Proceeding The 1st IBSC: Towards The Extended Use Of Basic Science For Enhancing Health, Environment, Energy And Biotechnology
ISBN: 978-602-60569-5-5

The Protein And Water Content Of Ten Variations Of The Feed Cassapro Of Yeast Tape

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Abstract—This research was conducted to find out how the protein and water content ten variations of the feed cassapro of yeast tape. This research was conducted in March-May 2016. The results showed manufacture of tapioca pulp and fish flour has increased very high protein after fermentation with yeast tape. Ten variations of feed cassapro of yeast tape according to the highest order as follows: variations 10, protein content of 66.12%; variation 9, protein content of 59.16%; variation 8, protein content of 67.54%; variation 7, protein content of 36.78%; variations 6, protein content of 38.14%; variation 5, protein content of 33.37%; variation 4, protein content of 26.82% variation 3, protein content of 24.76%; variation 2, protein content of 17.81%; the first variation, protein content of 68.63%. From the sequence can generally be seen that the higher the protein content if mixed fish flour higher. Although there are exceptions, namely the treatment of mixtures or variations first, seventh and ninth. It can be concluded that: the highest protein content of 66.12% was found in 10% variation cassapro blended with 90% fish flour and protein content of 17.81% is lowest that is a variation of 90% and 10% cassapro and fish flour. While most high water content is 17, 23% are on a variation of 80% and 20% tapioca pulp fish flour and the lowest water content is 6, 33% are on a variation of 10% tapioca pulp and 90% fish flour

Keywords—feed cassapro, tapioca dregs, fish flour, protein content, water content.

INTRODUCTION

1. Background

The feed is a very important factor for the growth of fish. By feeding the fish appropriate and proportionate, makes the pet-fish to be fully developed. Instead, the selection of the wrong fish feed could lead to less maximum yields could even cause harm. Quality fish feed not only be seen from the amount, but also of its nutritional value.

High prices of feed to make the farmers worry because opportunities to benefit increasingly thin, because the fish feed costs could reach more than half of the total investment incurred. The solution is certainly not negate or reduce forage fish, but to look for alternative feed from raw materials that are abundant around us or even of waste that we can process into alternative feed. If farmers are able to make their own food can certainly reduce the cost of purchasing fish feed more expensive price. Cassapro based feed is expected to be an alternative feed in question.

Cassapro is an acronym for 'cassava protein tinggi' (cassava high-protein). Cassapro raw materials. The raw material can be in the form of cassava, peel or pulp manufacture of tapioca flour. Utilization in the manufacture of tapioca pulp into cassapro (cassava high protein) is the application of fermentation technology with the help of yeast tape. On this occasion cassapro feed in question is feed the raw material is pulp manufacture of tapioca flour. Dregs manufacture of tapioca flour is the waste can be turned into feed containing high protein.

The main function of the protein or builder substances, namely growth and maintenance of tissues. The growth and maintenance of tissues is possible when provided specific amino acid sequence that is appropriate. Protein also serves as a source of energy. Other proteins function is as a transporter of nutrients and other molecules.

Protein quality is determined by the type and proportion of amino acids it contains. Complete proteins or proteins with high biological value or high-grade is a protein that contains all essential amino acids in appropriate proportions for growth.

Protein requirements of fish will decrease if the older the age of the fish. But instead of fish that young age require a high protein. The fish protein deficiency will use protein reserves that exist in the body, if not supplai, fish growth will decline. Carnivorous fish protein needs 30-60% and 18-28% whereas herbivores.

Thus the availability of alternative feed quality to meet the needs of fish and chicken are needed. Therefore provide such feed is an effort that is expected to be available in the market. Cassapro based feed is expected to become the alternatif feed. Because it conducts research and analysis of how the protein content and a wide variety of water-based feed cassapro needs to be done in order to make recommendations of the best variations.

2. Formulation Problems

How much protein and water content ten variations cassapro of yeast tape.

3. Research Objectives

To find out how much protein and water content ten variations cassapro of yeast tape.

LITERATURE REVIEW

1. Feed

Feed is the general name used to describe food that is utilized or eaten by animals including fish for survival and growth of the body. Uneaten fish feed comes from nature (so-called natural food) and from man-made (so-called artificial feed). Artificial feed mixed from several raw materials that contain specific nutrients. Raw materials processed in a simple or processed in bulk and produce artificial feed in the form of pellets, powder or crumb or crumble and pasta. (Khairuman and Khairul, 2002).

