

Implementation of Sanitary Personal Hygiene and the Amount of Liquid and Solid Waste on the Production of North Cibuntu Tofu Factory Sumedang

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Abstract

Hygiene is a public health action that specifically covers all efforts to protect, maintain and enhance the degree of physical and mental health, both for the public and for individuals with the aim of the basics of continuing a healthy life and enhancing welfare and energy. Sanitation is a public health effort that focuses on monitoring various environmental factors that can affect human health status. Tofu industrial waste water is one type of industry that disposes of its liquid and solid waste processing either directly or indirectly into water bodies, where in the tofu production process a lot of water is needed for the production process. The purpose of this study was to increase knowledge and change the behavior of employees at the Cibuntu tofu factory in order to understand personal hygiene and to find out how the process of processing liquid and solid waste from the production of the Cibuntu tofu factory in North Sumedang District. This study used descriptive qualitative method. Data collection techniques were carried out by interviews, observation, and documentation with informants. Results: Based on the observations of 25 employees, 19 (84%) of the tofu factory employees did not apply personal hygiene at work, most did not use company standard clothing, even 4 employees did not wear clothes, 16 employees (70%) did not use masks and did not use gloves, even the soy bean filter was not washed, while the waste treatment was carried out according to a predetermined WWTP procedure. There is a filtering process in wastewater treatment and a large tub is available for the filtering process so that the wastewater discharged into the river is quite safe. The conclusions from this study need to be improved and reapplied regarding personal hygiene for employees of the Cibuntu tofu factory.

Keywords: Personal Hygiene, industry, waste

INTRODUCTION

The food industry is partly a household-scale industry. The Food Home Industry (IRTP) really needs guidance so that the food products produced are good and safe for their consumers by fulfilling quality and safety requirements, especially by applying personal hygiene. The quality of hygiene and sanitation is influenced by two main factors, namely the employee factor and the environmental factor where the food is processed, including the available food processing facilities, of these two factors the employee factor is seen as more important because he is a human being, is active and is able to change himself and the environment in a better direction or vice versa (Chaerul, Alwi and S, 2021).

The World Health Organization (WHO) says that 1 in 10 people in the world fall ill after consuming contaminated food or foodborne illness which results in 420,000 people dying each year. It is estimated that in America there are 48 million cases related to foodborne illness each year (Zakaria S, 2021). In Indonesia there are around 20 million cases of food poisoning per year (Lestari, 2020). Based on BPOM data for the period 2009–2013, it is estimated that there were 10,700 cases of food poisoning extraordinary events and during that period, there were 411,500 sick people and 2,500 people died (Lestari, 2020).

Indonesia is the world's largest producer of tempeh and the largest soybean market in Asia. As much as 50% of Indonesia's soybean consumption is for the production of tempeh, 40% for tofu production, and 10% for other products such as tauco, soy sauce, etc.). The average consumption of tempeh per person per year is currently estimated at around 6.45 kg

(Kristiningrum and Susanto, 2015). Consumption of tofu and tempeh at the household level in Indonesia during 2002-2019 tends to fluctuate. The average consumption of tofu in 2002-2019 was 7.44 kg/capita/year (Kristiningrum and Susanto, 2015). If viewed from the wastewater quality standards, the tofu industry requires waste treatment. Waste treatment is still a burden for craftsmen, especially the maintenance costs. This is because there is still a lack of guidance to the tofu industry players, so that the waste created from tofu processing is immediately disposed of to the environmental agency. If this is continuously carried out, it will have a negative effect on the environment, namely contamination of the waters and air around the tofu industry, because as previously explained, the tofu waste water is very smelly and contains high levels of contaminants.

In the city of Sumedang, the tofu industry is quite a lot, and even it is known abroad that Sumedang is nicknamed the city of tofu, both on a small and medium scale. The industry consists of various sectors in different fields, one of which is the food sector, which includes the tofu industry. From a survey that has been carried out the largest number of factories are in North Sumedang District, namely there are 7 tofu factories and the largest tofu factory is Cibuntu Tofu, the large population of craftsmen available in North Sumedang District, namely Cibuntu Tofu is 50 employees, so it was decided to take the population only those who know Cibuntu (Disperindag, 2023).

