Advances in Tropical Biodiversity and Environmental Sciences
7(3): 99-105, October, 2023
e-ISSN:2622-0628
DOI: 10.24843/ATBES.2023.v07.i03.p03
Available online at: https://ojs.unud.ac.id/index.php/ATBES/article/view/578

The Influence of Sanitation and Hygiene Systems on The Existence of *Escherichia coli* Bacteria in Products of Pindang Fish at Kusamba Centers, Klungkung, Bali

Ni Wayan Sulastri*, Ni Putu Pandawani, Ketut Widnyana, and I Made Wahyu Wijaya

Regional Development Planning and Environmental Management Study Program,
Mahasaraswati University, Denpasar, Bali, Indonesia
*Corresponding author: yansulastri0183@gmail.com

Abstract. Hygiene and sanitation are essential factors in fish processing to ensure food availability and safety. Escherichia coli causes foodborne illness, originating from *pindang* fish from the Kusamba breeding center, Klungkung Regency, Bali. Availability and security of food cover cleanliness are essential to hygiene and sanitation, where *Escherichia coli* indicates food contamination. This study aims to determine the bacteriological quality of boiled *pindang* products and the effect of sanitation and hygiene on the presence of E. coli in pindang products conducted at the Fish Preservation Center in Kusamba Village, Klungkung, Bali in November-December 2022. The study used a quantitative method with a cross-sectional approach and analysis. The laboratory uses the MPN (Most Probable Number). I was preparing a handling strategy with a SWOT analysis. The results showed that environmental sanitation and personal hygiene had a significant effect. MPN test results obtained a positive percentage of 93.1% and a negative of 6.9%. Of the 44 hospital wards, the results could have been better in environmental sanitation at 11.3 %, equipment sanitation at 6.8%, and personal hygiene at 8.1%. The implementation strategy to minimize the presence of *E.coli* bacteria is maintaining the unity of the quality system by carrying out sanitation and hygiene, starting from raw materials, processes, and products.

Keywords: pindang; Kusamba; *Escherichia coli*; hygiene; sanitation

I. INTRODUCTION

Availability of food and food safety, including food hygiene, are fundamental human rights that must be fulfilled to continue life. Foodborne illness in Indonesia is a public health problem caused by a lack of personal hygiene and environmental sanitation in food processing and serving [1]. According to the World Health Organization, one of the diseases caused by foodborne illness is diarrhea, which comes from the bacterium E. coli, with around 1.5 million human deaths each year. Escherichia coli is a bacteria that quickly spreads by contaminating water, materials, and tools that contact the processing [16]. Handling poor sanitation practices can indicate the possibility of contamination of these bacteria in food or operating devices.

Bali Province is among Indonesia's most significant fish consumption growth, namely 44.97 %. There are 905 fish processing business units owned by the province of Bali, of which 70 % are processing businesses. One of the fish processing centers in Bali is the Kusamba Fish Fishing Center, built in 2007 based on the Decree of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia No: KEP.01/MEN/2007.

Tuna is one of the food raw materials that can be produced into *pindang* fish products. The protein content is still high, which is around 20%. The Kusamba fish processing center has a large production of *pindang* fish and a wide distribution. However, the incubation process is still traditional, and sanitary hygiene in the place of incubation needs to be paid more attention to [2]. Based on the results of observations at the Kusamba fish processing center, it is necessary to carry out bacteriological research to determine the quality of *pindang*, as well as the effect of sanitation and hygiene on the presence of *E. coli* bacteria in bullet tuna products at the Kusamba fish processing center, Klungkung, Bali.

II. METHOD

Research Design

This study used a quantitative research method with a cross-sectional approach, namely the type, by emphasizing the time of measurement or observation of

independent and dependent variable data only once at a time [3]. The research was conducted at the Kusamba Village Fishing Center, Klungkung, Bali, from November to December 2022.

