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Strategies for Improving Traditional Food Safety "Urutan" Chicken through the Implementation of GMP and SSOP

A.A. Made Semariyani[1], I Wayan Sudiarta[1], Ni Made Ayu Suardani Singapurwa[1], I Putu Candra[1], I Nyoman Rudianta[1], Ni Made Defy Janurianti[2]*

[1] *Food Science and Technology Department, Faculty of Agriculture, Warmadewa University, Bali, Indonesia*
[2] *Agricultural Analysis Laboratory, Faculty of Agriculture, Warmadewa University, Bali, Indonesia*

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CORRESPONDING AUTHOR

E-mail: a.suardani@gmail.com*

A B S T R A C T

In the traditional "Urutan" chicken production process, the type and quality of raw materials and additional materials vary widely. In addition, other factors such as environmental conditions are difficult to control, and also the uncertain endpoint of the process involved, thus the application of basic feasibility needs to be done to improve the quality of the product. In this study, a model for the application of GMP (Good Manufacturing Practice) and (Sanitation Standard Operating Procedures) was developed for the production of 'Urutan' chicken. Analysis of the chemical, microbiological and organoleptic components was carried out based on the quality and food safety of meat sausage (SNI 3820-1-2015). According to analysis results, it was revealed that the implementation of GMP and SSOP was poorly implemented. This was proven from the results of the analysis of the product from producers number 6 and 8 that did not meet the requirements of Total Plate Count (TPC) meat sausage (SNI 3820-1-2015) because it exceeded the requirements of 1 x 105 which from the test results obtained 2.5 x 106 colonies/ g and 5.5 x 106 colonies/g. That indicated that sanitation and hygiene were inadequate. Meanwhile, the organoleptic assessment of color resulted (slightly like - very like), texture (rather dislike - extremely like), aroma (rather dislike - like), taste (neutral – extremely like), and overall acceptance (neutral to very like).

1. INTRODUCTION

1.1. Research Background

Nowadays, traditional meat processing has been getting better prospects and development opportunities. Traditional meat processing is very complex and more based on conceptions that are passed down from generation to generation. One of the traditional processed meat products is "Urutan". "Urutan" is an analog food product of traditional Balinese seasoned meat sausage which is processed by the Balinese people. The "Urutan" is originally made from pork, lard, and herbs/spices both fermented and unfermented. To meet consumer tastes and food diversification, especially "Urutan", recently, it has been widely marketed in both traditional and modern markets The traditional meat processing process is closely related to the types, quality of raw materials, and additional ingredients that vary widely, environmental conditions which are difficult to control, and the uncertain finishing part of the process. Traditional product technology is commonly seen as inferior. One of the negative views about this is that traditional products are processed with low levels of sanitation and hygiene, and use raw materials with low quality or freshness levels. Some see they have unguaranteed food safety, and outdated technology, and are considered inadequately managed as a family business [1]. Every chicken "Urutan" producer has its signature way of the processing; which, thus, diversify the characteristic of chicken "Urutan" products. This also affects the quality and food safety of this product. As a consequence, as well as regarding the durability, the resulting products are not the same either quantitatively or qualitatively making it difficult to standardize. Therefore, it is necessary to develop traditional producers with some improvement efforts by applying basic feasibility in food processing. This is following what Suharna et al. [2] stated aspects of quality management and safety of raw materials and products need to be studied for business development, and product marketing development. Due to the various problems in the processing of chicken "Urutan", it was necessary to research to develop a basic feasibility model for implementing GMP (Good Manufacturing Practice) or CPMB (Good Food Production Methods) and SSOP (Sanitation Standard Operating Procedures) to produce chicken "Urutan" quality and safe for consumption by consumers.

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1.2. Research Objective

The purpose of this study is to: (1). Identify the basic feasibility of GMP and SSOP phasing by chicken producers "Sequence", (2), Know the sanitary level of chicken producers "Sequence" based on TPC measurements; and (3). Identify the sensory profile of the sequence of chicken products produced by the manufacturer.

2. MATERIALS AND METHODS

2.1. Research Instruments

The materials used for the research were chicken "Urutan" obtained from 8 producers, Chemicals for chemical analysis, and microbiological and organoleptic tests. In addition, there are also several types of equipment used for chemical analysis, including analytical balance, measuring cup, desiccator, measuring flask, filter paper, oven, and Erlenmeyer). Meanwhile, tools for microbiological analysis are an analytical scale, Petri cup, pipette, test tube, measuring cup, incubator, Durham tube, and homogenizer. Furthermore, tools for organoleptic assessment involve paper plates, forks, knives, cutting boards, frying pans, label paper, warm water, questionnaires for assessment, and untrained panelists for hedonic/liking tests.