The results of preliminary observations conducted by a survey at one of the Cibuntu Tofu factories on the environmental conditions at the Cibuntu Tofu factory showed that the surroundings of the factory were still scattered with inorganic waste, meaning that the factory was in a dirty environment. The condition of the floor that is constantly wet but the water is not stagnant, the storage of materials and the processing area are not separated, and other risks that can occur, namely contamination of the final tofu product that is produced because it is mixed with dust or other impurities. This can happen because the tofu factory is open and roadside so that dust and other impurities easily enter the production room. There are still many personal hygiene employees who do not wear clothes according to guidelines/standards, do not wear masks and do not use gloves when making/processing tofu so that employees have not implemented personal hygiene and environmental sanitation. It can be concluded that the tofu factory is not in accordance with GMP guidelines as the main requirement in the food production process in Indonesia. Based on the preliminary description above, the researcher is interested in making the title of this research, namely "Implementation of Personal Hygiene Sanitation and the Amount of Liquid and Solid Waste on the Production of North Cibuntu Tofu Factory, Sumedaang".

METHOD

The method used in this research is descriptive research method with a qualitative approach. A qualitative approach is a type of approach that places more emphasis on meaning, reasoning, definition of a particular situation, and is used more to examine problems in everyday life (Rukin, 2019). Data collection techniques were carried out by interviews, observation, and documentation. Primary data sources were obtained through interviews conducted directly with tofu factory industry owners and employees. Secondary data was obtained based on the results of observations, namely making observations made at night because the tofu-making process was carried out at night, at that time the researchers observed from the beginning of the tofu-making process to completion and observed the personal hygiene of the tofu factory employees.

RESULT AND DISCUSSION

Based on the results of the activities carried out on 25 employees of the Cibuntu tofu factory, some data related to personal hygiene and sanitation knowledge of tofu production waste was obtained. The results of the interview with the owner of the Cibuntu tofu explained that the tofu factory had been monitored by DLHK and had a certificate and production

permit, besides that the liquid waste produced had gone through a filterization process in a large tub so that the filtered liquid waste was safely discharged into the river. While the solid waste produced is sold for animal feed. However, tofu owners do not give directions to employees to apply personal hygiene so we can conclude that the knowledge of tofu owners is still quite low accompanied by inadequate education.

Based on observations on the personal hygiene assessment component, out of 25 employees there were 19 (84%) tofu factory employees who did not apply personal hygiene at work, it was found that employees did not wear clothes and all employees did not use aprons during the production process. This is presumably due to the inability to withstand hot temperatures during the production process, as a result of which sweat is clearly visible on the employee's body. If sweat falls into food, it can cause contamination to food borne diseases. It was also found that 16 employees (70%) did not use masks and did not use gloves and even aspects that did not meet the requirements were found, such as the storage of materials that were not separated from the screening process, the floor was always wet, the filter was dirty so that the soybean crust appeared which changed color to brownish, material storage still looks dirty. For this reason, employees are required to wear clean clothes and aprons, masks, gloves when lifting containers so as not to cause food contamination and lead to food borne diseases.

From the results of observations that the selection of materials is good and the processing of tofu and transportation of tofu is carried out properly in accordance with food processing sanitation hygiene standards. While the results of the interviews showed that the waste treatment was carried out properly in accordance with the procedures for the wastewater disposal installation (IPAL). Meanwhile, personal hygiene has other parts for employees, one of which is the hands because pathogenic bacteria on the hands will transfer to the food if the hands, nails and fingers are not clean and in direct contact with food, all handlers touch other parts of the body when touching, such as wiping the forehead when sweating, and wiping other body parts such as neck, hands, nose, and cheeks when itchy. Maywati et al., (2019) stated that if the hands are used to touch other bodies besides food and do not wash hands afterwards, it will cause food contamination.

Employees do not use gloves when processing food. The fact found that 13 (60%) out of 25 (100%) employees were affected by a skin disease, namely athlete's foot which was caused by the condition of the hands being damp. According to Syahlan et al. (2019) stated that gloves are personal protective equipment aimed at work safety, and are used as protection to prevent contamination of food due to hands. Washing hands with soap and rinsing with clean running water before and after direct contact with food, cutting nails and wearing gloves are mandatory activities to prevent food contamination and food borne diseases.

