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EFFECT OF COMMON CARP FILLET QUALITY (*CYPRINUS CARPIO*) ON DRIP LOSS DURING FROZEN STORAGE

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ABSTRACT

Common carp (Cyprinus carpio) is a freshwater fishery resource that has high economic value. Common carp are easily damaged because they have a high water content. To maintain the quality of the fish, it is processed in the form of frozen fillets. Correct handling during storage of fish fillets will maintain the quality of the fish fillets. The purpose of this study was to determine the effect of different quality fish fillets on the value of drip loss during frozen storage. Fresh and backward quality fillets were used as the raw material for this study. The fish fillet was stored for 3 days in the freezer at -15oC. The thawing method used is to let it stand at room temperature and give it running water. Observations made after storage were the drip loss value in fish fillets. The results showed that the quality of different fish fillets gave different results to the drip loss value. Different thawing methods have an effect on the drip loss value of fish fillets. The drip loss value of fresh fish fillets that were thawed with running water was 4.36% while those left at room temperature were 11.01%. Quality reverse fish fillets thawing with running water were 16.93%, while the fillets left at room temperature were 18.84%.

Keywords: common carp fish, drip loss, fillet, freshness, thawing

INTRODUCTION

Common carp (Cyprinus carpio L.) is a freshwater consumption fish that has been kept for a long time, since 425 BC in China. In Indonesia, Common carp are kept around 1920, brought from China, Japan, Taiwan. Cultivation I Common carp includes consumption fish which are classified as easy in hatchery and maintenance because they tend to be adaptive (easy to adapt) to their environment, have fast growth, and are resistant to various types of diseases and have potential business opportunities to be exploited and developed by the community. located in West Java, scattered in the Ciamis, Sukabumi, Tasikmalaya, Bogor, Garut, Bandung, Cianjur, Purwakarta areas. The Common carp cultivator group experienced an increase of 0.88 percent in 2016. This is due to the soaring price of Common carp [1].

Fishery commodities generally have perishable food properties because they contain high enough water, so that fish fillet products are suitable media for the life of rotting bacteria or other microorganisms during storage. One of the businesses or methods of handling fish fillets that are widely used is by freezing. One of the businesses or methods of handling fish fillets that are widely used is by freezing. Frozen storage of fish fillets aims to extend the shelf life of fish fillets with a relatively high level of freshness so that raw material stocks are obtained in the processing of various fishery products. However, the frozen product still occurs changes or damage during frozen storage. Good handling of fish will prevent fish from physical, chemical and biological damage so that it can inhibit damage from fish meat or drip loss [2].

Drip is an event that water comes out of the fish's body due to the destruction of the meat tissue so that the meat loses its ability to bind water or water binding. Destruction of fish meat tissue during freezing.

Freezing is the most common treatment to extend the shelf life of fish meat. However, during the frozen storage process, damage can occur to the fish meat due to the water content in the fish meat, fat breakdown, and activity*trumethylamine oxidase [3]*. Water-binding power affects the texture of fish meat and fisheries products such as surimi. Texture is the main attribute in determining functional characteristics that affect the final quality of surimi-based seafood products [4]. Meat with low water holding capacity will easily lose a lot of fluids, so the meat is easy to shrink and shrink or lose weight. The ability of meat to hold good water or meat with high water holding capacity is included in the category of good quality meat. So it is necessary to research the value of drip loss on fresh and backward quality Common carp fillets stored at low temperatures.

MATERIAL AND METHODS

This research was conducted in December 2020 at the PSDKU Fisheries Laboratory Unpad Pangandaran. The main ingredients used are fresh and retrofitted Common carp fillets. Quality reverse filets were obtained from storage for 24 hours at room temperature. Meanwhile, the tools used in this research were fillet knife, digital scale, measuring cup, ziplock plastic, thread, and freezer with a temperature of -15oC.

The research was conducted based on two treatments, namely treatment of fillet quality and treatment of different thawing methods. Fresh and retreated quality fish fillets are weighed as initial weight. Before to storage, the fish fillets were tied with threads and then put in a plastic bag. Try to keep the fish meat from touching the walls of the plastic bag. Cover the plastic tightly and hang the fish fillets in the freezer. Store the fish fillets fresh and backtrack for 3 days with a temperature of -15oC. Fish fillets that have been stored for 3 days are then thawed with 2 (two) methods, namely left to stand at room temperature (A1) and flow in running water (A2) and until the fish fillets thaw or do not freeze.

The observations that were observed were the drip loss value after low-temperature storage. Observation of drip loss based on [5] is that samples are weighed as initial weight (x) and samples that have been stored in the freezer are weighed (y). Drip loss begins by calculating the difference between the initial weight and the weight after thawing, then divided by the initial weight and the percentage of the drip value on the fillet is calculated. The data obtained were analyzed for variance at the 5% real level, if there was a significant difference, it was stated by orthogonal polynomial test [6]. The observed variable was the drip loss value.