2.2. Research Method

This study was conducted in the form of a descriptive observational design by collecting data on making chicken "Urutan" which is commonly done by the community in producing chicken "Urutan". Data collection activities in this research involved documentation studies, direct observation of the processing department, interviews, and giving questionnaires. The research sample is the GMP and SSOP assessment on the processing of the chicken "Urutan". The assessment was carried out on environmental aspects, processing facilities and their control, condition of processing room buildings, adequacy of processing facilities, water supply, storage of raw materials, storage of finished products, product processing equipment, product packaging, and product distribution.

2.3. Observation Variables

There were several variables studied; they were as follows: the implementation of GMP, SSOP of the environment of processing facilities and their control, condition of the processing room building, completeness of processing facilities, water supply, storage of raw materials, storage of finished products, equipment for product processing, product packaging and product distribution. Laboratory analysis was carried out on the water used in the treatment and the final product ("Urutan"). Quality analysis for food safety was carried out as well on water content, ash content, organoleptic tests, microbial contamination of TPC (Total Plate Count), *Escherichia coli*, *Salmonella*, *Staphylococcus aureus*, and Coliform

3. RESULT AND DISCUSSION

The research survey was conducted on April 11, 2021, by meeting with producers of "Urutan" chickens who are used to making and marketing their products. The distribution of questionnaires to producers regarding the knowledge of and application of GMP and SSOP was administered on April 29, 2021. Observations on the implementation of GMP and SSOP as well as sampling and swabs at the processing site were carried out on May 3, 2021. The "Urutan" chicken product was then brought for analysis at the Laboratory of the Faculty of Agriculture, Warmadewa University, and the Laboratory of the Bali Province Veterinary Center in Denpasar. Observations on the implementation of GMP and SSOP as well as the second sampling and swab were carried out on 19 May 2021, and the third activity was carried out on 27 May 2021.

3.1. Objective Variables

3.1.1. Water Content

Referring to the result of the analysis of variance on the studied product, it was found that the water content of 8 types "Urutan" chicken sold in the market showed a significant difference. The average value of the water content of the "Urutan" chicken can be seen in the Table. 1.

Table 1. Average Value of Moisture Content, Ash Content of 8 Producers of Chicken "Urutan" (%)

Treatment	Water content	Ash Level
Producer 1	45.00±0.518 e	2.63±0.352 a
Producer 2	25.29±1.162 g	2.18±0.155 a
Producer 3	48.60±0.545 c	2.70±0.053 a
Producer 4	46.74±0.382 d	2.15±0.382 a
Producer 5	52.32±0.447 a	2.14±0.281 a
Producer 6	43.38±0.629 f	2.10±0.102 a
Producer 7	51.69±1.371 ab	2.73±0.308 a
Producer 8	51.57±1.537 b	2.25±0.118 a

Note: The average value followed by the same letter in the same column indicates a non-significant difference.

It can be seen that the water content of the chicken "Urutan" ranges from 25.29% to 52.32%. (Table 1) The lowest water content of the material being studied was obtained from the chicken "Urutan" produced by producer number 2, which is 25.29%. There were differences in the moisture content of the eight products being observed, this was possibly due to the different processing steps done by each producer (some did the steaming process after being put into the shell, some did the oven process, and some smoked and some fried immediately). This difference in processing stages will cause a temperature difference in contact with the chicken "Urutan". The higher the temperature and the longer the processing time is, the more water content will decrease which causes the water content of the product to be lower. The water content is predisposed by the content of the ingredients used in making sausages. Furthermore, Muchtadi et al [1] added that meat contains about 75% water and 2.5% fat and it varies widely. The ingredients used in making the "Urutan" chicken are chicken meat including its fat and *genep* spices (Balinese traditional seasoning), these two ingredients are the cause of the increasing water content of the "Urutan" chicken. The results of this study indicate that the average moisture content of "Urutan" chicken from eight chicken order producers met the standard for the chemical composition of meat sausages (SNI 3820-1-2015) [2], in which the maximum is around 67% w/w.

