

Feasibility Study of Slaughterhouses as A Source of Halal Meat Processed Meat-Based Food in Bandung City

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Abstract

The good food for consumption by a human is the food halal and tayyib. Halal is free from haram raw material, and tayyib is free from chemical or biological contamination, etc. Tayyib food, in other words as safe food based on food safety standards. Meanwhile, meat-based food, food safety standards start from the Slaughterhouse. The Slaughterhouse that registered as a large government slaughterhouse and a center for slaughtering livestock to be applied to the community is one of the benchmarks for standardizing meat safety. The purpose of this study was to determine the feasibility of slaughterhouses in the city of Bandung. The results of the study show that there are two slaughterhouses that are registered as government slaughterhouses and are a source of halal meat and have national standards. This study uses a type of field observation, research conducted in real life. The conclusion Government Slaughterhouses, namely Cirangrang and Ciroyom slaughterhouses, are clarified as proper slaughterhouses and have operating permits from the local government. The enumerators and slaughterhouse employees have received training and are regularly monitored by the local government. So that the Slaughterhouse can be assumed as a slaughterhouse that has appropriate standardization based on food safety. Slaughterhouse has stable sales and has consumers who become regular customers. Several meat brokers and traders in wholesale and traditional markets source their meat for sale from these abattoirs. So based on the results of observations, the source of food used by snack producers circulating in the city of Bandung should not be contaminated by pork and appropriate based on the source of the meat.

Keywords: *Halal food, food safety, meat-base food, Slaughterhouse*



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INTRODUCTION

Consuming halal food for Muslim society is an obligation. To make it easier for people to choose halal food, to buy products that already have halal certification. Halal certification is issued by an agency appointed by the government to produce an audit process on food manufacturers to obtain a halal label certification. Based on Law no. 33 of 2014 and regulation of the Religion No. 26 of 2019 concerning the Implementation of Halal Product Guarantee (*Penyelenggaraan jaminan Produk Halal*) in Indonesia, it is necessary to have laboratory testing to prove the halalness of the product.

Halal food is food that is allowed to be eaten. There are 3 criteria for understanding halal food. 1) Halal based on the substance and its content, 2) halal based on how to get it, and 3) halal based on the processing. In addition, food that is included in the halal food category is *Tayyib* food. *Tayyib* means that the food is good and safe. Safe food is that does not contain chemical contamination, biological and other objects that can harm humans (Adawiyah et al., 2020). The food either for

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consumption or sale must comply with food safety standards. One form of food that has a high level of awareness regarding food safety is processed food derived from meat.

Processed foods made from meat can be in the form of sausages, meatballs, minced meat, corned beef, and nuggets (Septiani, 2019). One type of food that has a high level of vigilance or has a critical point regarding halal food is processed food that comes from meat. These meat-based snacks can be in the form of sausages, meatballs, minced meat, corned beef, and nuggets.

This study, there are two criteria to be analyzed, namely; Halal food is based on its substance and content, both halal foods are based on their processing. Analysis of halal food based on its substances and contents can be seen from the composition of the basic ingredients used. While the analysis of halal food based on its processing can be seen from the processing process starting from the slaughtering process in accordance with Islamic law. The slaughter process according to Islamic law can be reviewed starting from the Slaughterhouse. A slaughterhouse is a building or location where animals or livestock are slaughtered.

Slaughterhouse is one of the important things in meat hygiene to obtain safe, healthy, whole, and halal meat quality. In abattoirs, animals are slaughtered, and there is a change (conversion) from live animals to meat, and contamination of microorganisms can occur on the meat, especially at the evisceration stage (removal of offal). The handling of meat in slaughterhouses that are not good and not hygienic will have an impact on the halalness, quality, and safety of the meat produced. (Mahardika, 2020) reported that the Slaughterhouse located in the district of Ponorogo has been proven to be a halal slaughterhouse and in accordance with Islamic law. However, it was found that several abattoirs were not able to support the availability of beef in the market because they did not have the proper equipment, so that there needed to be an increase and investment of equipment for RPH from the government (Aqidawati & Sutopo, 2017). (Tawaf et al., 2013) reported that based on the physical condition of the Slaughterhouse owned by the government of West Java, there are 2 proper slaughterhouses, 3 inadequate slaughterhouses, 6 inadequate slaughterhouses, and very inappropriate slaughterhouses. Based on the results of some of these findings, it is necessary to conduct a feasibility study for special abattoirs in the city of Bandung. Nusran et al., (2019) reported the management of the supply chain process for meat products in Slaughterhouse by analytical hierarchy process (AHP) method, but it still did not apply to specific Slaughterhouse yet.