RESULTS AND DISCUSSION

The storage process carried out on fish fillets uses fast freezing. Fast freezing has the advantage over slow freezing because the small ice crystals will cause less mechanical damage. This will have an impact on the time of tiring (thawing) [7]. Based on observations of drip loss on fresh Common carp fillets and quality retreating with different thawing methods, it gave different values for the drip loss produced after frozen storage. The results of the observations are presented in Table 1.

Table 1. The value of drip loss on fish fillets with different thawing methods

Parameter	Fresh Fillet		Fillet Backwards Quality	
	A1	A2	A1	A2
Initial weight (gr)	36.3 ± 0.1	34.4 ± 0.3	26.0 ± 0.3	24.8 ± 0.5
Weight after thawing (gr)	32.3 ± 0.1	32.9 ± 0.4	21.1 ± 0.2	20.6 ± 0.8
Drip loss (%)	11.01	4.36	18.84	16.93

Drip loss is the process of releasing fluid from the fish's body due to different temperatures. According to [8] states that the thawing method to thaw frozen fish can affect the quality or quality of the fish, especially the texture of the meat. The difference in drip loss value in the four samples 11 is due to the influence of storage time and time, besides that environmental humidity also affects drip loss, for example, due to the thawing process [9]. The thawing method applied to an observation can affect the quality contained in these foods-

tuffs where the longer the thawing process will cause a decrease in protein, fat, and water content. Other than that,

Observations were made on both samples, namely Common carp (*Cyprinus carpio)* the freshwater that is left idle and flows, and the Common carp that have deteriorated quality are left alone and flowed with water. The results showed that both samples experienced a deterioration in the quality value, where there was a decrease in the weight of the fish both in fresh fish samples and fish that had experienced a deterioration in quality. One of them is that the fresh fish sample which was flowing with water experienced a deterioration in quality, namely the initial weight of 34.4 gr to the final weight of 32.9 grams, then in the volume section, there was a liquid that came out as much as 0.7 ml with a drip loss value of about 4.36%. Meanwhile, the fillet fish that had experienced quality deterioration were flowed with water, namely the initial weight of 24.8 grams to the final weight of 20.6 grams, with a volume of 0.02 ml and a drip loss value of 16.93%. Then for fresh fish have the initial weight of 36.3 gr to 32.3 gr, with a volume of 2, 8 ml and the drip loss value was 11.01%, while for the deteriorated quality of fish fillets, the initial weight was 26 g to the final weight of 21.1 g, with a volume of 0.01 ml and a drip loss value of 18.84%. Based on the fillet observations of the four samples, it can be concluded that there is a difference in the drip loss value. This is because the Common carp fillets that have experienced a deterioration in quality produce more drip loss results than fresh fish. This is because the bonds between cells begin to decrease and detach from each other when frozen and will damage the cell membrane. In addition, Common carp fillets experience deterioration in quality because the cells in the fish begin to loosen and will solidify again when frozen. Then, When the fish is thawed and the thawing process occurs, it is a very important process because thawing is the process of returning the fish to its initial condition, which occurs when the sarcoplasmic protein dissolves. These proteins will be damaged if using a slow freezing process because it will form large ice crystals that will result in tissue damage in fish [11].

According to [5] states that drip loss is a measurement of the binding capacity of water with the principle that free water will be released and muscle protein will be in line with the decrease in muscle pH. The loss of water content is calculated based on the percentage of weight loss, for example during cooling to the initial root, such as the difference in the drip loss value of fresh fish and fish that have experienced quality deterioration. The factors that influence the value of drip loss in fish depend on when the fish is in the hanging process, so when the temperature is high it will cause a high drip loss value. The freezing process of Common carp fillets in the form of fresh fish or fish that has decreased in quality depends on the rate of freezing and the size of the ice crystals formed which will determine the amount of drip produced. For the fast freezing process will inhibit cell damage on the contrary if the slow freezing process will cause large ice crystals to form and cause cell damage in fish. In addition, according to [12] states that when the thawing process occurs, the fish will experience a lot of loss of various nutritional values, one of which is due to the thawing process that is applied. Where when the longer the temperature process is applied to the thawing process it will cause a decrease in protein, fat, and water content. one of them is because of the thawing process that is applied. Where when the longer the temperature process is applied to the thawing process it will cause a decrease in protein, fat, and water content. one of them is because of the thawing process that is applied. Where when the longer the temperature process is applied to the thawing process it will cause a decrease in protein, fat, and water content.

CONCLUSION

Testing *drip loss* in Common carp (*Cyprinus carpio*) have different results during frozen storage. fresh fish fillets are on *thawing* by flowing water has value *drip loss* the smallest is around 4.36%, with the weight loss from 34.4 gr to 32.9 gram while the value *drip loss* the largest is 18.84% obtained from the quality reverse fish fillets in *thawing* by letting it stand, with the weight loss from 26 gr to 21.1 gr. The drip loss value of fresh fish fillets that were thawed with running water was 4.36% while those left at room temperature were 11.01%. Quality reverse fish fillets thawing with running water were 16.93%, while the fillets left at room temperature were 18.84%.

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