3.1.2. Ash Level

Regarding the results of the analysis of variance on the ash content of "Urutan" chickens, there was no significant difference (p>0.05) indicated by "urutan" chickens from the eight producers. According to the data on the table, the ash content of the "Urutan" chickens ranges from 2.10% to 2.70%. The "Urutan" chicken with the lowest water content belonged to the one produced by producer number 6, which was 2.10%, while the highest was obtained from the product produced by producer number 7, which was 2.70%. There was no significant difference in the ash content of the eight "Urutan" chickens sold in the market, possibly due to the same raw materials used, which are chicken meat, casings, and base *genep* (Balinese complete seasoning). Ash content is the number of minerals contained in the material or product expressed in percent (derived from mineral elements and components that are not evaporated during the ashing process). According to Soeparno [3], the ash content is closely related to the cleanliness and purity of the material, so the ash content requirement is very important to determine the level of purity of the material. The results of this study indicate that the average ash content of chicken orders from eight chicken order producers meets the standard for the chemical composition of meat sausage (SNI 3820-1-2015) which is a maximum of 3% w/w.

3.2. Subjective Variable

Statistical analysis of variance on the variables of color, texture, aroma, taste, and general admission of the "Urutan" chickens produced by eight producers showed a significant effect (P<0.05). For more detail, the average value of the panelists' acceptance of subjective observations is presented in Table 2.

Table 2. Organoleptic Tests Results of "Urutan" Chicken from The Eight Chicken Producers Observed

Treatment	Organoleptic Assessment				
	Color	Taste	Aroma	texture	General admission
Producer 1	7.73±0.70 a	6.93±1.32 a	6.80±1.07 a	6.27±1.08 bc	7.40±1.00 ab
Producer 2	6.93±1.24 bcd	7.47±0.99 a	6.80±1.07 a	7.20±0.94 a	7.40±0.69 ab
Producer 3	6.73±1.15 cde	6.93±1.11 a	6.40±1.32 a	6.93±0.94 ab	7.27±1.05 abc
Producer 4	6.87±1.14 cd	5.80±1.27 ab	6.07±1.23 a	5.87±1.23 c	6.53±1.17 c
Producer 5	6.00±1.32 e	7.13±1.18 ab	6.33±1.02 a	6.80±1.02 ab	7.07±0.86 abc
Producer 6	6.27±1.45 de	5.00±1.45 bc	4.40±1.49 b	4.67±1.15 d	5.27±1.47 d
Producer 7	7.67±0.72 ab	7.13±0.93 cd	6.80±1.37 a	7.20±1.05 a	7.60±0.73 a
Producer 8	7.13±0.88 abc	6.07±1.47 d	6.13±1.31 a	6.47±1.14 bc	6.87±0.88 bc

3.2.1. Color

The color of "Urutan" chicken taken from the eight producers showed a significant difference (P < 0.05) as can be seen from the table. The assessment of 20 panelists stated that the color of the normal "Urutan" chicken was brown to yellowish-brown, this color was obtained due to the frying process. Panelists' ratings ranged from 6.00 to 7.73 (which means the color of the chicken meat was roughly yellowish-brown to light brown). This means that from eight samples taken from eight producers, the color could still be accepted by consumers with a value of 'slightly like' to 'very like'.

As the first parameter seen by consumers, color can be the first reference used by consumers in assessing the quality of a food product. This is following what Winarno [4] stated color has an important role in assessing a food product that can increase consumers' tastes. A food product that is considered nutritious, delicious, and has a very good texture will not be eaten if it has an unsightly color or gives the impression that it deviates from its proper color.

3.2.2. Aroma

The aroma of "Urutan" chicken taken from eight producers showed a significant difference (P < 0.05) as indicated by the result of the analysis of variance on organoleptic data. The 20 panelists involved in this research assessed that normal "Urutan" chicken has a typical smell and it is generated by the frying process that creates a savory smell due to the addition of complete spices (in Balinese: "base genep") to the chicken meat. Panelists' assessments of the smell of "Urutan" chicken ranged from 4.40 (rather dislike to neutral) to 6.80 (slightly like to like). Among the eight samples, only sample number 6 received the lowest rating, which was 4.40 (rather disliked to neutral) while the others received different assessments (slightly like to like). The reason why "Urutan" chickens produced by producer number 6 were less favorable was alleged because of its manufacturing process. Its manufacturing process involved an uncontrolled fermentation process which might cause further protein breakdown leading to the generation of putrescine and cadaverine compounds. These compounds cause an unpleasant smell (leading to spoilage).

