancake skin is brown. Then put the cooked pancakes on banana leaves to pack. And finally, the serabi solo is sent to the traditional market or to the person who ordered it. Serabi solo is made with natural ingredients without added preservatives. So this food also has a short expiration date because it does not contain preservatives.



Figure 1. Process production *serabi solo*

Risk assessment

Risk assessment is a way of systematizing our approach to hazard to determine what is more and what is less risky. A risk assessment is an important step in protecting workers and businesses, as well as complying with the law (Rimington, 2012). The risk assessment is carried

out first by knowing what raw materials are used. Next, find out how the raw materials are stored until they are processed. There were 8 ingredients analyzed consisting of rice flour, baking soda, sugar, egg yolk, coconut milk, pandan water, water, banana leaves.

The result is that in the potential physical hazard there is one material that has a high risk. The ingredient is rice flour. Rice flour has physical hazards such as dirt in the material which can result in unhygienic products later. The way to control it is to filter the rice flour before use. The next result is that there is no high potential for chemical hazards, the result is that five ingredients have low potential, while three ingredients have medium potential. This happens because the process of making serabi solo is still traditional. Where the process does not require chemicals.

Furthermore, on the potential for biological hazards, both VP and SP, the results show that more than 50% of the materials have a high hazard potential. This is because, at the time of storage, production, and packaging, there is still a large possibility for the emergence of bacteria and fungi. The way to control this is to pay more attention to the processes of storage, production, and packaging. The next potential danger is allergies, the results of observations show that there is one ingredient that has a high risk of causing allergies. The ingredient is egg yolk. The way to control this risk is to provide a label on the packaging for the composition of the ingredients used.

Table 1. Risk assessment result data for sugar, rice flour, and egg (Culler, 2015)

Ingredient Name	Storage Condition (A/R/F)	Potential Hazards	Risk Assessment Outcome	Significant	Explanation
Sugar	A	Physical (P)	1	No	No foreign material can harm
		Chemical (C)	4	No	pesticide residues, sucrose, and dioxins
		Biological (VP)	4	No	Bacteria that cause food damage like bacillus
		Biological (SP)	1	No	-
		Allergen (A)	1	No	Sugar are not Allergen Ingredient but cant and dioxins
		Radiation (R)	6	No	Very rare to occur or from country have radation
		Halal (H)	1	No	Must have evidence com from Halal plant
		Physical (P)	12	Yes	Foreign material can harm (can moist & growth mold)
Rice Flour	A	Chemical (C)	4	No	pesticide residues and dioxins
		Biological (VP)	12	Yes	Escherichia coli (E. coli)
		Biological (SP)	12	Yes	Aflatoxin fungus itself is a toxin from fungi
		Allergen (A)	8	No	rice flour Allergen Ingredient
		Radiation (R)	6	No	Very rare to occur or from country have radiation
		Halal (H)	1	No	Must have evidence com from Halal plant
<i>To be continued...</i>					

Egg	R	⁹ Physical (P)	1	No	Hazardous extraneous material
		Chemical (C)	4	No	Veterinary drug residues, mycotoxins, pesticide residu
		Biological (VP)	4	No	Listeria monocytogenes, Campylobacter jejuni, Bacillus cereus, Salmonella spp, Shigella spp
		Biological (SP)	1	No	Aspergillus fumigatus, Aspergillus flavus dan Aspergillus niger (pathogenic fungi that can infect)
		Allergen (A)	1	No	Egg are Allergen Ingredient
		Radiation (R)	6	No	Very rare to occur or from the country have radiation

Table 2. Prerequisite programs in a production house

No	Prerequisite Programs	Yes/No	No	Prerequisite Programs	Yes/No
1	Personal Hygiene	Yes	12	² Allergen Control Program	No
2	Pest Control	No	13	Traceability	No
3	Foreign Material Control Program	No	14	Storage & Receiving Of Raw Material	Yes
4	Facility Location	Yes	15	Calibration	No
5	Recall & Withdrawal	No	16	Utilities	No
6	Rework Management	No	17	Traingin	No
7	Waste Management	No	18	Maintenance	No
8	Equipment Design	No.	19	Biological Hazard Control Program	No
9	Supplier Approval	Yes	20	Customer Communication	Yes
10	Transportation & Distribution Control	Yes	21	Layout	No
11	Cleaning & Sanitation	Yes	22	Chemical Control Program	No
			23	Food Defens	Yes

