



Intervention of Knowledge of Materials that Have Halal Critical Points, on Methods of Material Selection and Control of Food Technology Practices for UNNES Culinary Students

M Ansori

Culinary Program, State University of Semarang, Semarang, Indonesia
Corresponding author. Email: muhammad_ansori@mail.unnes.ac.id

ABSTRACT

In the State of Indonesia, Law Number 33 of 2014 concerning Guarantees for Halal Products (UU JPH) has been enacted. The law stipulates that products that enter, circulate and trade in the territory of Indonesia must be halal certified, except for products that are forbidden. Strengthened by Law Number 11 of 2020 concerning Job Creation, it is mandatory for micro, small and large business actors to have a halal certificate for their processed products. According to Government Regulation (PP) Number 39 of 2021 concerning Implementation of the Halal Product Guarantee Field, halal certificates must be owned starting October 17, 2026. UNNES (Semarang State University) Catering Students as culinary business actors must have knowledge of the halal product guarantee system in Indonesia according to the mandate of law. This research was carried out by means of knowledge interventions about food ingredients that have a halal critical point in food technology practice courses. 90 students of culinary education at Semarang State University were involved in this study to be subjected to the intervention treatment of knowledge of food ingredients that have a halal critical point. Then an observation was made of students' skills in assessing the critical point of halal in the practice of food technology. Observations using trained panellists who are halal auditors, to assess students' ability to choose halal practice materials and control the food technology practice process to avoid halal critical situations. The intervention process of knowledge of food ingredients that have halal critical points is carried out in 2 ways, namely by assigning students to review halal critical point reference books and resume knowledge of halal critical points in the "halal food scan" application under Android. Measurement of student ability is carried out when practicing food technology. Also measured student responses to the knowledge that was intervened using the 2 media. From the research results it is known that 100% of students have understood which food ingredients have a halal critical point seen from efforts to inventory ingredients whose production origins are clear and have a halal label. From the results of observations of practical implementation, there were 85% of students who were able to recognize the stages of processing food technology practices that were halal critical points, to then control the halal process. Based on the responses from student respondents, intervention materials in the form of halal critical point reference books and application software under Android, are equally useful in increasing understanding of food ingredients that have halal critical points.

Keywords: *Food Ingredients, Food Technology, Halal Critical Points.*

1. INTRODUCTION

Indonesia as the largest Muslim country in the world is a very potential market for halal products. To improve the quality of using halal products, the government, according to the mandate of Law no. 33 of 2014 and Law no. 11 of 2020, establishes a Halal Product

Guarantee Agency (BPJPH) to guarantee that products circulating are halal for use. Starting in October 2019 the JPH Law applies and businesses and services must start processing the halal certification of their products. Equipment readiness is needed for the implementation of the JPH Law, including: the readiness of the Halal Inspection Agency (LPH), the availability of Halal

Auditors, the availability of halal supervisors, the availability of halal supervisors and other matters [1,2].

Law Number 33 of 2014 concerning Guarantees for Halal Products (UU JPH) stipulates that products that enter, circulate and trade in the territory of Indonesia must be halal certified, except for products that are prohibited. Law Number 11 of 2020 concerning Job Creation requires that micro, small and large business actors have halal certificates for their processed products. Halal certificates must be owned starting October 17, 2026, which is regulated according to Government Regulation (PP) Number 39 of 2021 concerning Implementation of the Halal Product Guarantee Field [3]. This situation provides high opportunities for UNNES (Semarang State University) catering students as culinary business actors, even as halal supervisors, halal supervisors, halal auditors in the future.

The current problem is the halal concept according to the mandate of Law No. 33 of 2014 and Law no. 11 of 2020, it has not been accommodated in the structure of the student learning curriculum of the Culinary Education Study Program, Semarang State University. Although actually the concept of halal is very easy to accommodate in culinary learning, considering that in culinary learning it is almost always taught about knowledge of culinary ingredients, the concept of HACCP, and analysis of food quality. In Indonesia, the implementation of halal product guarantees has been outlined in the Indonesian National Work Competency Standards (SKKNI) whose scientific basis refers to the Hazard Analysis Critical Control Point (HACCP)

Materials that Have Halal Critical Points and Substitution of Non-Halal Materials" [2].