This study was conducted to determine the feasibility of slaughterhouses in the city of Bandung as a meat production unit in the city of Bandung and to determine the distribution of government-owned slaughterhouses in the city of Bandung. Based on that background, analyzing and identifying the feasibility at slaughterhouses as the first location that supports halal and safety in meat-based foods is urgent.

LITERATURE REVIEW

Definition of Halal

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Halal can be defined as something that is permitted under the rules. The word halal is derived from the phrase "*Halalan Toyyiban*" in Al-Quran. The term *Halalan Toyyiban* has been mentioned in the Quran 13 times (Jais, 2014). Halal is an Arabic word that literally means lawful and permitted (Laluddin et al., 2019).

For a Muslim, eating halal food is contrary to the lust of the devil, who wants humans to fall into haram. So avoiding the haram is an attempt to defeat the temptations of Satan. In Surah Al-Baqarah, Allah says: "O mankind, eat what is halal and good from what is on the earth, and do not follow the steps of the syaitan; Because verily the devil is a real enemy to you" (QS. Al-Baqarah: 168). Getting used to eating halal food and tayyib will bring not only to health but also to goodness. Basically, everything that exists on this earth is lawful except what is prohibited in the Qur'an and Hadith.

Halalan Toyyiban, or the concept of halal, clean and good, is a principle that is emphasized in Islamic teachings. Islamic teachings include the whole of life that spreads the balance between the life of this world and the hereafter—the concept of food in Islam as a tool for worship and acceptance from Allah in total. A Muslim is ordered to consume only halal, clean, good, and sufficient food. In consuming food, it should not be excessive, but the most important thing is that it must be halal. One of the other concepts in Halalan Toyyiban is that the food and the source of it must be halal. This is in accordance with the objectives of Sharia which tries to protect religion, mind, property, and descendants (Jais, 2014).

One of the determinants of halal food is the substance contained in the food. To determine the halalness of a product, it can be done by detecting pork DNA in several types of food (Widayat et al., 2019). Currently, many development methods have been reported for the detection of pork DNA as one of the activities for halal certification and identification of efforts to prevent the spread of haram food (Cai et al., 2017);(Septiani, 2019);(Cahyanto et al., 2020);(Safitri & Wardani, 2015);(Fibriana et al., 2012);(Rohman et al., 2020).

Halal supply chain

Halal food can be grouped based on three criteria. The first criterion is halal food based on the substance and content of the food; the second criterion is based on how to obtain it, and the third criterion is based on the processing process.

1. Halal food is based on the substance and content of food and drink

Halal food and drinks, according to their substance, are foods that have a halal status for consumption. Halal food has been determined halal in the holy book Al-Quran and al-Hadith. Example: beef, chicken, goat, fruits such as apples, kurma, etc.

2. Halal food based on how to get it

Apart from the food that has been forbidden, all foodstuffs and drinks found on earth are allowed to be consumed. Food will be halal if it is obtained in a halal way. On the other hand, if food is obtained in an unlawful way, then the food will become haram.

3. Halal food based on its processing

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Any food that is halal in its content can turn into haram if the management process is not carried out according to Islamic law. For example, beef that does not go through a slaughter process according to Islamic law.

Halal assurance system in Indonesia

The system called Halal Assurance System (SJH) (Departemen Agama, 2003) consist of several components:

1. Halal management standards and halal system
2. Haram analysis critical control point (HRACCP)
3. Halal database

RESEARCH METHODOLOGY

Research Method

This study uses a type of field observation, research conducted in the real life. Field observation is a method to find out specifically and realistically about what is happening at one time in people's lives. The research was carried out in several stages: among others, taking and field observations as well as taking samples from several food products, this activity was carried out in the field, visits and interviews at slaughterhouses in the city of Bandung.