According Mudjiman (2004) there are several properties of the feed must be known in order to be accepted by the artificial feed the fish pets and can be used efficiently among other things:

1) Water content : Artificial feed can be prepared dengna water levels vary. By variation of the water content of the artificial feed dekenal dry (moisture content of about 10%), moisture (water content between 30-45%), wet (water content of more than 50%) or between the water content.

2) Form feed : Forms of both dry and moist feed is very diverse. Dry feed can be made in the form of pellets, crumbs (crumble), granules (granular), flour (meal or mash) and sheets (flake). Moist feed can be spherical or meatballs (ball) and a steamed bun (cake). For wet feed is generally shaped porridge or pasta (paste) .Measure pellets ranges between 3-3.5 mm, while the crumb ranges between 1-2 mm. Violence pellets depends on how the manufacturing, raw material, type of adhesive, and the amount of adhesive.

3) Texture feed : Besides the form of feed, alain physical factor is the texture of the feed. Texture is the degree of fineness of the raw material before mixed. Good feed made from raw materials berbetuk refined flour or at least in the form of flour pass strain through a sieve.

4) Buoyancy (power float) in the feed water : The buoyancy of the water in the feed needs to be considered. In general, artificial feed is sinking. However, through a special process, the pellets can float or floats. The buoyancy of feed has something to do with a specific gravity feed. The greater the density of feed than the

density of water (specific gravity of water = 1), the feed in question more quickly sank. If the weight of the type of feed approximately 1 then feed it will float, whereas if the density of the feed is less than 1, the feed will float.

5)Durability in water : Artificial feed should be able to survive that is not immediately destroyed or dispersed when entering the water. In general, the durability (stability) of shrimp feed in water ranging between 3-5 hours. The durability of the artificial feed in water is influenced by several factors, such as the number and types of raw materials, the manufacturing method, amount and type of adhesive materials, as well as raw materials flouring.

In intensive fish farming artificial feed is provided to meet the needs of the fish. Based on the level of need of artificial feed can be divided into three groups, namely:

1) Feed extra : Additional feed is feed that is intentionally designed to meet the needs of fish feed in this case is cultivated already get food from nature. But the number is not sufficient to grow well so we need to add artificial feed as a feed supplement.

2) Feed supplements : Feed is a feed supplement that purports to add certain nutritional components that can not afford disedikan natural feed.

3) The main feed : The main feed is feed that purports to replace most or all natural food.

2. Content of Protein

Nutrient content is the type and amount of nutrients contained in the feed. In practice these nutrients from the feed required by the fish to grow and thrive, including replacing damaged cells and generate power in their daily activities.

. The nutritional requirements of carnivorous fish different away with the nutritional needs of herbivorous fish or omnivorous fish's nutritional needs. The content of the most important nutrients and fish body needs is protein, fat, carbohydrates, vitamins and minerals. This feed nutritional needs are not the same between species of fish and the other one (Khairuman and Khairul, 2002).

Protein also known as albumen. Protein is the main component of the formation of tissues and organs of the body of the fish. Proteins are made up of substances nitrogen in the form of amino acids, fatty acids, enzymes, hormones, and vitamins. The use and supply of continuous protein in feed is necessary to support the growth and repair of cells damaged fish.

Judging from the element formation, protein is composed of the elements carbon, hydrogen, and oxygen. The main elements of the preparation of the protein is fairly constant percentage of nitrogen (range 15-18%, or an average of 16%). In general, the protein also contains sulfur, phosphorus, and iron.

Fish need food that contains protein in the range varies, usually between 20-60%, while the need for optimum ranges between 30-36%.

Protein can come from plants (vegetable protein) and animal (animal protein). According to the research, more digestible animal protein than plant protein. The essential amino acid content is more complete than vegetable protein (Khairuman and Khairul, 2002).