Fig.1. Map of Klungkung Regency, Bali

Population and Sample

The population in this study was 77, shifting blocks and shifting employees in each block/ward. The sample is representative of the people, which will be used to interpret the characteristics of the population. Sampling uses the Slovin formula [4].

$$n = \frac{N}{1+Ne^2}$$

n = number of samples
N = total population
e = error value (10%)

The number of samples to be taken in this study was as many as 4 4 blocks/wards to be examined for the presence of *E. coli* bacteria and analyze the influence of environmental sanitation, equipment sanitation, and personal hygiene using a simple random sampling technique.

Characteristics of Respondents

Respondents in this study included age, gender, length of work, and formal education. The gender respondents consisted of 44 women (100 %). The education level consisted of 30 elementary school students (68.2 %), eight junior high school students (22.9 %), five high school people (11.4 %), and S1 only one person (2.3%). Respondents' ages ranged from 30-39 years, as many as four people (9.1 %), 40-49 years, as many as seven people (15.9 %), 50-59 as many as 30 people (68.2%), and aged ≥ 60 years there are three people (6, 8 %). The working period of the respondents ranged from 1-10 years for 14 people (31.8%), 10-20 years for 18 people (40.9%), and ≥ 20 years for 12 people (27.3%).

Research Variables

The variables in this study consisted of 2 types, namely, the independent variable and the dependent variable. The independent variables are environmental sanitation, equipment sanitation, and personal hygiene of environmental handlers. The dependent variable is the presence of *E.coli* bacteria.

Analysis of *E. coli* in fishery products

The laboratory test method uses the Most Probable Number (MPN) based on SNI 2332.1: 2015 [18] concerning microbiological test methods. Microbiological tests are for determining coliform and E. coli in fishery products [14]. *Escherichia coli* microbial contamination in fresh fish is limited to < 3/g in every product based on SNI 2332.3:2015 [18]. The MPN method works by calculating live bacteria. The procedure for testing the MPN method is the presumptive test, confirmed test, and completed test.

Determination of Sanitation and Hygiene Implementation Strategy

Methods and data analysis techniques in determining the strategy for implementing Sanitation and Hygiene, namely using the SWOT matrix. Strategies are needed to improve food processing quality to increase quality [5]. The SWOT analysis strategy is for strengths, weaknesses, opportunities, and threats.

III. RESULTS AND DISCUSSION

***E. coli* Bacteria**

This research was conducted in 44 wards with 1 sample of *pindang* tuna products in each ward. Based on the results of the laboratory tests carried out, it was obtained data on the frequency distribution of the presence of *E.coli* in the samples of *pindang* tuna products in each ward as follows:

TABLE 1.
FREQUENCY DISTRIBUTION OF THE EXISTENCE of *E.coli* BACTERIA IN *PINDANG* FISH PRODUCTS COBS AT THE KUSAMBA SEARCH CENTER IN 2022

E.coli bacteria	Frequency (f)	Percentage (%)
Negative	41	**93,1**
Positive	3	**6,9**
Total	44	**100**

In all samples of the *pindang* product, 41 samples (93.1%) were negative, and three samples (6.9%) were positive for *E. coli*. The number of *E.coli* bacteria in 3 wards was based on the results of laboratory tests: wards no.4 (120 MPN/gr), wards no.6 (150 MPN/gr), and wards no.20 (74 MPN/gr). The graphic of MPN results in 3 wards is shown in Figure 2.

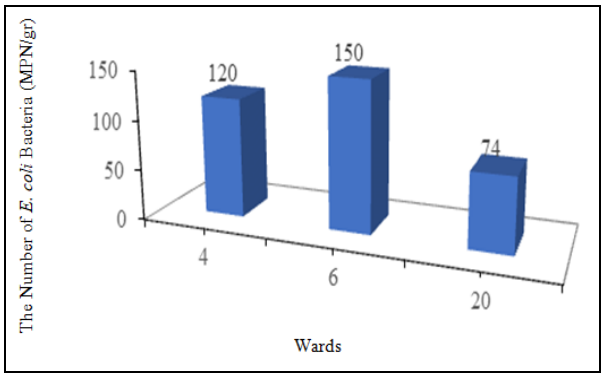

Fig. 2. Presence of *E. coli* in *Pindang* Products Tuna in Each Ward

This condition of 3 wards does not meet the requirements for the maximum limit of microbial contamination in food 2332.3: 2015, which requires the number of MPN *Escherichia coli* to be < 3/g [18].