CONCLUSIONS AND RECOMMENDATIONS

From the results of this community service research, it was found that employee personal hygiene was included in the less category due to the low level of knowledge, while from the observations that the selection of materials was good and the processing of tofu and transportation of tofu was carried out properly in accordance with food processing sanitation hygiene standards. Things that need to be addressed are improving the quality of the personal hygiene environment for employees, which include washing hands with soap before and after direct contact with food, cutting nails, closing wounds, not touching other body parts during the production process, using gloves, head coverings, clean clothes and apron. Sanitation for home industry is included in the adequate category, including an assessment of the location and production environment components, buildings and facilities, sanitation hygiene facilities and activities, as well as water supply or water supply facilities. Things that need to be addressed are routinely cleaning and caring for the production location and environment, buildings and facilities, as well as sanitary facilities and hygiene, not placing

cattle pens in the production room, adding hand washing facilities complete with soap and dryers as well as available trash cans.

REFERENCES

- Kaswinarni, F. (2008). Technical study of solid and liquid waste processing of the tofu industry. *Lontar Magazine*, 22(2)
- Tuhu Agung, R., & Winata, H. S. (2010). Tofu industrial waste water treatment using plasma technology. *Scientific journal of Environmental Engineering*, 2(2), 19-28.
- Pratiwi, I., Muslimah, E., & Aqil, A. W. (2012). Facility layout design in the tofu industry using a block plan.
- Hafiz, A. (2023). PROCESSING OF TOFU TEMPE WASTE TO REDUCE ENVIRONMENTAL POLLUTION IN SANDUBAYA DISTRICT. *Journal of Public Service (JP-Publik)*, 2(2), 50-54
- Sayow, F., Polii, B. V. J., Tilaar, W., & Augustine, K. D. (2020). Analysis of the content of tofu and tempe rahayu industrial waste in Uner Village, Kawangkoan District, Minahasa Regency. *Agri-Socioeconomics*, 16(2), 245-252.
- OKTAVIA, H., Wahyudi, A., Wahyu, T., Cortis Maigoda, T., & Pravita, A. (2022). Overview of Hygiene and Sanitation on Tofu and Tempe Production in Gading Cempaka District, Bengkulu City in 2022 (Doctoral dissertation, Poltekkes Kemenkes Bengkulu).
- Dewa, R. P., & Idrus, S. (2017). Identification of tofu industrial waste water contamination in Ambon city. *RI Ministry of Industry BIAM Magazine*, 13(2), 11-15.
- Tuhu Agung, R., & Winata, H. S. (2010). Tofu industrial waste water treatment using plasma technology. *Scientific journal of Environmental Engineering*, 2(2), 19-28.
- Kaswinarni, F. (2008). Technical study of solid and liquid waste processing of the tofu industry. *Lontar Magazine*, 22(2).
- Arfines, P. P., Zahra, Z., Iswarawanti, D. N., & Saptarini, I. (2021). FOOD SANITATION HYGIENE PRACTICES OF FOOD HANDLER IN FOOD SALE AT THE BEGINNING OF THE COVID-19 PANDEMIC IN JABODETABEK. *JOURNAL OF HEALTH ECOLOGY*, 20(3), 188-203.
- Salleh, S. Z., Kechik, A. A., Yusoff, A. H., Taib, M. A. A., Nor, M. M., Mohamad, M., ... & Ter Teo, P. (2021). Recycling food, agriculture, and industrial wastes as pore-forming agents for sustainable porous ceramic production: A review. *Journal of Cleaner Production*, 306, 127264.
- Sudaryantiningih, C., & Pambudi, Y. S. (2022). Drafting Standard Operating Procedures (Sop) for Tofu Production with the Principles of Good Manufacturing Practice (Gmp) Adapted to the Covid-19 Health Protocol. *JOURNAL OF ECONOMICS, SOCIAL & HUMAN IORA*, 3(10), 178-190.
- Hunafa, N., Narwati, N., & Winarko, W. (2022). Description of Personal Hygiene and Sanitation of Tofu Production Household Industry in the Cotton Area, Bojonegoro Regency. *Journal of Health Research" SUARA FORIKES"(Journal of Health Research" Forikes Voice"*), 13(2), 401-407.
- Hidayanti, L., & Maywati, S. (2019). COMMUNITY PARTNERSHIP PROGRAM: PMT LOCAL FOOD COUNSELING IN SUKARAME VILLAGE, SUKARAME DISTRICT, TASIKAMALAYA DISTRICT, WEST JAVA. *LPM News*, 21(2), 31-39.
- Pambudi, Y. S., Sudaryantiningih, C., & Geraldita, G. (2021). Analysis of the Characteristics of Tofu Industrial Wastewater and Alternative Processing Processes Based on Appropriate Technology Principles. *Syntax Literate; Indonesian Scientific Journal*, 6(8), 4180-4192