One of the parameters in determining the quality of a food product is its smell. Composing and additional ingredients play a significant role in generating a typical smell of food. Thus, the smell can have a direct effect on consumers' interest in trying a food product. The aroma in foodstuff can be generated by volatile components, but these components can be lost during the processing, especially heating. Furthermore, [5] stated that in general the delicacy of food is determined by its aroma; Therefore, the food industry considers the aroma test very important because it can quickly provide the results of an assessment of the product whether it is favorable or vice versa.

3.2.3. Texture

Referring to the results of the analysis of variance on organoleptic data, it was found that the texture of the "Urutan" chicken taken from eight producers indicated significant differences (P < 0.05). According to the assessment of 20 panelists, the typical texture of the normal "Urutan" chicken is dense and does not easily get

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crumbled in the frying process. Panelists' assessment of the texture of the "Urutan" chicken ranged from 4.67 (rather dislike-neutral) to 7.20 (like - extremely like). Similar to the results on the previous variable, the sample produced by producer number 6, again, received the lowest rating of 4.67 (rather disliked to neutral) while the others received different ratings (like to extremely like). The brittle texture on "Urutan" chicken produced by producer number 6 made it less favorable. Such texture made the chicken easily shattered in the frying process. It probably happened because the casing used is not strong enough to hold the contents/ chopped chicken meat. The critical point of making an "Urutan" chicken is how to maintain the shape or texture of it so that it remains intact or does not crumble during frying. This can be prevented by carefully filling the dough into the casing or by rubbing it to make sure there is no air trapped in it. Another way to release the air trapped in it is by stabbing the part of the casing where the air is trapped with a needle. Texture as one of the variables here is associated with touch. The texture is a very important characteristic of the product. Assessment of texture comes from touches on the surface of the skin, usually using the fingertips so that the texture of a material can be felt. Texture includes hard, smooth, rough, oily, and moist (Soekarto, 1985) [5].

3.2.4. Taste

Results of analysis of variance on organoleptic data on the taste of "Urutan" chicken taken from eight producers also showed significant differences ($P < 0.05$) just like the other variables. Based on the assessment of 20 panelists, the taste of common "Urutan" chicken is typically savory reflecting the meat and the spices used for making it. Panelists' assessments of the taste of "Urutan" chicken ranged from 5.00 (neutral) to 7.47 (like to extremely like). Of the eight samples of chicken order, only the sample produced by producer number 6 received the lowest rating (neutral); while the others received ratings ranging from like to extremely like.

Taste is an important factor in food, an assessment of taste shows consumers' acceptance of a food product. Taste assessment is carried out using the human senses, the impression of taste is generated when a food ingredient is chewed in the mouth and then hydrolyzed by enzymes from saliva which form derivative compounds that give a certain taste when in contact with the nerve endings of the taste buds on the papillae of the tongue [4].

Winarno [4] stated that several factors that affect the taste include chemical compounds, temperature, concentration, and interactions of other flavor components. In addition, one of the factors that determine whether or not a product is accepted by consumers is its taste. Hardly ever will a food product be accepted by consumers if the taste is not likable, though the other assessment parameters are good [6].

3.2.5. Overall Acceptance

As well as the other variables, the results of organoleptic data analysis, it was found that the overall acceptance of "urutan" chickens taken from eight producers indicated a significant difference ($P < 0.05$). 20 panelists who were involved in this study stated that the overall acceptance of the "urutan" of chicken was acceptable, namely with a yellowish-brown color, delicious aroma, compact texture, distinctive taste of "urutan" of chicken, which is savory reflecting the meat and spices used in the process of making it. Panelists' assessments of the overall acceptance of the "Urutan" chickens ranged from 5.27 (Neutral to slightly like) to 7.40 (like to extremely like). Among the eight samples of "Urutan" chicken, only the sample produced by producer number 6 received the lowest rating, which was neutral to slightly like, while the others received ratings from like to extremely like. This means that from eight samples of "Urutan" chicken produced by the eight producers, all of them can be accepted by the panelists.

