

Development of spring ball using fish

Abstract

Spring Fish ball is an extruded popular product among the Asian communities. In the manufacturing of fish ball optimum floatation is extremely important for maximal production. The production of spring ball using fish was successfully carried out. The physicochemical properties of spring ball using fish was investigated in terms of water, chemical, color, flavor, texture, softness, protein, carbohydrates and fats. Products in terms of its textural properties of fish ball were analyzed and acceptability of fish ball by sensory evaluation was evaluated. Temperature is most important part of spring ball using fish. At first all of ingredients measurement was completed. Ingredients were fish muscle, salt, MSG, garlic fresh, onion fresh, green chili, white paper powder, black paper powder, white flour, starch, STPP, soybean oil and packing materials. Set fish ball was an extruded surimi-based product that was packaged after setting. Oversetting of set fish ball occurred at chilled temperature during storage. Shelf life extension of set fish ball by reducing oversetting conditions and microbial counts were examined. Optimum processing conditions for fish ball uniform shape and maximum production were that frozen surimi was thawed for 1h before chopping until its final temperature reached 5°C.

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Introduction

In Bangladesh context “Development of spring ball using fish” is a recent idea which flourished by the new modernize food industry. They come up with innovative business ideas with difference new foods products. Fish balls are the outcome of that kind of foods industrialization. In recent demand of having nutritional meal is gradually increasing by the consumers. They try to get hygienic and good food by any means because they have money for purchase. We know that day by day purchasing capacity of our customers increasing because of their convenient daily income. Consumers now not only look for the taste and appearance, they also want to have the nutritious meal at the same time. In my current study it is the target to produce spring ball using fish that is high in protein. The incorporation of different types of ingredients is something new in Bangladeshi food industry even though it had been applied in many countries for the past few years. Fish balls producers attempt to combine the different types of ingredients that have scientifically proven nutritional contents to the Ball. Fish is mainly used for making different types of curry and supplementary items which eaten with rice in Bangladesh. Actually Bangladeshi community habituates with this culture. Fish balls are the staple food in many parts of Asia. A traditional fish ball is made from fish meat and some ingredients. But in my present study it has made from very rich ingredients which are suitable for improve human health after incorporating source of vitamin and essential nutrition.

Development of spring ball

The act of developing or the state of being developed, as the application of technique or technology to the production of new goods or service. Development means the act or process of growing, processing or development of somewhat. In my present study my main works is development of spring ball by using of fish.

Required list of utensils

1. Balance
2. Knife
3. SS Bowl
4. Thermometer
5. Refrigerator
6. Grinding Machine
7. Three knife Chopping Machine
8. Forming Machine
9. Boiling Pan
10. Fryer Machine
11. Drying Machine
12. Packing Materials
13. Vacuum Packing Machine
14. Table, Spoon, Basket.

This mentioned equipment is required for production the fish ball at factory level. In Bangladesh context we haven't the sufficient sophisticate equipment for production. But in western countries, they have used to from long time before. It is a matter of pleaser that now a day's modern food industries try to arrange such kind of equipment for advanced and hygienic food production.

List of raw-materials

Due to limited studies of fish ball manufacturing in Bangladesh, it is not possible to fix the standard list of raw materials for making the fish ball. In my study I used the below materials for the production of fish ball: 1. Fish without bone. 2. Wheat Flour. 3. Starch Powder. 4. Normal Salt. 5. Tasty Salt (MSG). 6. Green Chili. 7. Onion Fresh. 8. Garlic Fresh. 9. Sugar. 10. White pepper powder. 11. Black pepper powder. 12. Sodium tri polyphosphate (STPP). 13. Potassium sorbet. 14. Chilled water.

Application

Food industry

It is a good source of carbohydrate and chosen for four reasons 1. As thickener 2. As binder 3. As Filler 4. As stabilizer. Depending upon the purposes, Maize Starch is used in canned and Powder soups, instant desserts, custard powder, Ice-cream, sauces and gravies, bakery products, baby foods and Baking powder.

Pharmaceutical industry

Drugs and medicaments are required to be taken in small but accurate doses in the form of pills and tablets. Starch is used because it is bland, odourless and capable of digestion.

Development of spring ball...the way they should be made

Bangladeshis love their fish, which, traditionally, are collected from the fresh waters of lakes, ponds, estuaries and rivers. The fish are cooked in thousands of different ways, "Fish Ball" being just one of them. Fish balls are a staple in many Asian homes as delicious as they are. In Hong Kong they are a popular street food. There are as many fish ball stands in Hong Kong as there are hot dog stands in North America. They can be eaten on their own, fried, boiled, with noodles, in curry, in hot pots, on skewers, barbecued or any way you can think of cooking them! All ways are delicious.

It's always quite satisfying to realize that you can buy fish ball from the store in your nearest shop. Factory made food also has the benefit of being less expensive and much better for your health. You can control what goes into what you eat, and keep your meals by disinfected way.

Factory made fish ball is made with different types of ingredients but traditional fish ball is made with minimal ingredients. To sum up the process, you are scraping all the meat from a fish (or fishes) and pounding it until it reaches the right consistency. There is a lot of technique to the pounding part. You've got to do it for the right amount of time to achieve the perfect fish balls with that "bouncy", "springy" consistency. Here I describe the process about development of spring ball using fish.

