The 7th International Seminar on Tropical Animal Production
Contribution of Livestock Production on Food Sovereignty in Tropical Countries
September 12-14, Yogyakarta, Indonesia

Hair Pig Content Identification from Paint Brush using *Porcine Detection Kit* for Halal Verification

Khamidinal[1], Desy Purnama Sari[2], Hilda Nur Fadilla[2]
[1]LPPOM MUI Yogyakarta
[2]UIN Sunan Kalijaga Yogyakarta
Corresponding email: khami_06@yahoo.com

ABSTRACT

Paint brush could be made of any material including pig hair. Some of the brush might be used in cake and bakery home industry. Therefore it is important to identify whether brushes that are sell in market area are made of a small part of hair pig. This research aimed to identify protein content in two kind of brush with L and T trade mark. The brush was cut into small part and then weighed 0.2 gram, then dissolved into 25 mL SDS 2% solution for 30 minutes. The sample than was added 25 mL PBS in pH 7.8 and then be incubation at temperature 65 ^{o}C for 18 hours long. Sample than homogenized using magnetic stirrer for an hour at room temperature. The amount of 42 ml of sample added by 42 ml H_2SO_4 10%. The sample was heated in 40 oC water bath for an hour and was shaked regularly every 5 minutes. Finally sample was added 50 ml of NH_4HCO_3 50%. The result show that two sample were positively content of protein. To confirm the result, the samples also tested by *porcinedetection kit*.

Keywords: Paint brush, Hair pig content, Porcine detection kit, Halal identification.

INTRODUCTION

Paint brush is a tool that very often being used in food production processes. Especially, paint brush is often used to place food paste flavor at processes of bread topping. There are many kind of material that could be used to make a brush. One of these material is pig hair. There are many part of the body of pig that are often used in any industrial consumption. Those are meat, skin, lipid, bone, and hair of pig. These issue is become a seriously issue because in Indonesia molsem is in majority. Moslems believe that a thing that made of pork or any kind that the source is come from pork or pig in fully prohibited in Islam. Especially in the food processes, the status of food is become haram (fully prohibited by Islamic law) when the processes involve a tool that is be made of the part of pig. Indonesian Ulama Council (Majelis Ulama Indonesia, or MUI), so far is developing some methods to indentify pig content in any food and tools that involve in food processes.

According to Indonesian Ulama Council (MUI), the halal and halal product are the product that fully halal criteria in Islamic law. Those criteria are: (1) There is no pig content or something that are derived from pig, no alcohol content as in that food. (2) The meat material in the food processes come from halal animal, and to be slaughtered according to the Islamic law. (3) All

beverages that no alcohol content. (4) All places, tools, transportations, are not contaminated with pig and its derivatives.

In the last many years, there are many research in identification or detection of halal status of food product or any consumes material. The objects that to be used in the identification are dominated by raw material such as meat and processed food. The most important thing in doing of halal identification and verification is also in testing of the tool that are being used in those food processes. In these case, brush or paint brush is one of the most critical point in the bread processes especially in micro industries (home industries). In these research, is using protein isolation and using of porcine detection kit. Porcine detection kit is a kit or a tool for indentify pig protein with immunochromatoghraphy assay. These method is known as easy technical and very simple method to identify or to detect pig content or pig contaminant in a short time relatively. In these days the pig identifying using porcine detection kit, is known as an easy way in detection of pig content in food or any consumes material. The more sensitive of the method, the more accurate in detecting of pig content in food or consumes material.

MATERIALS AND METHODS

Materials that are being used in this research are sodium dedocil sulphat (SDS) 2%, phosphate buffer saline (PBS) pH 7,8, Sulfuric acid (H_2SO_4) 10%, ammonium bicarbonate (NH_4HCO_3) 50%, ninhidrin 5%, etanol 60%, sodium sulphate anhydrate (Na_2SO4), cupri sulphat pentahydrate ($CuSO_4.5H_2O$), sodium hydroxide 50%, chloride acid 0,1 N, and aquabidest. Sampel that being used are paint brush bought from shop and pig hair as positive control matter.

For this research the protein in the paint brush and hair pig are being isolated firt. Sampel of paint brush and hair pig are cutted into small pieces. The small pieces of paint brush and hair pig, then weighed precisely 0.2 gram then are put into porcelain bowl. Then added the amount of 25 ml SDS 2% for softening. After about 30 minutes, then to be digested using mortar for about 30 minutes to maximize the isolation of protein from the sample. The solution then to be put into an Erlenmeyer that the capacity is 50 ml. Into the Erlenmeyer than added by 25 ml of PBS ph 7,8. After that the sample was incubated in for 18 hours in the temperature of 65 ^oC.

After the samples were incubated then the homogenization of the stirrer reagent at room temperature for one hour. Furthermore, supernatant is taken by using pipette. A total of 42 ml of the obtained supernatant was fed into a 500 ml erlenmeyer. The sample was then added 42 ml of 10% sulfuric acid for protein digestion process. The sample was heated in a waterbath at 40 ° C for 60 minutes with shaking every 5 minutes. Samples plus 50 ml of 50% ammonium bicarbonate at low temperature with ice cube help while shaking until the foam disappears. For the ninhydrin test was done by adding 5 drops of 5% ninhydrin solution to 5 ml of the sample. Positive test results marked the formation of a purple ring. For the test with porcine deection kit, the kit was immersed into the sample solution for 10 minutes. Positive test results are characterized by the appearance of a colored line numbering two strip kits.