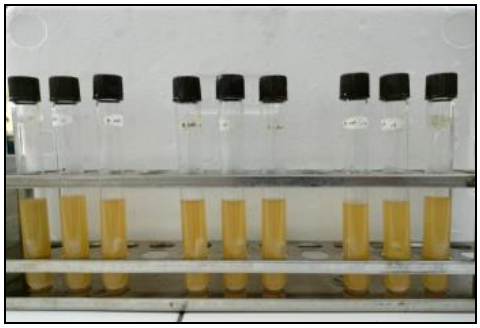

Fig. 3. Results Estimation Test of *E.coli*

The EC Broth (ECB) tube contains a Durham tube with a positive result and contains *E. coli* bacteria, as shown in Figure 3. The *E. coli* estimation test results showed a positive line in the Ec. The broth tube, which contained a Durham tube, was characterized by turbidity and the presence of gas in the Durham tube.

E.coli bacteria is influenced by several factors, including inadequate sanitation and hygiene practices, so contamination of E. coli bacteria can occur through environmental, personal equipment, or places of sale, as well as water sources used to wash or rinse fish [15]. Based on the observation results, it was found that the construction in the form of a floor did not have a good slope, so there was a pool of water when the fish was watered, and the walls formed an angle so that the remaining dirt was not easy to clean. According to Ristyanti and Masithah [6], the floor in the process room needs to have a slope towards the drain to prevent stagnant water, and between the floor and the wall does not form a dead angle.

Regulation of the Director General of Supervision of Marine Resources and Fisheries No. 6 of 2021 concerning technical guidelines for business and product supervision in the implementation of business and risk-based permits in the fishery sector requires the floor conditions of the processing process: smooth surface, no cracks, easy to clean and disinfect, made of water-resistant, salt, acid resistant, bases, and other chemicals and is not quickly broken. The construction prevents standing water; the slope is sufficient and facilitates water disposal.

The intensity of floor cleaning is only done once at the final stage of the screening process. The remaining water during the product watering process and the remaining draining water stagnates on the ward floor. The four food processing plants have an essential role in preventing cross-contamination between processing sites and the food being processed, so it needs to be maintained and paid attention to cleanliness [7].

Faucets are available in every ward, but no particular handwashing area is equipped with food-grade soap and drying devices such as tissues. The water used comes from pump wells that flow through pipes. Of the 44 wards, two wells were murky and dirty. The distance is close to the toilet, which is 5-10 meters, where all the toilets in the tourist center are soiled, damaged, and not maintained. The cause of most foodborne infections is natural products [8]. Cross-contamination is the spread of microorganisms from one source to another due to unclean handling procedures [9].

According to Suci and Suyasa [2], it is necessary to provide an adequate number of covered trash cans to maintain the cleanliness of the production room. Waste sorting activities at food processing sites must be carried out as early as possible at the source so that particular waste is not contaminated with dissimilar types of waste, making it easier to manage sanitation and hygiene systems [10].

In several wards, workers have the terrible habit of pouring *pindang* products over the waste disposal channel and placing the boiled product on the floor without pallets adjacent to the drain, so contaminating the wastewater in the sewer with pindang products is possible. The Kusamba Pemindangan Center already has a wastewater treatment plant (WWTP), so the resulting wastewater flows outside public waters.

The containers used to process *pindang* are always washed with running water and soap before and after doing work. However, some wards are not cleaned/dried with a cloth or drained in an open place to dry, then stored on pallets. Equipment must be cleaned regularly and effectively with frequent intervals to remove food

residue and dirt that allows the growth of germs and disease-causing bacteria.

