**Salt Iodization Technology To Improve Salt Quality**

**at IKM Sanolo Jaya Bima Regency**

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**Abstract**. The problems faced by salt farmers in Sanolo Village, Bolo District, Bima Regency, West Nusa Tenggara Province include the low quality of salt so that it does not meet the standards for use as consumption salt. In this activity, iodine fortification of salt has been carried out into iodized salt. The stages of activities carried out include salt drying, grinding, iodization and packaging. The result of this activity is that the application of salt iodization technology at IKM Sanolo Jaya can improve the quality of salt so that it can meet the standards as consumption salt. Processing of salt into iodized salt increases the selling value of salt by 500%. Changes in the behavior of partner groups in the use of science and technology to produce iodized salt.

**INTRODUCTION**

The salt commodity is the superior product of the Bima Regency which is the locomotive for the development of the fishery sector and a buffer for the salt industrialization in NTB. As a leading commodity that is a regional priority, salt management has been stated in the 2019-2024 NTB roadmap where Bima Regency is a salt industrialization area in NTB. In the next five years, the government has designed a salt industrialization scheme and in 2020 it will be focused on efforts to strengthen salt processing SMEs. In the context of developing the salt industry, the NTB Provincial Government has collaborated with the Bima Regency Government and the Ministry of Maritime Affairs and Fisheries. IKM Sanolo Jaya is a small and medium industry engaged in salt production. Some farmers have used the geomembrane method so that the salt produced has better quality or premium quality. However, the salt produced is still in the form of coarse salt so it must be further processed to be used as consumption salt. The price of krosok salt in Bima Regency tends to vary depending on the weather and salt season [1]. The high prices at the beginning of the season can only be enjoyed for a moment by some salt farmers who are very ready to prepare their production land before the dry season arrives.

During the harvest season, the prevailing salt price at the farmer level does not provide incentives for salt farmers. From this fact, the income level of salt farmers is always very low. In general, smallholder salt farmers in Sanolo Village, Bima Regency, really hope for a salt industry that processes salt in Bima Regency, especially in Sanolo Village, Bolo District, Bima Regency. So that farmers can directly sell their salt products to the salt industry without having to go through traders or collectors who buy salt at low prices. Until now, there is only one company that buys salt in Bima Regency, namely PD Budiono Madura, so the opportunity to monopolize the price of salt is very wide open [2]. To avoid selling salt at low prices, farmers store salt, hoping that the price of salt at the salt farmer level will improve. Salt hoarding is a strategy that can be done to maintain business continuity as well as maintain salt demand in the market [3]. The low selling price of salt in IKM Sanolo Jaya is due to the low quality of salt. Therefore, with the existence of an iodized salt manufacturing industry, the selling price can reach Rp. 5,000 per kg or Rp. 150,000 per sack [4]. In this activity, the industrialization of salt products will be carried out so that salt from farmers is directly processed and then marketed in the form of iodized salt.

**EXPERIMENTAL PROCEDURE**

Coarse Salt

Dried for 30 minutes

Milling Process

Dry Salt

Fine Salt

Fortification using KIO3

Iodized Salt

Packaging Process

Product of Iodized Salt

**FIGURE 1**. Flowchart of the Process of making salt iodized

**RESULT AND DISCUSSIONS**

The raw materials used in this activity are salt products harvested by salt farmers in Sanolo Village, Bolo District, Bima Regency, NTB Province. The salt produced is in the form of coarse salt that has used geomembrane technology in the salt making process. Although the resulting salt product has quality, it does not meet the SNI standard to be used as consumption salt. Indonesian National Standard SNI: 3556-2010 Iodized consumption salt which aims to protect consumer health, guarantee honest and responsible food trade and support the development and diversification of iodized consumption salt industry products. Salt products can be used as consumption salt if they meet the standard NaCl content of 94.7% and contain around 30 - 80 ppm of iodine [5].



**FIGURE 2**. Coarse Salt

The salt used as raw material in this activity is a salt product using a geomembrane as shown in figure 2. Most of the farmers who join the Sanolo Jaya IKM group have used geomembrane plastic as a crystallization table, so that the resulting salt product has better quality than salt produced using soil as a crystallization table [6]. Salt raw material in the form of coarse salt still contains water, so it needs to be dried to reduce the water content. The water content in salt products is a maximum of 7% so that it can be used as raw material for iodized salt. Salt contains the chemical compound sodium chloride (NaCl) which is ionicly bonded between Na+ ions and Cl- ions and is called an ionic compound. In addition to containing NaCl compounds, the salt contains water (H2O) which is covalently bonded to NaCl crystals. Ionic bonded compounds have stronger bonds than covalently bonded compounds. Therefore, the bond between NaCl compounds and water is easily broken by heating to form water vapor. In this activity, the drying process uses a gas-fueled oven. Salt drying was carried out for 30 minutes as shown in Figure 3.

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**FIGURE 3**. Drying Process

The coarse salt that has been dried is then subjected to a grinding process. The grinding process is carried out to reduce the size of the salt crystals. The smaller the size of the salt crystals, the greater the surface area of the salt crystals so that the absorption and binding of iodine with salt in the fortification process can occur optimally. The milling process is as shown in Figure 3.The milling process uses a grinding machine with a capacity of 40-60 kg per hour. To produce fine salt crystals in the grinding process depending on the water content, the lower the water content in the salt, the finer the resulting crystals.

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**FIGURE 4**. Milliing Process

The next stage is the process of fortification of iodine on salt that has been mashed. Salt iodization is the process of mixing NaCl salt with potassium iodate (KIO3). The addition of iodine to salt is a government program to overcome disorders caused by iodine deficiency. Iodine solution with levels of 30-80 ppm is sprayed on the salt crystals while stirring until evenly mixed. The process of iodine fortification and salt packaging is as shown in Figure 5.

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**FIGURE 5**. Process of iodine fortification and salt packaging

The production of iodized salt produces iodized salt products which are packaged in sizes of 1 kg and 250 grams. The selling price for the size of 1 kg is IDR. 5,000.00 This activity can increase the selling price of salt from IDR. 20,000.00 per sack measuring 60 kg to IDR. 150,000.00 per sack or an increase in price of about 500%.

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**FIGURE 6**. Iodized Salt Products

**CONCLUSIONS**

The application of salt iodization technology at IKM Sanolo Jaya can improve the quality of salt so that it can meet the standard as consumption salt. Processing of salt into iodized salt increases the selling value of salt by 500%. Changes in the behavior of partner groups in the use of science and technology to produce salt and process iodized salt.

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