3.3. Microbiological Parameters

3.3.1. Total Plate Count (TPC) Test

The total plate number of "Urutan" chickens produced by eight producers indicated significant differences ($p<0.05$) as revealed by the results of the analysis of variance on total microbial data (TPC) of this food product. The highest total plate number was obtained from the order of chickens produced by producer number 8, which was 5.5×10^6 cfu/g. On the other hand, the lowest was obtained from the order of chickens produced by producer number 3 (1.0×10^2) which was not significantly different from P1, P2, and P4 but was prominently different from P5, P6, P7, and P8. The total plate number required for meat sausage and combination meat sausage according to SNI number 3820-1-2015 is a maximum of 1×10^5 cfu/g. When compared to this requirement, samples number 6 and number 8 did not meet the standard because they exceeded the required amount of 2.5×10^6 cfu /g and 5.5×10^6 cfu/g

Many factors might cause the high Total Plate number in these two food products (especially from P6 and P8) for instance, the raw material (chicken meat) contains high enough microbes, the equipment used is not clean, lack of cleanliness and health care from the processing workers, unclean environment or processing room, the water used in the processing process is unhygienic, the spices used are not washed properly, improper the packaging and storage, and so on.

From the results of the analysis of variance on E Coli contamination in "Urutan" chicken, it was found that there were significant differences ($p<0.05$) in E Coli amount from "Urutan" chicken from the eight producers. The highest number of E Coli bacteria was obtained in the product produced by producer number 4 which was 1.1×10^2 APM/g and the lowest was obtained from the order of chickens produced by producers number 2, 3, and 8 which was less than 10 APM/g. When compared with SNI 3820-1-2015 which requires E coli in meat sausages to be less than 3 APM/g, all the chicken sequences sampled in this study did not meet the requirements. The high content of E coli in the "Urutan" chickens sampled in this study was probably caused by poor sanitation and hygiene in the processing process.

The results of the analysis of variance on Coliform contamination data on chicken orders revealed that Coliform in "Urutan" chicken from eight producers showed no significant difference ($p> 0.05$). The "Urutan" chicken used as samples in this study contained the same amount of Coliform. which was less than 10 (<10) APM/g. When compared with the meat sausage standard referring to SNI 3820-1-2015. The "Urutan" chicken sampled met the requirements because what was required was a maximum of 10 APM/g.

Table 3. Average values of TPC, E. coli, Coliform, Salmonella, Staphylococcus aureus, and L. monocytogenes

Treatment	TPC	E coli	coliform	Salmonella	S aureus	L. monocytogenes
Producer 1	$8.6 \times 10^2 \pm 3.5 \times 10^0$ e	$1 \times 10^1 \pm 0.00$ c	< 10	Negative	1×10^1 b	Negative
Producer 2	$8.8 \times 10^2 \pm 1.4 \times 10^0$ e	< 10 ± 0.00 d	< 10	Negative	< 10 c	Negative
Producer 3	$1.0 \times 10^2 \pm 1.4 \times 10^0$ e	< 10 ± 0.00 d	< 10	Negative	< 10 c	Negative
Producer 4	$2.4 \times 10^3 \pm 7.1 \times 10^0$ e	$1.1 \times 10^2 \pm 0.00$ a	< 10	Negative	1.1×10^2 a	Negative
Producer 5	$9.7 \times 10^4 \pm 7.1 \times 10^2$ c	1 x 10 ± 0.00 c	< 10	Negative	< 10 c	Negative
Producer 6	$2.5 \times 10^6 \pm 3.5 \times 10^4$ b	$1 \times 10^2 \pm 0.00$ b	< 10	Negative	1.1×10^2 a	Negative
Producer 7	$1.8 \times 10^4 \pm 7.1 \times 10^1$ d	1 x 10 ± 0.71 c	< 10	Negative	< 10 c	Negative
Producer 8	$5.5 \times 10^6 \pm 3.5 \times 10^4$ a	< 10 d	< 10	Negative	< 10 c	Negative

From the results of the analysis of variance on Staphylococcus aureus contamination data in "Urutan" chicken. It was found that *Staphylococcus aureus* from chicken orders from eight producers showed significant differences ($p < 0.05$). The highest number of Staphylococcus aureus bacteria was obtained in the "Urutan" chickens produced by producers number 4 and 6 which was 1.1×10^2 cfu/g and the lowest was obtained from the "Urutan" chickens produced by producers number 2. 3. 5. 7 and 8 which was less than 10 cfu/g. When compared with SNI 3820-1-2015 which requires a maximum of 1×10^2 cfu/g *Staphylococcus aureus* in meat sausages. There are only two samples that did not meet the requirements. They were the "Urutan" chickens produced by producers number 4 and number 6.