The habit of washing hands with soap before preparing food after doing other work is 2.27 %, and all workers at the Kusamba Center do not have the habit of wearing personal protective equipment (aprons, headgear, and gloves).

The Influence of Sanitation and Hygiene Systems on the Presence of *E.coli* Bacteria

Chi-square statistical test analysis (X^2) was used to determine the significant relationship between each independent and dependent variable, as shown in Table 2. Based on Table 2, it can be seen that the P-value on the Environmental Sanitation variable is 0.000. This value ≤ 0.05 means that H0 is rejected, so there is a relationship between the independent and dependent variables.

TABLE 2.
CHI-SQUARE STATISTICAL TEST RESULTS

No	Free Variables	P-Value	Information
1	Environment sanitation	0.000	There is a significant relationship
2	Equipment Sanitation	0.418	There is no significant relationship
3	Personal Hygiene	0.000	There is a significant relationship

TABLE 3.
ENVIRONMENTAL SANITATION CONDITIONS WITH THE PRESENCE OF *E.Coli* IN THE KUSAMBA PEMINDANGAN CENTER

Category	Contains *E. coli* on Ward	
	Frequency (f)	Percentage (%)
Qualified (Negative)	39	89
Qualified (Positive)	0	0
Not eligible (Negative)	2	7
Not eligible (Positive)	3	5
Total Ward	44	100

Based on Table 3, it can be seen that 39 wards with good environmental sanitation conditions were negative for *E. coli*. In the wards with poor environmental sanitation conditions, there were two negative *E. coli wards* and three positive *E. coli* wards. Maruka *et al.* [16] stated that *E. coli* is a bacteria that quickly spreads through contaminated water and direct contact with pollutant materials. The condition of sound environmental sanitation is the location of the building is at least 500m from the source of pollution, available handwashing facilities equipped with running water and soap, sufficient clean water for all activities, separate trash bins for wet waste (organic) and dry waste (inorganic) with closed conditions and wastewater facilities that flow smoothly and do not cause odors.

The healthy water at the *Pindang* center is used for environmental sanitation purposes such as watering floors, washing equipment, and washing hands. It is used for the *binding* process and watering the products after the boiling process. There are no separate trash bins for wet and dry waste. The workers use plastic as a temporary trash container to accommodate the remaining solid and other solid waste. No handwashing facilities have running water, soap, or hand dryers. *Pindang* product storage is clean and equipped with pallet mats. However, some processing workers put *pindang* products on the storage room floor without a pallet mat.

Waste handling facilities have been appropriately handled because the Kusamba Pemindangan Center already has a wastewater treatment plant (WWTP). However, there is still some stagnant wastewater. Several processes of watering the product that has been boiled over the drain. It is feared that it can cause contamination of the product through splashes of wastewater during the watering process, as well as the habit of workers laying products on the floor without a pallet mat near the waste disposal channel.

TABLE 4.
SANITARY CONDITIONS OF EQUIPMENT WITH THE PRESENCE OF *E.Coli* AT THE KUSAMBA PENINDANGAN CENTER

Category	Contains *E. coli* on Ward	
	Frequency (f)	Percentage (%)
Qualified (Negative)	39	89
Qualified (Positive)	1	1
Not eligible (Negative)	2	5
Not eligible (Positive)	2	5
Total Ward	44	100

Based on Table 4, with good equipment sanitation conditions, 39 wards were negative for *E. coli,* and 2 wards were positively contaminated with *E. coli*. Meanwhile, with the poor sanitary condition of the equipment, there were 2 wards *of* negative *E. coli* and one ward of positive *E. coli*. Equipment sanitation has been carried out correctly: washing equipment before and after use using running water and soap, drying equipment using a clean cloth and drying it in the sun, and storing equipment in a clean place. Only a few workers still use slightly dirty clothes to dry and store equipment in less clean areas. Laboratory test results, univariate and bivariate analysis using the Chi-square test showed that there was no significant relationship between knowledge and the presence of *E. coli* (p = 0.384), there was no significant relationship between attitude and the presence of *E. coli* (p=0.464), There isn't any significant

association between food cover and the presence of *E. coli* (p=0.569 [11].