It is called a prerequisite because it is considered by scientific experts to be a prerequisite to a HACCP plan. In the results of observations made for Prerequisite Programs fifteen points out of twenty-three total points in the production process were not implemented or did not exist. This shows that there is still little awareness of these Prerequisite Programs. This happens because the process is still using modern processes. Where it still uses fully human power for the production process. In addition, because the costs carried out at several points of Prerequisite Programs cost a lot of money, the procedure was not carried out. And finally, there may not be sufficient knowledge of human resources to carry out the program.

⁸

Hazard analysis critical control point

HACCP is a food safety management system. The emergence of the HACCP concept started from concern for consumers, which determines the safety of the food consumed.

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Table 3. Hazard analysis critical control point programs in a production house

Process Name	Potential Hazard	Number of Risk Assessment	Significant Risk	Q1	Q2	Q3	Q4	PRP/OPRP/CCP
Prepare Material	Physical	20	Yes	Yes	No	Yes	No	CCP
	Chemical	9	No	-	-	-	-	PRP
	Biological (VP)	12	Yes	Yes	No	No	-	OPRP
	Biological (SP)	12	Yes	Yes	No	No	-	OPRP
Mix Ingredients	Physical	12	Yes	Yes	No	No	-	OPRP
	Chemical	6	No	-	-	-	-	PRP
	Biological (VP)	12	Yes	Yes	No	No	-	OPRP
	Biological (SP)	2	No	-	-	-	-	PRP
Mixed Liquid	Physical	6	No	-	-	-	-	PRP
	Chemical	2	No	-	-	-	-	PRP
	Biological (VP)	12	Yes	Yes	No	No	-	OPRP
	Biological (SP)	2	No	-	-	-	-	PRP
Cooking	Physical	6	No	-	-	-	-	PRP
	Chemical	20	Yes	Yes	No	Yes	No	CCP
	Biological (VP)	20	Yes	Yes	No	Yes	-	CCP
	Biological (SP)	2	No	-	-	-	-	PRP
Packaging	Physical	15	Yes	Yes	No	No	-	OPRP
	Chemical	2	No	-	-	-	-	PRP
	Biological (VP)	20	Yes	Yes	No	Yes	No	CCP
	Biological (SP)	20	Yes	Yes	No	Yes	No	CCP

From the observation conducted in the field, an analysis of the process of making serabi solo was carried out. The table 3 above can state the results of the qualitative analysis of each process regarding the physical, chemical, and biological (VP & SP). In preparation, there is a CCP on Physical analysis and OPRP on Biological, so it is necessary to improve the cleanliness of the materials to be used in products such as banana leaves which need to be put in hot water to remove germs and residues from pesticides that may remain. Furthermore, in the mixing of materials, there is OPRP in the Physical and biological (VP) analysis, to overcome this it is recommended to use a mixer that is hygienic and has a cover. Then there is OPRP on the biological (VP) material, so it is necessary to have a place to stay that has a gnat cover that is hygienically maintained. Cooking is done using a special frying pan and fireplace, in this process, there is a CCP in chemical and biological analysis (VP) because the ripeness of the serabi solo will affect the health of the food if it is not cooked enough, bacteria can live and poison consumers. Finally, the packaging process has CCP on biological analysis and OPRP on Physical, to overcome this, it is

better to sterilize the packaging and innovate to make it more hygienic until it reaches the consumer.

Conclusion

The results of the identification carried out, stated that the critical point hazard analysis starting from the preparation of Serabi solo materials to packaging shows that Serabi's solo shop has a Prerequisite Program of 34.78%. So the Serabi solo shop still does not meet food safety management standards.

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