- i. Clean the fish. Make a slit along the belly from the fish's rectum up to where the head begins. Remove all the innards and discard. Rinse the fish in cold water, dry and place on cutting board. Use a plastic cutting board for this works. Remove fish heads. Simply chop the heads off. Discard, or save if want to use them to make another thing. Filet the fish. Slice the meat off the fish along the bones from the tail forwards towards the head using a sharp knife. Repeat on the other side as well. Scrape the flesh from the skin of the filets as well as off of the remaining fish bones. Ultimately want all the meat separated, without bones or skin. Be careful from small bones.
- ii. After that place all the fish flesh in a bowl for storage in cold storage or refrigerator minimum thirty minutes in 0°C.
- iii. At this stage we need to measure all raw materials in a standard level and need to send a mixing room for pre mixing. Need to run chopping machine when it comes at the temperature of 0°C before filling of fish flesh with the help of ice.
- iv. Add wheat flower, starch powder, sugar, salt, white pepper and STPP and run the chopping machine at least four minutes.
- v. Second time we need to add onion fresh and garlic fresh and need to run the chopping machine another four minutes for well chop of fish flesh.
- vi. The fish will develop a slightly sticky consistency as we continue to chop. Add the salted water bit by bit while chopping. This will make it less sticky. Consequently, we need to add green

chili, black pepper, potassium sorbet and need to run chopping machine another extra two minutes. We run the machine altogether ten minutes for chopping.

- vii. When our fish is evenly chopped, with no big chunks, we will gather the ball of fish past and begin the throwing /slamming process. Repeatedly pound the fish paste onto the cleaned cutting board. This is the key to making "springy" or "bouncy" fish ball. Fish paste should be smooth and soft. When you're finished, wet your hands and apply a little bit of water to the surface of your fish past ball and you will notice it becomes smooth and shiny, you have done well.
- viii. To make spring ball by fish, take the paste in your hand and inter into a forming machine for shape into the ball. We will get 10gm (each) fish ball from the forming machine. First time we need to boil in water ten minutes this fish ball at the temperature of 60°C and another ten minutes at the temperature of 75°C. in water for adequate boil.
- ix. After boiled we need to drying fish ball for the purpose of removing the water. At this stage we need to pack dry fish ball with level for marketing. For packing we may use vacuum packing machine. After packing we storage this at the temperature of minus 40°C.
- x. When a customer buy this factory made spring fish ball it is obligatory to fry with the temperature of 150°C. Before serving with the other menu.

Fish ball is very popular street food snack that is best served with a sweet and spicy sauce or with a thick black sweet and sour sauce. Fish ball is primarily made of fish flesh mixed with others ingredients. Not all fish can be used for making fish ball. Fish like salmon, tuna, white pomfret, etc because it's too expensive to rep in a good profit. So we may use pan gash, swordfish, fresh water fish which is inexpensive.

Evaluate the product in terms of its texture and tests

Of the 15 participants who completed the questionnaire, (66.5% male and 33.5% female) and all are adults. Average ages of participants in the survey were 33. Of the consumers 62% had university degree.

Significant difference was found in regarding purchasing behavior of male & female. While 45% of male indicated that they buy spring fish ball once a week or more often, majority of male 55% stated purchasing spring fish ball 2–3times per months or less. Answers regarding attitudes of male towards spring fish ball indicate considerable differences. Majority of participants indicated that a healthy diet is important to them. Of the participants 72% of male and 80% of female fully agreed on wanting to know the nutritional quality of spring fish ball before purchasing them.

Most consumers agreed with choosing fish ball fortified with fish proteins. In response to questions about choosing spring fish ball with less salt, 31% of male and 48% of female fully agreed on choosing such products. Regarding Trans fats, 37% of male and 69% of female fully agreed on choosing spring fish ball with less Trans fat.

When asked about the importance of the taste of spring fish ball, 42% of male and 9% of female fully disagreed that taste of spring fish ball is much more important to them than the nutritional quality. It seems taste of spring fish ball is more important to the male which is in line with how they react to the questions about salt and Tran's

fats. It was noted that the majority of male & female pay attention to ingredients list of spring fish ball before purchasing them. The majority of both agreed that they would encourage their children to eat spring fish ball fortified with fish protein rather than regular snack, Majority of male (70%) answered that food products fortified with fish protein are very healthy. Attitudes of male & female towards healthiness of spring fish ball are positive. All participants indicated that fish is a healthy food.

Conclusion

This study was carried out to determine development of spring ball using fish associated with characteristic of raw materials available in Bangladesh markets. The nutritional value in fish ball is consider as high because it has approximately quite high content of

protein and carbohydrate although it has low content of fat. These compositions are desirable in human growth and in maintaining daily nutrient supplies for metabolism of body. The texture of all the fish balls samples are tender and gained AA grade for folding test. Fish balls are the popular food product in the world. Fish ball production in our country is usually initiated by small family-based enterprises. However, in recent years many factories have invested in modern machinery to increase the production of fish balls.

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None.

Conflict of interest

Author declares that there is no conflict of interest.