From the results of the analysis of Salmonella and Listeria monosytogenes bacteria. It was found that all samples of "Urutan" chicken used in this study did not contain *Salmonella* and *Listeria monosytogenes* (negative). This means that all samples met the standard (SNI 3820-1-2015) because the standard requires a negative/25 g.

3.4. Implementation of GMP and SSOP on Urutan Chicken Processing

The implementation of GMP (Good Manufacturing Practice) and SSOP (Sanitation Standard Operating Procedures) covers all stages of the "Urutan" chicken processing process, starting from meat selection, cleaning, cutting, weighing, mixing with spices, filling into the casing, steaming/smoking, cooling, drying, packaging and storing.

Producers 1, 2, 3, 5, 7, and 8 used water from the Drinking Water Company which does not contain TPC or Escherichia coli in the processing of "Urutan" chicken. Nevertheless, producers 4 and 6 using well water turned out to contain a TPC of 1.0×10^2 (cfu/ml) after testing. Microbiological analysis of water for treatment has met the requirements. The average Total Plate Count is 3.33×10^1 cfu/ml. and Eschericia coli is 0 cfu/ml. These results are following SNI 3820-1-2015 concerning Quality and Food Safety Requirements for chicken sequences. the maximum TPC value is 1.0×10^5 cfu/g, and the value of *E coli* in water samples for processing Urutan chicken has met the requirements, which is a maximum of 3 APM/g (APM= Most Likely Number).

Regarding processing sanitation, the condition and cleanliness of surfaces that came into contact with food, hand washing facilities, sanitation, and toilets did not meet the requirements. Surfaces of equipment that came into contact with foodstuffs also looked less clean. The meat was stored in cold conditions with ice, some were put in the refrigerator before processing. The process of cleaning chicken meat was also sometimes carried out directly in the dishwasher without a container. The storage area, hygiene, and health conditions of the processor also did not follow the requirements. The equipment and supplies use baskets, plastic buckets, aluminum buckets, wooden benches, chairs, pans, frying pans, sealer presses, and vacuum plastic packaging.

The floor of the processing room, equipment, and containers used in general was not kept clean. So bacterial contamination or other contaminants could occur. During the processing, workers did not wear any gloves, masks, hair covers, or special protective clothing such as aprons. Before carrying out the processing, workers did not wash their hands and feet, this could lead to bacterial contamination [7]. The process of washing hands properly and jewelry-free is one way to prevent contamination [8].

The process of processing the "Urutan" chicken starts with the preparation of raw materials (chicken meat) then a cleaning process is carried out by removing the skin and bones. After that, it is washed and cut into small squares. And then the mixing process is carried out with the spices until evenly distributed. Then put it into the casing by rubbing it, after being filled. The two ends are tied, some use thread, and some use the casing itself. The processing of "Urutan" chicken by most of the producers was done in an open space. 2 producers worked in the kitchen where they cooked their daily meals. In the eight producers, no toxic materials were found, thus that raw materials, equipment, and containers were protected from contamination with toxic materials. After filling the meat into the casing, the washing process was carried out so that the casing was clean and then drained. After that, the steaming or smoking, or oven process was carried out. After being steamed/smoked/in the oven, some were immediately packaged. Some were fried first and then packaged (some were vacuum-packed. Some were packed with food containers and non-vacuum plastic) some contained labels.

The results of laboratory analysis for swab samples carried out at each stage of processing showed that the average TPC was 1.56×10^3 cfu/g and there were not *E coli*. The results showed that in the washing process and the seasoning process. It was following SNI 3820-1-2015 concerning Quality Requirements and Food Safety of meat sausages; the maximum TPC value was 1.0×10^5 cfu/g and the value of *E coli* in each processing process has already met the requirements. which is a maximum of 3 APM/g (APM = Most Possible Number).

Storing "Urutan" chicken was done by wrapping it in a plastic vacuum, non-vacuum, and food container in a closed door. The storage area was kept away from the possibility of cross-contamination and animal disturbance. There was plastic packaging for "Urutan" chicken that have been filled with labels and some have not been labeled; so that on the unlabelled packaging there was no product name, net weight, list of

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ingredients used, name and address of the producer, date, month and year of production and expiration date. Packaging aims to extend the shelf life and avoid contamination by microbes [9].