This research wants to study the understanding of halal product guarantees in UNNES Culinary Education students after experiencing knowledge interventions about halal product guarantees in learning food technology practice courses. Food technology courses practice food processing by understanding each stage of processing practice, including understanding the Critical Control Points. The intervention was carried out by asking students to carry out halal studies with 2 reference sources, namely: the official halal training book "Reference List of Materials that Have Halal Critical Points and Substitution of Non-Halal Materials" and the e-book application under android "Scan Halal Food" (Fig.1). It will be sought to find out whether there are differences in understanding of halal product guarantees by students if they intervene with these 2 reference sources, after the practice is carried out [7-9].

2. METHOD

This research involved 90 Culinary Education students at Semarang State University (UNNES) as respondents in food technology practice. Where students before starting to practice food technology are required to study the concept of halal critical points from the reference book "Reference List of Materials that Have Halal Critical Points and Substitution of Non-Halal Materials". Then also learn the concept of halal critical points from the application under android "Scan Halal Food".

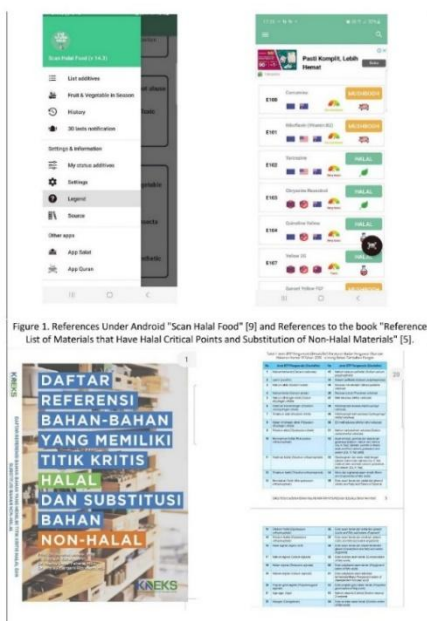


Figure 1. References Under Android "Scan Halal Food" [9] and References to the book "Reference List of Materials that Have Halal Critical Points and Substitution of Non-Halal Materials" [5].

technique [4-6].

Figure 1 References Under Android "Scan Halal Food" [8] and References to the book "Reference List of

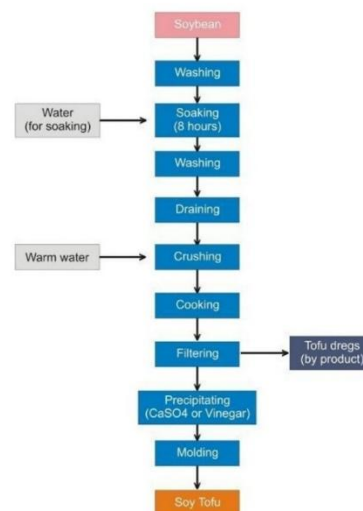


Figure 2. Example of Critical Stages of Vegetable Tofu Processing [12].

Figure 2 Example of Critical Stages of Vegetable Tofu Processing [10].

There are 6 food technology processing materials that will be practiced including: vegetable tofu processing, meatball tofu processing, ice cream processing, curd processing, milk caramel processing and instant ginger processing (Fig. 2). Before doing the practice, students must understand the stages of the food processing flow and the critical points of its processing. It is in this understanding of the processing critical points that students are expected to be able to implement the concept of halal product guarantees from the references studied [4].

The materials and tools used in this study are in accordance with the type of food technology processing students are asked to make a practice results report that contains responses related to knowledge interventions about halal product guarantees as well as the results of halal critical point analysis both in raw materials and processing processes. An analysis of halal critical points in food technology practices is formatted as in Table 3 and Table 4 below [11]. Based on the evaluation of student reports including analysis of halal critical points, the results of the research were tabulated and assessed for accuracy by a panel of experts/halal auditors.practices that are carried out, but the materials are purchased from local farmers and ranchers in Gunungpati, Semarang, Central Java. The tools used include ice cream maker, blender, waterbath, dough injector, filter, extractor, mold and furnace. Ingredients include soybeans, fresh cow's milk, ginger, emulsifier, margarine, acetic acid, tofu stones, beef and seasonings.