RESEARCH METHODS

a. Materials and Tools

Ingredients: KCl, NaH2PO4, FeSO4, CuSO4, Urea, tapioca starch Dregs, tape yeast, sugar

Tool: Machine tool feed maker, Scales, Ember, Points of drying or drying feed

b. Method of Implementation Research:

Stage 1: Preparation of all materials and tools needed

Stage 2: Making Cassapro Yeast Tape

a. Making Cassapro Yeast Tape

- The raw material pulp manufacture of tapioca plus aqua.
- Nutrient Plus + urea and stir evenly with raw materials.
- Plus Tape yeast, stir evenly.
- Drained 1-2 days.

b. Printing and grinding feed with 10 variations in the mix :

- Variation 1 : (100% tapioca dregs and 0% fish flour)
- Variation 2 : (90% tapioca dregs and 10% fish flour)
- Variation 3 : (80% tapioca dregs and 20% fish flour)
- Variation 4 : (70% tapioca dregs and 30% fish flour)
- Variation 5 : (60% tapioca dregs and 40% fish flour).
- Variation 6 : (50% tapioca dregs and 50% fish flour).
- Variation 7 : (40% tapioca dregs and 60% fish flour).
- Variation 8 : (30% tapioca dregs and 70% fish flour).
- Variation 9 : (20% tapioca dregs and 80% fish flour).
- Variation 10 : (10% tapioca dregs and 90% fish flour)

c. Drying with the drying 2 days

- *Phase 3* : Test protein and moisture content to PPKS.
- *Stage 4* : Analysis of protein-based feed ten variations cassapro.ragi tape.

RESULT AND DISCUSSION

Analysis of protein and moisture content implemented in two phases to PPKS (Palm Research Center) Medan. The first phase dates: 8 to 17 March 2016 and the second phase dates: March 29-April 6, 2016.

Results of Test Methods Reagents - SNI 01.0008.1987 and MPOB k1.2.2004 in Oil Palm Research Center (PPKS) on 08-17 March 2016 the first stage and the second stage dates: March 29-April 6, 2016 is as follows:

TABLE I. Protein Content Test Result Water Levels Ten Variations Mixed Tape yeast

No	Variation	Protein content (%)	Water content (%)
1	100% tapioca dregs and 0 % fish flour	68,63	11,06
2	90% tapioca dregs and 10 % fish flour	17,81	8,26
3	80% % tapioca dregs and 20 % fish flour	24,76	17,23
4	70% % tapioca dregs and 30 % fish flour	26,82	6,71
5	60%% tapioca dregs and 40 % fish flour	33,37	9,26
6	50%% tapioca dregs and 50 % fish flour	38,14	6,90
7	40% % tapioca dregs and 60 % fish flour	36,78	9,65
8	30%% tapioca dregs and 70 % fish flour	67,54	7,89
9	20%% tapioca dregs and 80 % fish flour	59,16	10,36
10	10% tapioca dregs and 90 % fish flour	66,12	6,33

From the table above it can be seen that an increase in protein content. This indicates that the dregs of the manufacture of starch increased very high protein after fermentation with yeast treated tape. Of the 10 treatment dose variation cassapro yeast feed the tape according to

ISBN: 978-602-60569-5-5

the highest order is as follows: 10 variations to the protein content of 66.12%; 9 variation to the protein content of 59.16%; 8 variations to the protein content of 67.54%; 7 variation to the protein content of 36.78%; variations to 6 protein content of 38.14%; 5 variation to the protein content of 33.37%; 4 variations to the protein content of 26.82% variation to 3 protein content of 24.76%; variation into 2 protein content of 17.81%; the first variation of the protein content of 68.63%. From the sequence can generally be seen that the higher the protein content if a powder or flour ikannnya higher. Although there are exceptions, namely the treatment of mixtures or variations first, seventh and ninth. This may be due to the mistakes of the researchers in the mixing or oversight on the part of PPKS in conducting the test. To avoid errors in concluding and so as not to bias the researcher will ignore the three variations of the mixture.

CONCLUSIONS AND RECOMMENDATIONS

a. Conclusion

We can coclude that The highest protein content was 66.12% contained at 10% variation cassapro pulp blended with 90% of the fish. The protein content of 17.81% is lowest that is a variation of 90% and 10% pulp cassapro fish The highest water content was 17, 23% are on a variation of 80% and 20% tapioca pulp fish meal The lowest water content is 6, 33% are on a variation of 10% tapioca pulp and 90% fish meal.

b. **Recomendation**

Need to do research on value-added and cost analysis based feed manufacturing cassapro tape.

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