

Preservation of Lemuru (*Sardinella lemuru*) by Salting and Drying Methods at Istana Muncar Ikan SMEs of Banyuwangi District

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Abstract

Lemuru (Sardinella lemuru) is the most catches in Banyuwangi. This fish called pelagic fish that swim on the surface of the sea. The abundance of lemuru catch makes this fish have a role and benefit for the society. However, fish is also quickly to spoil after harvesting. Without the preservation process, the fish is only suitable for consumption within a day after being caught. Various preservation methods have been carried out, one of which is salting and drying aimed to reduce the moisture content in the fish body, so that didn't give chance for microorganism to breed and didn't affect the fish quality. This study was used descriptive method with data collection techniques through primary data and secondary data. Data collection carried out with observation, interview, active participation and literature study. Research result in Istana Muncar Ikan Banyuwangi SMEs included raw material used in food processing in SMEs was lemuru (Sardinella lemuru) obtained from Muncar Port. The fish was treated with brining method by soaking fish of dilute salt solution of 30-35% from total weight of fish. After brining, drying process was carried out under the sun for 1 day and dried salted fish produced, has distinctive smell, salty taste, normal colour, also good shape. Salt content of 13-17% by weight of salted dried fish.

Keywords: Istana Muncar Ikan SMEs, Lemuru fish, Dried Salted.

Introduction

According to Arini and Sri (2009), fisheries product in Indonesia very abundant, one of which is fish. Fish is highly perishable food source that should be quickly and precisely processed. Poor handling method will cause poor quality of the fish product, otherwise good handling process will give good quality of the product. Likewise, proper processing of fish product will provide shelf life extension and good nutrition.

Lemuru (*Sardinella lemuru*) is the most catches in Banyuwangi. This fish called pelagic fish that only swim on the upper layer of the sea. The large number of lemuru catch makes this fish have a role and benefit for the society. Thus, making the local society have an increase in terms of income, supporting local industry, and increasing employment opportunities. The abundance of lemuru catch, so there are many ways to process it. According to Dea and Shofia (2011), Fish contains a lot of organic and inorganic compounds for human. However, fish is also quickly to spoil after harvesting. Without

preservation, the fish can only be consumed within a day after catching. The various methods that have been done for preserving fish, but some of them are not able to maintain the fish nature such as cooling and freezing. Traditional fish preservation such as salting and drying methods is to reduce the moisture content, so it does not provide an opportunity for microorganism to breed and does not affect the quality of the fish.

Materials and Methods

The research was conducted in Istana Muncar Ikan Small and Medium-sized Enterprises (SMEs) of Banyuwangi, East Java. This research was used descriptive method with data collection techniques through primary data and secondary data. Data collection carried out with observation, interview, active participation and literature study.

Results and Discussion

Raw material used in salting and drying process was lemuru. Raw material collected by

fisherman and landed in Muncar port, Banyuwangi. The fresh lemuru was received with care and protected from physical damage. The collected raw fish saved in cool box with some ice cube for maintaining the freshness of fish so that raw materials were obtained according to standards.

Istana Muncar Ikan SMEs is one of SMEs located in Muncar port, Banyuwangi. Many SMEs located in Muncar port are owned by individuals. Istana Muncar Ikan SMEs established by the owner as a by-product of the catch obtained after partially sold. This SMEs only produces dried salted fish and distributed only in the Banyuwangi area.

According to Elieser *et al.*, (2015), one of preservation products widely available in Indonesia is salted fish. Salted fish is one of processed fish products that have an important position. it can be seen that almost 65% of fishery products are still processed and preserved by salting method. Salted fish is not only be fancied by the lower economic class, but also the middle and upper classes of community. The appeal of this salted fish mainly lies in its distinctive taste, aroma and texture.

Preparation of materials and equipment

The fish to be processed were separated based on the type, level of freshness and size of the fish. This was carried out to ensure uniform salt penetration during salting. Provided salt of 30 - 35% from the total weight of the fish, depending on the desired level of saltiness. Used pure salt (NaCl 99%) to get good quality of salted fish. Salt at appropriate concentrations will inhibits the growth of microorganism and also aids the dehydration process in fish.

Equipment supply

Prepared waterproof container made of fibre or plastic with a thickness of 1-5 cm. in wet salting process, fresh fish put in 30-35% salt solution, then closed the top of container and given weight so that all the fish are submerged. The length of immersion time depends on the size of the fish's body thickness. Scales for weighing cleaned fish and the amount of salt needed. Plastic or bamboo baskets for transporting fish before and after the salting process. The drying area is approximately 1 meter above ground level.

Handling and washing

Handling process of lemuru (*Sardinella lemuru*) by placing the fish in separate containers according to size and thickness. washed the fish with clean running water without the need for weeding. Cleaning is important to prevent from food poisoning and to reduce spoilage. Drain the fish that has been washed in the provided basket. The draining process of the fish was arranged neatly facing down so that no water pools in the stomach cavity. After the fish is slightly dry, the weighing process was carried out. In order to know the amount of salt needed in the salting process, weighing process is needed.

Wet salting process

Prepared lemuru (*Sardinella lemuru*) according to size and thickness. The salt given is 30-35% of the total weight of fish. If the immersion process will take more than 24 hours, a salt solution is used to attract fluids in the fish body. Submerge the fish in salt solution for the required time in the closed container.

Yusra (2017) stated that Salting is a preservation process that uses salt as a preservative, both in the form of crystals and solutions. During the salting process, there is a penetration of salt into the body of the fish and the discharge of fluid from the body of the fish due to the difference in concentration. This process resulted in the thickening of the remaining body fluids and coagulation of protein and shrinkage of the fish's body cells so that the characteristic of the meat changes. After a required time of salting process was done, the immersion depends on the size and thickness of the fish. After that, the fish washed and dried. According to Fronthea *et al.*, (2019) drying is the process whereby water is vaporized from the food until it reaches a certain moisture content so that it can slow down the rate of product damage due to biological and chemical activities. Drying is basically a process of energy transfer used to evaporate the water in the material, so that it reaches a certain water content so that food damage can be slowed down. The drying process of salted lemuru (*Sardinella lemuru*) is placed on a drying place called para-para. This drying process was carried out in a traditional process by drying under the sun. Drying was done within ± 1 day. After that, the dried salted fish are ready to be distributed and sold.

Dried salted fish

The dried salted fish produced has a distinctive odor, a salty taste of salted fish standard and a normal color and good shape. The salt content of dried salted fish is around 13-17%. The dried salted fish from Istana Muncar Ikan SMEs has good quality in accordance with the Indonesian Industrial Standard (SII) in Hadiwiyoto (2003) good quality salted fish is one that has a normal smell, taste, color and good shape, has the highest water content of 25%, salt content is between 10% - 20%, and does not contain metals, fungi, as well as no bacterial growth occurs.

Conclusions

Raw material used in food processing in Istana Muncar Ikan SMEs was lemuru collected from Muncar port, Banyuwangi. The fish were treated by the wet method with the addition of salt by 30-35% of the total weight of the number of fish in salt solution. After the salting process done, the drying process is carried out under the sun for \pm 1 day and the dried salted fish produced has a distinctive smell, salty taste, standard salted fish and normal color and good shape. The salt content of dried salted fish is around 13-17%.

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