Table 3. Analysis of Halal Critical Points on raw materials [11].

No	Material Name	Halal Critical Points	Preventive Actions
1			

Table 4. Analysis of Halal Critical Points in the Process of Halal Food Products [11].

No	Process Stages	Halal Critical Points	Control Efforts
1			

3. RESULT AND DISCUSSION

Based on the results of an evaluation of the practice reports of 90 students as research respondents, it is known that: 100% of students have understood which food ingredients have a halal critical point, seen from efforts to inventory ingredients whose production origins are clear and have a halal label. In Table 5, it appears that the various results of the analysis of halal critical points on raw materials for food technology practices by UNNES culinary education students.

Based on practice reports related to the ability of culinary students to analyze halal critical points in the process of halal products. There are only 85% of

students who are able to recognize the stages of processing food technology practices which are halal critical points. This condition is depicted in Table 6 where critical point analysis by students tends to be monotonous [12].

Based on student responses related to information about halal critical points in food technology practices, the use of books and the use of applications under Android are equally important (35%) but searching in Google is also a need to obtain actual information about halal critical points in food ingredients (30%) (Fig. 3.).

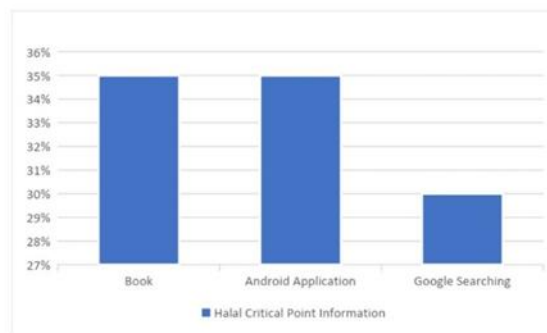


Figure 3. Reference to halal critical points in food technology practices

Figure 3. Reference to halal critical points in food technology practices.

4. CONCLUSION

Based on the research data, it is believed that UNNES culinary education students have succeeded in understanding the concept of halal critical points, especially in the practice of food technology by learning through books, under android applications and searching on the internet. Halal critical points on food raw materials are easier to understand than the stages of the halal product process (processing). To understand the critical point of halal in the process of halal products requires a deeper insight into food technology practices.

Table 5. Various results of analysis of halal critical points on raw materials for food technology practices

No	Material Name	Halal Critical Points	Preventive Actions
1	Soya bean	Basically, soybeans do not have a halal critical point. However, genetically engineered soybeans require further certification and their use according to the Indonesian MUI is permissible.	Organic and halal certified soybeans are used
2	Vinegar Acid	Vinegar is basically halal as long as the raw material is not from khamr or has a khamr effect (vinegar).	Selected acetic acid derived from fruit ingredients and is a halal certified product.
3	Gypsum	calcium sulfate (tofu stone) which comes from the leftover juice of tofu lumps left overnight. There is no problem with the halal critical point unless there is the use of formalin.	Stone tofu that has a halal label is used.
4	Milk powder	The critical point for halal is in the processed form and powdered milk formula.	Halal labeled powdered milk products are selected.
5	Sweetened condensed milk	Halal critical points are in processed forms and milk formulas. Milk not intended for small children.	Use milk labeled halal.
6	Fresh milk	Halal's critical point is the use of additives or auxiliary substances.	Choose fresh and pure milk, especially those with a halal label.
7	Cake Emulsifier	The critical point for halal is the source of cake emulsifier raw materials. It is necessary to pay close attention to animal ingredients, including halal animals or unclean animals.	Used cake emulsifier labeled halal.
8	Gelatin	The critical point for halal is the raw material for protein gelatin, whether it comes from halal or haram animals. If the seaweed is halal.	Used products labeled halal
9	Powder creamers	Creamer ingredients come from vegetable (non-dairy) or animal (dairy) ingredients. Halal critical point is on animal raw materials.	Powder creamer is used from vegetable raw materials derived from corn oil or coconut oil (non-dairy creamer).
10	Eggs	There is no halal critical point on eggs even from animals whose meat is haram.	Used labeled halal.
11	Meat	The slaughter process is not in accordance with the provisions and contamination unclean animal meat.	Already have <i>supplier</i> RPH Ungaran which halal certified
12	Know	The location is less hygienic sanitation	Already have partners whose hygiene and sanitation are guaranteed
13	Frying Oil	There is the addition of stabilizers and clarifiers, both of which can come from animal bones and pig gelatine. There are additional additives as antioxidants such as BHA and BHT. Used cooking oil is also prohibited.	Do not buy used cooking oil, and use sunco brand oil which is halal certified
14	Tapioca flour	There are food additives derived from human or animal organs that are not halal	Have bought rose brand tapioca flour which is halal certified.
15	Cornstarch	There are no halal critical points except flour using additives or auxiliary materials.	Halal certified cornstarch products are selected.