TABLE 5.
PERSONAL HYGIENE CONDITIONS WITH THE PRESENCE OF *E.Coli* AT THE KUSAMBA SEARCH CENTER

Category	Contains *E. coli* on Ward	
	Frequency (f)	Percentage (%)
Qualified (Negative)	39	89
Qualified (Positive)	1	1
Not eligible (Negative)	2	5
Not eligible (Positive)	2	5
Total Ward	44	100

Based on Table 5, with good personal hygiene conditions, 39 wards were negative *for E. coli*, and one ward was positive for *E. coli* contamination. Meanwhile, with poor personal hygiene conditions, two wards were negative for *E. coli*, and two wards were positive *for E. coli*. Utami [12] states that the behavior of food handlers that should be carried out includes not eating and drinking while processing food, not touching food directly but using assistive devices or personal protective equipment (PPE), not smoking, and not dirtying hands, such as scratching limbs. If you have already done it, you must wash your hands, maintain TPM sanitation by covering your mouth when you sneeze or cough, and then wash your hands properly and correctly, not combing or spitting anywhere.

Sanitation and Hygiene Implementation Strategy

Based on a general analysis of the factors that influence the presence of *E. coli* in bullet tuna products at the Kusamba Pemindangan Center. Then, do the grouping of IFAS (strength and weakness), EFAS (opportunity and threat), SWOT Matrix, and SWOT Quadrant [13].

The calculations performed on IFAS obtained a Strength value of 12.43 and a Weakness value of 15.57. The results of the EFAS calculation get an Opportunity value of 23.68 and a threat value of 11.35.

TABLE 6.
SWOT MATRIX

Internal Factors / External Factors	**Strength (S)** 1. Economic Condition (Financial Turnover) 2. Community empowerment 3. Land Transportation Access	**Weakness (W)** 1. Waste treatment 2. Production Engineering 3. Work Safety 4. Facilities and infrastructure 5. Quality of Human Resources (HR)
Chance (O) 1. Fisheries Industry Centralization 2. The Biggest Distributor of *Pindang* Products 3. Absorption of Local Fishermen's Catch 4. Jobs 5. Traditional Food of Bali Province 6. Revenue of Fishery Business Area	**SO strategy** 1. Fostering fish processing community organizations through Poklahsar through the importance of managing sanitation and hygiene for products so that the centralization of the fish processing industry in Kumba can be more modern in gaining market share for *pindang* products (S1, O1, O2, O4) 2. Transportation accents and good road access are one of the advantages in the field of logistics distribution of raw materials and products so that periodic maintenance is needed to facilitate mining business activities (S1, S3, O2, O3, O4, O5)	**WO strategy** 1. Managing waste pools through the layout of facilities and infrastructure for good waste disposal channels with several production techniques that take into account sanitation and hygiene standards so that products can be maintained and can make products competitive in local and national markets and can then provide blood income through fishery processing activities from upstream downstream. (S1,S2,S3,S5,O2,O3,O5,O6) 2. Minimizing the lack of knowledge and ability of human resources through sanitation and hygiene training, storing products, and handling raw materials to be able to achieve superior product results through the role of the government or other stakeholders to make the Kusamba Pemindangan Center absorb jobs (S2, S3, S5, O2, O3, O4)
Threat (T) 1. Presence of *Escherichia coli* 2. Increase in Fuel Prices 3. Stabilization of Raw Material Prices 4. Market competition	**ST Strategy** Tightening the work of all employee components in maintaining quality and oriented towards improving the quality that has been determined, and it is necessary to carry out guidance and supervision from institutions related to the management of Centers (S1, S2, S3, T1, T2, T 3, T4)	**WT Strategy** Evaluate the existing quality and improve the facilities and infrastructure of the production room following product safety requirements (W1, W2, W3 , W 4 . T1, T2, T3, T4)

The SWOT Quadrant values obtained from the Internal and External conditions of the Kusamba Hospitality Center for the implementation of sanitation and hygiene are -3.14 (x) and 11.35 (y) or negative positive (-+) namely using the WO (Turn Around) strategy in the quadrant III.