Research Location

The research location is an abattoir that has been officially registered as a government slaughterhouse (RPHU) in the city of Bandung-Indonesia.

Data dan It sources

The data used are facts that can be drawn into a conclusion within the framework of the problem being worked on. The data needed in this study are:

Profile data of Slaughterhouse that have been registered as Public Slaughterhouse in Bandung City
Distribution data from Public Slaughterhouse to meat sellers and producers

Sources of data used are primary and secondary data. Primary data are the results of interviews with RPHU employees, while secondary data are books and literature related to this problem.

Data Collection and Data Analysis Techniques

the type and sources of data obtained from:

1. Primary data, obtained by conducting direct observation and interviews with the employees of Slaughterhouse
2. Secondary data, obtained from several pieces of literature and related to the problems in this study

The primary data is a questionnaire from a number of slaughterhouses in Bandung, namely government slaughterhouses.

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Qualitative research uses inductive analysis, that is, starting from empirical facts. Research findings in the field are then shaped into theories. Laws developed from the field (Sugiyono, 2013 in RPH thesis).

FINDING AND DISCUSSION

Halal Food

Halal food is food that is free from anything or haram substances. The majority of Indonesian people embrace Islam, so it is appropriate to provide the needs for food ingredients that are produced and consumed, guaranteed to be halal in raw material, and legal. Indonesian people are used to consuming beef which is one of the most preferred types of cooking ingredients because it contains a lot of iron, protein, and nutritional needs that are needed by our bodies. Meatballs or meat-based foods are some of the favorite foods of the Indonesian people. In addition to meatballs, sempolan, sausages, or other types of meatballs are the most popular choices for consumption by all people in all walks of life. However, the higher competition in the business of selling meat-based foods is a challenge for producers of meat-based processed foods. To cut production costs, a mixture of meat other than beef is an option to lower production costs. However, if mixed meat is haram and prohibited, then the Muslim community is prohibited from consuming it.

In the Qur'an Surah Al-an'am: 118, which means: Than eat (halal) animals that are called by Allah's name when slaughtering them, if you believe in His verses. Based on the verse of the Qur'an, food can be said to be halal if it is not mixed with haram food. When the Halal products have been mixed with haram products, then the quality is changed to become haram. And also, when the Products that clearly use basic halal ingredients can also become haram if one of the packaging processes or the preparation process for these basic ingredients is not in accordance with quality standards. In meat-based foods, one process that needs to be considered is the source of the meat. Beef or other livestock meat can be haram if: 1) the slaughtering process is not in accordance with the shari'ah; 2) the condition of the location of the facilities and infrastructure for slaughtering animals does not meet the requirements. Currently, the government in order to implement a program under the name "ASUH" (*in Indonesian terms, Aman, sehat, utuh dan halal*) Safe, Healthy, Whole and Halal are one of the priority programs in the context of organizing a healthy and halal slaughterhouse for the wider community to consume. Halal slaughter process and cattle slaughtering techniques at RPH are thought to affect the evaluation of livestock productivity in order to obtain products of "ASUH" from Slaughterhouse.

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Standard Method of Slaughter

Animals must be treated properly to avoid pressure before they are slaughtered, do not harm animals, do not cause permanent damage to the body/organs, and are examined by supervisors. The stunning method must be regularly validated and verified by LPPOM MUI. Mechanical cutting carried out in a factory or abattoir must follow a number of Islamic rules, such as stating *Bismillahi Allahu Akbar* or *Bismillahi Rahmanirrahim* (Mahardika, 2020).

Indonesian Council of Ulama (MUI) on their Fatwa about Standard Halal Shipping Certification, which has several legal bases based on the Qur'an, hadith, opinions of scholars, and meeting decisions they mention:

- Animals to be slaughtered are sunnah for facing the Qibla
- Slaughter is carried out with the intention of slaughtering and mentioning the name of Allah
- Slaughter is done by draining the blood through cutting the food duct (esophagus), respiratory tract/throat (trachea), and two blood vessels (jugular vein and arterial) carotids
- Slaughter is done once and separately fast
- Ensuring blood flow and/or animal movement as a sign of animal life (hayah mustaqirrah)
- Slaughter is carried out as much as possible manually, without being preceded by stunning, etc
- Stunning to simplify the process, it is legal to slaughter animals.