16	Broth	Broth is usually made from animal meat or bones. Therefore, the danger to this product is the same as the danger to meat. In packaged broth products, usually there are additional flavor enhancers such as MSG where MSG has a doubtful status because it is made by fermentation where its halalness depends on the halalness of the media used in the fermentation.	Already using the Miwon brand MSG which is halal certified.
17	MSG	It has a doubtful status because it is made by means of fermentation where the halalness depends on the halalness of the media used in the fermentation.	Already using the Miwon brand MSG which is halal certified.
18	Chewy	Can come from unclean animals such as pork gelatine and unsafe chemicals such as borax.	-
19	Preservative	There are various substances that are banned in the market such as formaldehyde and borax.	Already know dangerous preservatives
20	Fine granulated sugar	The sugar refining process uses activated carbon, which can be obtained through bone charcoal animal.	-
21	Coarse Sugar	Halal critical points arise if the manufacture involves a refinement process. Active carbon substances can be from plant charcoal or animal bone charcoal.	Halal certified sugar products are used.
22	Ginger	-	-
23	Salt	The manufacturing process involves equipment and locations that are sanitary and free from uncleanness.	Used salt labeled halal.
24	Red onion	-	-
25	Garlic	-	-
26	Pepper	-	-
27	Water	-	-

Table 6. Analysis of halal critical points in the process of halal product practices in food technology.

No	Process Stages	Halal Critical Points	Control Efforts
1	Receiving Raw Materials	The raw materials received are not in accordance with the order or do not meet halal specifications.	Sensory sorting and counting of ingredients
2	Material immersion	Materials and tools, especially water, are contaminated with feces.	Regular use of clean water and washing production equipment.
3	Material grinding	Used to grind other materials that are potentially haram.	Regular washing of production equipment is carried out.
4	Soybean extract	Solvents and filters used are contaminated with feces.	Clean water solvent is used directly from the source and a new filter cloth is replaced.
5	Heating coagulation of soymilk and milk	Illegal binding material	Use batu tofu or sour vinegar products that are labeled as halal.
6	Tofu printing	Tools contaminated with feces	Periodic washing of printing equipment is carried out.