TABLE 7.
SWOT QUADRANT CALCULATION

Total Internal Factor Score	Total External Factor Score
S = 12.43	O = 23.68
W = 15.57	T = 12.32
X-axis = -3.14	Y-axis = 11.35

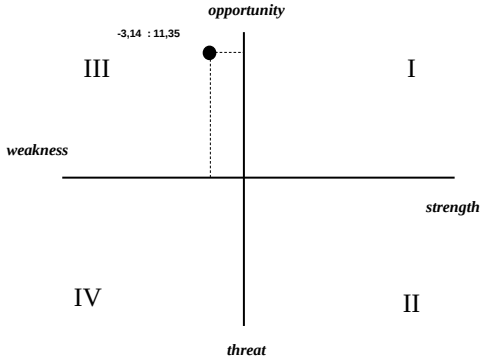

Fig. 4. SWOT Quadrant

Based on calculations and relative position, the Kusamba Debriefing Center is in Quadrant III, which means that some of the Kusamba Desiring Centers are in an unfavorable condition, so there will likely be a decrease in quality and quality as time goes on in the screening process carried out [17]. Some weaknesses that exist and are carried out by the Kusamba Pemindangan Center can impact the quality and quality of the products produced. The development position in quadrant III is the W-O strategy, namely minimizing weaknesses and taking advantage of opportunities.

IV. CONCLUSION

The results showed that of the 44 hospital wards, it was found that Environmental Sanitation was still not good at 11.3%, Equipment Sanitation was still not good at 6.8%, and Personal Hygiene was still not good at 8.1%. There were three wards (no.4, 6, and 20) where *E. coli* contamination occurred, which were due to poor environmental sanitation (the presence of standing water on the floor), the location of the wards close to sources of contamination (broken toilets and septic tanks), and poor personal hygiene (the bad behaviour of workers who do not wash their hands), and poor hygiene.

The results showed that environmental sanitation and personal hygiene had a significant effect. If this variable is in good condition, it will reduce the contribution of *E.coli* contamination to tuna products. At the same time, the equipment sanitation variable does not have a significant effect because most of this variable is in good condition. Based on the study's results, it was found that environmental sanitation factors had the most influence on *E.coli* in bullet tuna products at the Kusamba Fish Preservation Center, Klungkung Regency, Bali.

Strategies for implementing sanitation and hygiene to minimize the presence of E.coli bacteria in pindang tuna products at the Kusamba Fish Storage Center, Klungkung, Bali, namely using the WO (Turn Around) strategy in quadrant III, namely managing the layout of waste channels properly and implementing hygiene sanitation standards to produce superior products and provide increased workforce capabilities through mentoring fishery extension workers and other stakeholders.

ACKNOWLEDGMENTS

Thank you to the managers and workers as resource persons who have provided data during the thesis preparation at the Kusamba Fish Research Center, Klungkung Regency, Bali.