Based on observation and interviews with the employee of Slaughterhouse, the standardization of these activities is usually carried out.

In this first phase of research, surveys and direct observations were carried out to the Bandung City Food Security Service as the regulator of Slaughterhouse licensing (RPH) in Bandung City. The Bandung city government has two abattoirs in the Ciroyom and Cirangrang areas, Kopo. There are three abattoirs in Ciroyom, which consist of abattoirs for cattle 1, cattle 2, and pigs. In the city of Bandung, there is a private Slaughterhouse in the Regol area, but the operating permit has expired. In the city of Bandung, there are only two chicken slaughterhouses that already have operating permits from the Bandung City Food and Agriculture Security Agency, namely Sentra Proteina Prima in Holis and Jaya Giri on Jalan Cipaganti. However, Slaughterhouse Jaya Giri is no longer operating due to declining sales and an unsupportive location. The operating license that has been granted by Bandung City Food and Agriculture Security Agency can be proven by NKV (Veterinary Control Number). So, the Slaughterhouse located throughout the city of Bandung does not have a permit from DISPANGTAN except for the RPH Sentra Proteina Prima and Jaya Giri. The obstacles experienced were caused by the administrative requirements

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that were not met in the operation of the Slaughterhouse, namely in terms of location and sanitation. Therefore, the government often provides Halal-certified training for slaughterers (chicken). In this training, participants are guided from preparation for slaughtering animals to processing the resulting waste.

Criteria for Slaughterhouse

Slaughterhouse is a building or complex of buildings with certain designs and conditions used as a place for slaughtering animals for general public consumption (Ministerial regulation of Indonesia Republic No. 13/Permentan/OT. 140/I/2010). Another definition of abattoir is a building complex with special design and construction that meets certain technical and hygienic requirements and is used as a place for slaughtering animals other than poultry for public consumption (SNI 01-6159-1999). According to Manual Kesmavet (1993:74) Slaughterhouse is a building or building complex with a certain design that is used as a place for slaughtering animals other than poultry for public consumption.

Tabel 1. The Slaughterhouse in Bandung City

NO	NAME	ADDRESS	Number of slaughtering per day	Number of Slaughter in 1 month (head)
1.	RPH-R Ciroyom	Jl. Arjuna No.45	± 25	± 300 head
2.	RPHR Cirangrang	Jl. Cirangrang No. 487 KM.6	± 13	± 400 head

The city of Bandung has two slaughterhouses that have been certified and monitored by the government and owned by the government (Table 1). The two of slaughterhouses is located on Jl. Arjuna No.45 and Jl. Cirangrang No. 487 KM.6 Bandung City. Both of these slaughterhouses are special slaughterhouses for cattle, with the number of slaughtering in 1 day can reach 13-25 heads/day.

Slaughterhouse procedures and standardization

A slaughterhouse is a large slaughterhouse. According to Ministerial Regulation No.13/Permentan/Ot.140/1/2010, Slaughterhouse is a building or complex of buildings with certain designs and conditions used as a place for slaughtering animals for consumption by the general public. Slaughterhouse is a community service unit that provides safe, healthy, whole, and halal meat (*ASUH*) and functions as a means to carry out: the proper slaughter of animals (in accordance with the requirements of the veterinary public health, animal welfare, and religious Sharia).

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Animal health check before slaughter (ante-mortem inspection), an inspection of the carcass, and offal (post-mortem inspection) to prevent transmission of zoonotic diseases to humans. And monitoring and surveillance of animal and zoonotic diseases found during antemortem and post-mortem inspections for the prevention, control, and eradication of infectious and zoonotic animal diseases in areas of animal origin. According to Ministerial regulation No.13/Permentan/Ot.140/1/2010, location requirements, supporting facilities, layout, design, and construction of slaughterhouse buildings and equipment have been regulated and become general requirements for slaughterhouses in carrying out their activities.

Referring to the results of the abattoir survey based on Indonesian national standards, it can be said that the two slaughterhouses in the city of Bandung are worthy as sources and distributors of meat for public consumption. (Table 2.a.b).