7	Meat grinding	Grinding meat is done in market grinding machines, this can be risky if the machine is also used to grind other types of meat non halal.	Choose a meat mill that does not accept haram meat
8	Dough making	The materials used are unclean, containers and mixing tools are contaminated with uncleanness	Regular and hygienic washing of production equipment
9	Cleavage tofu	The knife is contaminated with feces	Washing of production equipment regularly and hygienically
10	Meatball filling to know	Materials, containers and tools contaminated with faeces	Washing of production equipment regularly and hygienically
11	Boiling tofu meatball	The use of unclean broth, water and container contaminated with feces	Washing of production equipment regularly
12	Cooling	Containers and products contaminated with feces	Washing of production equipment regularly and aseptically
13	Storage	The storage place is contaminated with faeces, there are products that have exceeded the consumption limit	Regular washing of production equipment
14	Frying	The use of non-halal oil	Use oil that is halal certified and avoid using other used frying oils or mixtures.
15	Mixing ice cream ingredients	The presence of illegal additives or auxiliary substances	Mixing ingredients that are clearly labeled halal and not expired
16	Heating the ice cream ingredients	Contaminated production equipment is unclean	Washing and maintaining equipment regularly and aseptically.
17	Aerate ice cream ingredients	Dirty polluted production equipment and unclean coolant leaks	Perform washing, maintenance and installation of production equipment regularly and correctly.
18	Freezing and crystallization of ice flowers	Contaminated production equipment and unclean coolant leaks (alcohol)	Perform washing, maintenance and installation of production equipment regularly and correctly.
19	Heating/thickening of milk	Production tools are polluted and unclean and are used for processing other materials that are not necessarily halal.	Washing and use of specific production equipment is carried out.
20	Milk emulsion breakdown	Additives to help break unclean emulsions.	Fatty acid additive products labeled halal are used.
21	Milk caramelization	The use of granulated sugar that is not halal.	Use of halal-certified sugar products.
22	Ginger extract	Extraction tools are used to process various materials that are not necessarily halal	Periodic washing and regular filter replacement.
23	Mixing sugar and ginger juice	The means of production are contaminated with uncleanness, sugar is not halal	Washing production equipment regularly and aseptically and halal certified materials are carried out.
24	Heating ginger juice crystallization	The means of production are unclean contaminated, the means of production are not inert	Production tools are maintained and washed regularly.
25	Packaging	The packaging is contaminated with feces	Packaging sorting process and good packaging storage.

26	Distribution	Mixed with the distribution of illicit products	Distribution within the city is self-delivered.
----	--------------	---	---

REFERENCES

- [1] H. D. Faridah, S. K. Sari, Utilization of microorganism on the development of halal food based on biotechnology, *Journal of Halal Product and Research*, 2(1), 2019, p. 33.
- [2] S. Suwardi, M. E. M. Billah, Undang-undang jaminan produk halal sebagai bentuk internalisasi nilai syaria'ah dalam hukum nasional. *Journal of Economic and Business Law Review*, 1(2), 2021, pp. 72-81.
- [3] M. N. Hosen, Analisis Undang-Undang Tentang Jaminan Produk Halal dan Undang-Undang Tentang Cipta Kerja (Antara Kenyataan dan Keberlanjutan), 2022.
- [4] O. T. Kurahman, T. Priatna, T. Cahyanto, Reorientation of halal literacy education development in the curriculum of Islamic Educational Institutions: an alternative concept, *Edukasi Islami: Jurnal Pendidikan Islam*, 12(01), 2023.
- [5] W. Syarif, R. Holinesti, Identification of halal critical points of fried food served by restaurant in Padang, In *The 2nd International Conference on Culinary, Fashion, Beauty and Tourism (ICCFBT) 2019* (iccfbt. fpp. unp. ac. id).
- [6] A. Adawiyah, Y. Kulsum, Study of critical point analysis on meat-based foods in Bandung. *Indonesian Journal of Halal Research*, 1(2), 2019, pp. 40-45.
- [7] I. Jaswir, E. A. Rahayu, N. D. Yuliana, A. P. Roswiem, Daftar referensi bahan-bahan yang memiliki titik kritis halal dan substitusi bahan non-halal. Jakarta: Komite Nasional Ekonomi dan Keuangan Syariah, 2020.
- [8] MyOnlyIslam, Scan Halal Food, 2018. https://halalharammushbooh.softbrigh.com/index_e n.php.
- [9] M. N. Demirci, J. M. Soon, C. A. Wallace, Positioning food safety in Halal assurance. *Food control*, 70, 2016, pp. 257-270.
- [10] Timen, A Soy Tofu Making Guide, 2018. <http://agroindustriindonesia.blogspot.com/2011/02/soy-tofu-making-guide.html?m=0>
- [11] A. M. Alfiana, N. U. Handayani, Perancangan Sistem Jaminan Halal (Sjh) Di Umkm Tahu Bakso Woning, *Industrial Engineering Online Journal*, 7(3), 2018.
- [12] S. Lailaturohmah, A. Lutviyani, J. R. Nabila, Pengaruh edukasi terhadap pengetahuan dan sikap dalam penggunaan produk kosmetik halal.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