REFERENCES

[1] Islamy, G. P., Sumarmi, S. & Farapti, 2018. Analisis higiene sanitasi dan keamanan makanan jajanan di Pasar Besar Kota Malang. Amerta nutrition, 29-36.
[2] Suci, I. G. A. A. & Suyasa, I. N. G., 2018. Keadaan hygiene sanitasi pemindangan ikan di sentra pemindangan ikan Desa Kusamba Kecamatan Dawan Kabupaten Klungkung tahun 2017. Jurnal kesehatan lingkungan, 8(2):59 - 69.
[3] Nisa, I. F., 2019. Analisis faktor yang mempengaruhi keberadaan bakteri escherichia coli pada makanan jajanan pedagang kaki lima di lingkungan sekolah dasar kecamatan ngronggot kabupaten nganjuk, semarang: universitas negeri semarang.
[4] Sugiyono, 2014. Metode penelitian pendidikan pendekatan kuantitatif; kualitatid, r&d. Cetakan ke-19 penyunt. Bandung: alfabeta.
[5] Santosa, S.Liestya, Narwati, and E.Sari. 2020. Analisis Swot Pengolahan Makanan Pada Katering Di Kecamatan Simokerto Tahun 2019. GEMA Lingkungan Kesehatan 2(1):1–12.
[6] Ristyanti, Erni, and E.D. Masithah. 2021. Penerapan SSOP (Sanitation Standard Operating Procedure) Pada Proses Pembekuan Cuttlefish (Sepia Officinalis) Di PT. Karya Mina Putra, Rembang, Jawa Tengah. Journal of Marine and Coastal Science 10(1):1–17.
[7] Jiastuti, T. 2018. Higiene Sanitasi Pengelolaan Makanan Dan Keberadaan Bakteri Pada Makanan Jadi Di Rsud Dr Harjono Ponorogo. Jurnal Kesehatan Lingkungan 10(1):13–24.

[8] Hutasoit, D.P. 2020. Pengaruh Sanitasi Makanan Dan Kontaminasi Bakteri Escherichia Coli Terhadap Penyakit Diare. Jurnal Ilmiah Kesehatan Sandi Husada 12(2):779–86.

[9] Tropea, A. 2022. Microbial Contamination and Public Health: An Overview. International Journal of Environmental Research and Public Health 19(12). doi: 10.3390/ijerph19127441.

[10] Padmita, N.L.P. and N.M. Marwati. 2019. Hubungan Tingkat Pengetahuan Dan Keberadaan Tempat Sampah Dengan Tindakan Ibu Rumah Tangga Dalam Pemilahan Sampah. Jurnal Kesehatan Lingkungan 9(2):161–70.

[11] Ramadhani, D.Subhi, A.U.Abidin, and L.I. Ardhayanti. 2018. Hubungan Antara Sanitasi Lingkungan Dengan Keberadaan Escherichia Coli Di Warung Makan Indmomie (Warmindo) Sekitar Universitas Islam Indonesia. Jurnal Sains & Teknologi Lingkungan 10(1):4.

[12] Utami, A.P. 2021. Kajian Literatur: Hubungan Personal Higiene Penjamah Makanan Dengan Kontaminasi *Escherichia Coli* Pada Makanan. Journal of Food and Culinary 4(1):25. doi: 10.12928/jfc.v4i1.4032.

[13] Rangkuti, F. 2017. Analisis SWOT: Teknik Membedah Kasus Bisnis Cara Perhitungan Bobot, Rating, dan OCAI. Penerbit PT Gramedia Pustaka Utama. Jakarta.

[14] [BSN] Badan Standardisasi Nasional. 2015. Cara Uji Mikrobiologi-Bagian 1: Penentuan Koliform dan *Escherichia coli* pada Produk Perikanan: SNI 2332.1:2015. Jakarta: Badan Standardisasi Nasional.

[15] Suwarjoyowirayatno, M.S. 2019. Uji Mikrobiologi, Organoleptik, dan Formalin Ikan Pelagis di Pasar Tradisional Kota Kendari. KIPM Kendari: Kementerian Kelautan dan Perikanan.

[16] Maruka, S.S, Siswohutomo G, & Rahmatu RD. 2017. Identifikasi cemaran bakteri *Escherichia coli* pada ikan layang (*Decapterus russelli*) segar di berbagai pasar kota palu. e-Jurnal Mitra Sains 5(1):84-89.

[17] [SNI] Standar Nasional Indonesia 2332.3. 2015. Penentuan Angka Lempeng Total (ALT) pada Produk Perikanan. Badan Standarisasi Nasional: Jakarta.