The halalness of a food is determined by two things. First is the ingredient of the foodstuff. Second, is the equipment used in the process of making food. If the food is one of them is material derived from goods that are forbidden by Islamic law, then it can be ascertained that the resulting food is also given illegitimate legal status. Similarly, if in the process of making such food using materials that are haram or in contact with materials that are given the legal status of the haram, then the resulting food is also given the legal status of the haram.

One type of food consumed by the community is bread. The baking process often uses brushes. Brushes are often used to clean the equipment used to make bread. Brushes can also be used to spread the ingredients on the bread surface, whether baked bread or raw bread. Because it is used to smear the bread, it would require a good brush. A good brush in this case is a brush that is soft and smooth, so it can reach the entire bread surface of various types and physical forms of bread.

The brush making material can be of two types. First brush made of plastic material. Second, is a brush made of fur or animal hair. If the brush is made of plastic material, it's status is halal. However, if the brush is made of fur material, then this can still be classified into two things. Firstly, if the animal fur comes from animals or animals that are lawful and slaughtered by following the correct syariah rules, then this is lawful. Second, if the animal fur used is derived from an animal that is forbidden in Islam, then the status of the resulting product is also haram.

This study attempts to test the various brushes on the market that are often used in the process of making bread. For this purpose, two brushes were tested, namely branded brushes T and branded brushes L. Test the content of pig hair on brush hair is done by Porcine detection kit method. As a reference then in this study also used the original pig hair to compare it with the brush hair of both brands. The test results can be seen in the following figure.

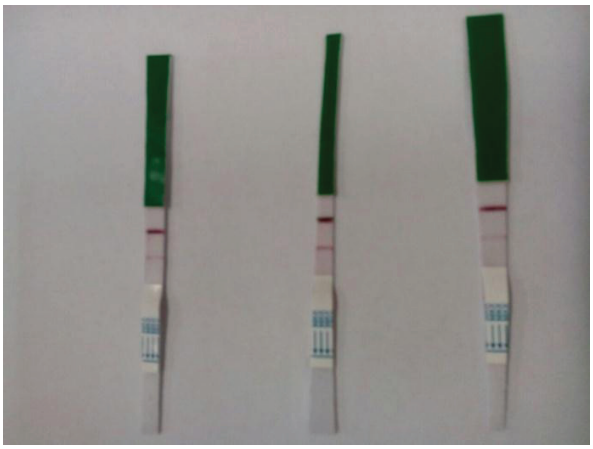

Figure 1: Result of test hair pig, brand brush T and brand brush L

Test results can be stated positively containing hair pig, if on the detection kit shows the appearance of two lines. If the result of the kit detection, only one test line appears to be declared negative. In this test, the pig hair sample yielded two lines on the kit. This means that the kit used can work well in detecting the hair content of pigs. Then the test is done on two brushes, namely brand T and brand L. Apparently the test results in the kit, shows the appearance of two lines. This means it can be concluded that the two brushes tested positive contain a component of pig hair.

CONCLUSION

Brush is one of the most commonly used tools in the baking process. One of the tools for making a brush is animal hair. In general, the feathers used in the market are pig hair . Therefore brush is a critical point of food halalness in the process of making bread. Porcine detection kit, is a practical kit and can be used to test the hair content of pigs. In brand brush test of T and brand L

got positive result containing pig protein. This is confirmed by the comparison of test results to positive controls on hair or sea urchins that have been done.

REFERENCES

Admantin, Christina Yuli, 2013, Identifikasi Pemalsuan Produk Bakso Sapi dengan Daging Babi dan Daging Ayam Menggunakan Porcine Detection Kit dan Multiplex Polymerase Chain Reaction, *Thesis*, Universitas Gadjah Mada.

Che Man, YB, et all., 2006, Identification of Pork Derivatives in Food Products by Species-Specific Polymerase Chain Reaction PCR for Halal Verification, *Laporan Penelitian*, Universiti Putra Malaysia.

Indonesia Ulama Coucil (MUI) , 2017, Titik Kritis Kehalalan Bakery, *http:halalmui.org* diakses tgl 20 April 2017.

Ministry of Religious Affair Republic of Indonesia, 2014, *Alquran dan tejemahannya*, Bandung, CV Diponegoro.

Puspitanigrum, Yanti, 2015, Deteksi DNA Gelatin Sapid an Gelatin Babi pada Simulasi Gummy Vitamin C Menggunakan Real-Time PCR untuk Analisis Kehalalan, *Thesis*, Universitas Islam Negeri Syarif Hidayatullah Jakarta.

Rafi, Muhamad, et all., 2016, Potensi Spektroskopi FTIR-ATR dan Kemometrik untuk Membedakan Rambut Babi, Kambing, dan Sapi, *Research Report*, Institut Pertanian Bogor.

Sudarmaji, 1996, *Teknik Analisa Biokimia Edisi Pertama*, Libery, Yogyakarta.