Table 2.a. The identity of the Central Slaughterhouse in Cirangrang

I. The identity of the Central Slaughterhouse		
1	Districts	Babakan Ciparay
2	Village	Cirangrang
3	Name	RPHR Cirangrang
4	Address	Jl. Kopo Cirangrang No.487 KM.6
5	Respondent Number	1
6	Officer Name/Keumaster	Pak Moch. Taufik; Pak Yayan
7	Phone number	-
8	Status	Government slaughterhouse
9	Cattle Carcass Waste Facility	Electric Scales
II. Butcher Identity		
1	Name	Asep
2	Religion	Islam

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Table 2.b. The identity of the Central Slaughterhouse in Ciroyom

I. The identity of the Central Slaughterhouse		
1	Districts	Cicendo
2	Village	Husen Sastranegara
3	Name	RPH-R Ciroyom
4	Address	Jl. Arjuna no. 45
5	Respondent Number	2
6	Officer Name/Keumaster	drh. Setiati Gita P (<i>veterinarian</i>)
7	Phone number	-
8	Status	Government slaughterhouse
9	Fasilitas Timbahan Karkas Ternak	Dutch era scales; Cap electric scales. 1 ton
II. Butcher Identity		
1	Name	Kasmin
2	Religion	Islam

The evaluation of the feasibility of the Slaughterhouse is based on the Indonesian national standard, the technical standard of the Slaughterhouse and Indonesian national standard for the quality of carcass and beef.

Meat distribution Slaughterhouse

The quality of beef in traditional markets is affected by the slaughtering process at the Slaughterhouse and handling methods during distribution from abattoir to market. As a means of community service (public service) in the provision of meat that is safe, healthy, whole, and halal (*ASUH*) (table 3).

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Table 3. Merchant Distribution
 TRADERS DISTRIBUTION REPORT
 The Slaughterhouse of CIROYOM

NO	SHIPPING HOURS	AMOUNT OF PURCHASE	TYPE OF LIVESTOCK	DISTRIBUTION OF TRADERS/PORTERS
1	15.00-finished	± 20 head	Cow	Pasar ciroyom
				Pasar baru
				Pasar caringin
				Cimahi
				Padalarang
				Gede bage
				Pasar astana anyar
2	14.00-finished	± 13 head	Cow	Pasar caringin
				Pasar ciroyom
				Kab. Bandung
				Pasar gede bage

Based on (table 3), Ciroyom slaughterhouse is sufficient to become a distributor center for traditional markets in Bandung City. Communities and street vendors Mostly shop at traditional markets for daily necessities and food production. For this reason, it can be stated that meat-based processed foods using meat from these markets are considered safe for consumption by the public and halal for trading as long as there is no fraud from the traders themselves.

Through this research, it is hoped that it can provide information about the importance of knowing the source of the basic ingredients used by producers as well as quick and accurate solutions in sorting halal food, as well as finding patent methods that will be used routinely in the identification and quantification of pork in meat-based processed food products.

CONCLUSION AND FURTHER RESEARCH

1. Government Slaughterhouses, namely Cirangrang and Ciroyom RPHs, are clarified as proper RPHs and have operating permits from the local government. The enumerators and RPH employees have received training and are regularly monitored by the local government so that the RPH can be assumed as an RPH that has appropriate standardization based on food safety.
2. Slaughterhouse has stable sales and has consumers who become regular customers. Several meat brokers and traders in wholesale and traditional markets source their meat for sale from these abattoirs. So based on the results of observations, the source of food

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used by snack producers circulating in the city of Bandung should not be contaminated by pork and appropriate based on the source of the meat.

This research was carried out in several stages as described in the Methods section, in the first year conducting surveys and field observations and taking samples from several food products, this activity was carried out in the field, visits to the Bandung City Food Security Service and a number of registered slaughterhouses at the government. For the next year, detection system development for halal detection contamination polymerase chain reaction based method will be implemented.