Some people bought solid waste in the form of chicken heads, skin, and bones for animal feed, and were not disposed of carelessly. So, it didn't pollute the surrounding environment. However, there was no special handling of waste treatment from processing this "Urutan" chicken. Waste should be separated according to its form, solid or liquid, making it easier to handle waste treatment. The toilets in each producer were previously located next to the processing site, and have already been separated from the processing site. Their cleanliness was not well maintained. This also allows cross-contamination of the product [10].

3.5. GMP (Good Manufacturing Practice)

Processing of "Urutan" chicken as in the. begins with the receipt of raw chicken meat. In this process. the meat is checked whether the meat is still fresh or not. Furthermore. it is handled by temporarily storing it at cold temperatures. to maintain the freshness of the chicken meat. If the chicken meat is to be used. it is thawed first and then cleaned of skin. head. bones or parts that are not used. Furthermore. it is washed with running water and then drained using a sink with holes so that the washing water is not left on the meat. The cleanliness of the meat will affect the number of microbes that can contaminate this product. Bacteria that can contaminate chicken meat in the processing are Coliform. Salmonella. Staphylococcus aureus. E coli. and Listeria monositogeses [11].

The process of seasoning is done after the chicken is cut into small pieces. Seasonings mixed with meat are spices that have been crushed (pounded) until smooth. usually in the form of complete spices (bumbu genep). Seasoning can be used as one of the ingredients to prevent damage to processed meat products. Coriander contains 0.5-1% essential oils and phytonutrients such as carvone. geraniol. limonene. berneol. camphor. elemol. and linalool. Coriander also contains flavonoid compounds such as quercitin. kaempferol. rhamnetin. and epigenin. as well as bioactive compounds phenol caffeic and chlorogenic acid [12]. In addition. phenolic compounds 357.36 mg/100g wet weight were also contained in it [13].

As an antimicrobial. garlic can inhibit the growth of Salmonella enteritidis and Staphylococcus aureus [3]. Allicin and organosulphur compounds can inhibit the growth of gram-positive and gram-negative bacteria such as Staphylococcus, Salmonella, Vibrio, Mycobacterium, and Proteus sp. as well as anti-parasitic. anti-fungal. and anti-viral [14] [15].

The next process after the addition of the seasoning is to put the dough into the casing by rubbing it to ensure that no air is trapped in the casing and to obtain a certain level of density so that the casing does not break. After the two ends of the casing are tied. the washing process is carried out with running water to clean the casing from any spices that may still be attached. Furthermore. the process of steaming/oven/smoking is carried out so that the casing is completely attached to the contents in it. After that. the packaging process is carried out very simply. some used food containers. plastic without being vacuumed and some used vacuumed plastic with the help of special equipment (vacuum sealers). Some producers immediately fry the "Urutan" chicken after the steaming process. after which the packaging is done.

Figure 1. "Urutan" Chicken

4. CONCLUSION

Based on the results of the study. the conclusions are as follows. (!) The implementation of GMP and SSOP has not been implemented properly by "Urutan" chicken producers so it does not meet the basic feasibility of implementing GMP and SSOP. Hence, it is necessary to intensify the socialization of its implementation so that the traditional "Urutan" chicken food produced is of quality and safe for consumption by consumers; (2) The condition of equipment, processing room buildings, and processing environment are still inadequate so that it needs to be improved, especially in terms of sanitation and hygiene; (3) The "Urutan" chicken produced by producers number 6 and 8 does not meet the requirements for the Total Plate Number of meat sausages (SNI 3820-1-2015) because it exceeds the requirements of $1x10^5$ cfu/g which from the test results obtained the results of $2.5x10^6$ cfu/g and $5.5x10^6$ cfu/g indicates that sanitation and hygiene have not been implemented properly. Meanwhile, the organoleptic assessment of color obtained an assessment (slightly like - Extremely like), texture (rather dislike - like very much), aroma (rather dislike - like), taste (Neutral - Extremely like), and overall acceptance (Neutral to Extremely like).

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Author Contributions

For research articles with several authors, "A.A. Made Semariyani and Putu Candra conceived and designed the experiments; Ni Made Ayu Suardani Singapurwa and A.A. Made Semariyani performed the experiments; I Wayan Sudiarta and I Nyoman Rudianta analyzed the data; Ni Made Defy Janurianti contributed reagents/materials/analysis tools; A.A. Made Semariyani wrote the paper