REFERENCES

- Adawiyah, A., Nurjanah, D., Suryani, Y., Cahyanto, T., Kurniawan, I. D., Kulsum, Y., Shofwaturrohmani, F., & Darniwa, A. V. (2020). Analisis Kandungan Zat Kimia Berbahaya dan Bakteri Patogen pada Jajanan Berbahan Olahan Daging di Sekolah Dasar Negeri Kota Bandung. *Indonesian Journal of Halal Science*, 1(2), 45–53.
- Aqidawati, E. F., & Sutopo, W. (2017). Kajian Tekno Ekonomi Perbaikan Rumah Potong Hewan untuk Mendukung Penyediaan Daging Sapi di Pasar Tradisional yang Aman, Sehat, Utuh dan Halal: Studi Kasus. *Prosiding Seminar Dan Konferensi Nasional IDEC, Surakarta*, 8–9.
- Cahyanto, T., Suryani, Y., Adawiyah, A., Kulsum, Y., & Kurniawan, I. (2020). *Detection of Pork Contamination on Meat-Based Foods at Public Elementary School In Bandung. January*, 1–8. <https://doi.org/10.4108/eai.1-10-2019.2291685>
- Cai, Y., He, Y., Lv, R., Chen, H., Wang, Q., & Pan, L. (2017). Detection and quantification of beef and pork materials in meat products by duplex droplet digital PCR. *PLoS One*, 12(8), e0181949.
- Departemen Agama, R. I. (2003). *Pedoman Produksi Halal*. Jakarta: Proyek Pembinaan Pangan Halal Ditjend Bimas Islam dan
- Fibriana, F., Widiyanti, T., & Retnoningsih, A. (2012). Deteksi Daging Babi Pada Produk Bakso di Pusat Kota Salatiga Menggunakan Teknik Polymerase Chain Reaction. *Biosaintifika: Journal of Biology & Biology Education*, 4(2).
- Jais, A. S. (2014). Halal in Mainstream Education: Where are We Now and What The Future Holds for Halal Education. *International Seminar On Global Education II, February 2014*, 1179–1191. <https://doi.org/10.13140/RG.2.1.4788.5041>
- Laluddin, H., Haneef, S. S. S., Saad, N. M., & Khalid, H. (2019). The Scope, Opportunities and Challenges of Halal Industry: Some Reflections. *International Journal of Economics, Management and Accounting*, 27(2), 397–421.
- Mahardika, D. W. I. (2020). Analisis Fatwa MUI No. 12 Tahun 2009 Tentang Standart Sertifikasi Halal Terhadap Pemotongan Sapi di RPH Rita Jaya Beef Desa Pijeran Kecamatan Siman Kabupten Ponorogo. *IAIN Ponorogo*.
- Nusran, M., Alam, R., Triana, D., Parakkasi, I., & Abdullah, T. (2019). Management of Supply Chain Process for Meat Products. *Indonesian Journal of Halal Research (IJHAR)*, 1(1), 18–25.

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- Rohman, A., Pebriyanti, N. W., Sismindari, Windarsih, A., Ramadhani, D., Larasati, R., & Yulisa, H. (2020). Real-time polymerase chain reaction for identification of dog meat in adulterated beef meatball using specific primer targeting on cytochrome-b for halal authentication. *International Journal of Food Properties*, 23(1), 2231–2241. <https://doi.org/10.1080/10942912.2020.1844748>
- Safitri, K., & Wardani, A. (2015). Deteksi Cemaran Babi pada Produk Sosis Sapi di Kota Malang dengan Metode Polymerase Chain Reaction. *J Pangan Dan Agroindustri*, 3, 1006–1014.
- Septiani, T. (2019). Detection of Porcine DNA in Processed Beef Products Using Real Time–Polymerase Chain Reaction. *Indonesian Journal of Halal Research*, 1(2), 31–34.
- Tawaf, R., Rachmawan, O., & Daud, A. R. (n.d.). *Kelayakan Fisik dan Teknis Prosedure Pematangan di RPH Pemerintah Jawa Barat*.
- Widayat, W., Winarni Agustini, T., Suzery, M., Ni'matullah Al-Baarri, A., & Rahmi Putri, S. (2019). Real Time-Polymerase Chain Reaction (RT-PCR) sebagai Alat Deteksi DNA Babi dalam Beberapa Produk Non-Pangan. In *Indonesia Journal of Halal* (Vol. 2, Issue 1, p. 26). <https://doi.org/10.14710/halal.v2i1.5361>