

Development of Sea Salt Bath Bombs

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Abstract. As the salt capital city of the Philippines, Pangasinan utilizes the full potential of sea salt by producing a variety of products made and preserved from sea salt. Dried fish, fish sauce, and even cosmetic products are made from salt. Salt farming has also given local folks the means to earn. It became their livelihood in certain parts of Pangasinan. Since the province provided tons of salt, the thought of developing a product out of it was inevitable. Hence, this study aimed to develop bath bombs using sea salt. Aside from it becoming locally made, it would also be originally from natural salt, which would make it more appealing to customers. This study also focused on finding the best formula for the salt bath bomb. It sought the opinion of the participants of the study about the salt bath bomb's effectivity on their skin, the therapeutic claim, if there is any, and their perception of the innovativeness of the product. The method used in the study was an experimental method comprising three trials. Five participants joined the conduct of the study. They were given salt bath bombs from each trial to be tested at home. The result showed that out of the three trials, the third trial was more effective and was better compared to the two. The participants showed a positive impression and stated that the developed salt bath bombs were therapeutic and innovative. They rated each trial as excellent in terms of quality.

1. Introduction

Pangasinan is known as the Salt capital of the Philippines since it is surrounded by salt water. Pangasinan tops the provinces which produce tons of salt for food and industrial usage. To utilize the full potential of sea salt in the market, different products from salt are produced.

Sea salt is good for people with arthritis. The significant anti-inflammatory properties of sea salts play a crucial role in lowering pain and inflammation. Numerous studies attest that using sea salts in your diet can significantly reduce the symptoms of rheumatoid and osteoarthritis. Also, when applied topically, sea salt works as a natural exfoliator. Acne, psoriasis, eczema, and aging are all greatly helped by sea salt's rich mineral content and anti-inflammatory qualities. According to Ger (2021), when used in the bath, sea salt is known to rejuvenate, cleanse, and hydrate the skin, giving smoother, younger, glowing skin. Additionally, sea salt bath bombs can help with health problems such as osteoarthritis and annoying skin conditions. Natural sea salt contains a generous amount of minerals like magnesium, calcium and potassium. The magnesium in sea salt causes the relief of muscle pain and brings therapeutic effects to the body (Ger, 2021).

Sea salt was also hailed for its health-enhancing minerals, therapeutic properties, and all-natural harvesting process. Adding a little sea salt to the bath could stimulate circulation, help relieve joint stiffness, aid with arthritis or back pain, and soothe achy, overworked legs and feet. Sea salt helps cleanse and detoxify skin. Moreover, one of the most well-liked natural goods is raw sea salt. It comes from the earth's crust or from the crystallization of evaporated seawater in a saltern. Since the earliest human communities, natural sea salt has been utilized as a food preservative, fermentation modifier, toothpaste addition, and antiseptic material. Salt particles can make bacteria inactive by affecting microbial growth parameters such as osmotic pressure, water molecule movement, temperature, and pH (Shin, et.,al.,2009).

Common products enjoyed from sea salt are dried fish and fish sauce. The suitability of sea salt in different industrial products is yet to be known. In line with it, this feasibility study examines the effectivity of sea salt in making bath bombs, which can be marketed in local inns and hotels around Pangasinan. It can also be marketed to residents who enjoy long, fragrant baths. This study also aims to know the effectiveness of sea salt as a

substitute for Epsom salt and its affordability compared to commercial bath bombs.

The process of making sea salt bath bombs is comparable to how handmade and DIY commercial bath bombs are produced. To make one, the following ingredients and materials should be prepared with accurate measurements. Citric acid, baking soda, essential oils, sunflower oil, high-grade coloring, and sea salt are mixed to form a fuzzy ball. The waiting time is 2-4 hours, depending on the size of the salt bath bomb. The packaging of the product depends on the shape of the bath bomb. Cling wraps can be used to pack the bath bombs, and vacuum seals can also be used for packaging.

The main objective of this study is to develop Salt Bath Bombs which can be enjoyed by the locales. Moreover, it also aims to:

1. based on trials, determine the desired Salt Bath Bomb;
2. determine the impression of participants about the developed Salt Bath Bomb;
3. determine if there is a therapeutic effect of Salt Bath Bomb based on participants' observation;
4. determine the factor of innovativeness for the developed Salt Bath bombs;
5. document the recommendations of the respondents about the Salt Bath Bombs and collect data on how the participants enjoyed the Salt Bath Bomb

2.0 Methodology

This part of the paper tackled the different methods and components used in the development of Salt Bath Bomb, such as the research design, research method, and data analysis used.

Research Design

This study used experimental design to study the effectiveness of using sea salt as an alternative ingredient for bath bombs. Specifically, this design contributed to developing quality bath bombs through various modified parameters, such as the variation in the ingredients used. Three trials were performed during the conduct of the study. Each trial was composed of different measurements of ingredients used. Moreover, the differences in trials were also indicated by different colors. For example, for trial 1, the researchers used color blue. For trial 2, the color yellow was used. For trial 3, the color of the sea salt bath bombs was pink.

Research Method

The ingredients for each trial were carefully measured and mixed. The detailed instruction for the development of the Salt bath bomb is as follows:

The first step was to put the baking soda, citric acid, cornstarch, and sea salt in a mixing bowl. The mixture was whisked until fully combined. This will vary on trial 2 since 50 grams of borax is added. Slowly, the sunflower oil, essential oil, and food-grade coloring were added to the mixture. When all ingredients were uniformly combined, a few drops of water were added, and the mixture was whisked again. Afterward, a small amount of water was added to the mixture until it became clumped together when pressed. The mixture was molded using a molder. The molded mixture was left to dry for 2 to 4 hours. The final product was then carefully removed from the molder and was given and tested by the respondents.

2.1.1. Ingredients.

TRIAL 1	TRIAL 2	TRIAL 3
500 g Baking soda	500 g Baking soda	500 g Baking soda
250 g Citric acid	250 g Citric acid	300 g Citric acid
125 g Corn starch	75 g Corn starch	150 g Corn starch
125 g Sea salt	125 g Sea salt	150 g Sea salt
8 tbsp Sunflower oil	50 g Borax	8 tbsp Sunflower oil
1 ¼ tsp essential oil	10 tbsp Sunflower oil	5 tsp essential oil
2-4 drops Food-grade coloring (spec. Blue)	3 tsp Essential oil	2-4 drops Food-grade coloring (spec. Pink)
*water (for binding)	2-4 drops Food-grade coloring (spec. Yellow)	*water (for binding)
	*water (for binding)	

2.2. Tools and Data Analysis

The study used mixed quantitative and qualitative methods of data gathering. The researchers provided a 5-item questionnaire and interview questions to be answered by the respondents. All answers were consolidated and were transcribed accordingly. The results were reported in the form of statements. Descriptive analysis was also applied for questions requiring the respondents to answer according to their level of acceptance of the product.

3.0 Results and Discussion

This section describes the results of the study. Specifically, the result of this study was divided into two parts: the observation from the researchers and the observation from the respondents.

3.1. Observations from the Researchers

Trial 1	Trial 2	Trial 3
1. The output was dry and broke easily when removed from the mold.	1. Borax did not give any changes with the structure of the product.	1. Product was firm.
2. The sunflower oil floated when the output was submerged and mixed with water.	2. The product was sloppy and not firm.	2. Fast drying time
3. The output was silmy.	3. Longer drying time covered.	3. Scent lingered for awhile
4. There was not enough fuzz to make it look more like a bath bomb.	4. Less fuzzy than trial 1	4. Not too oily
5. The scent was not strong enough.		5. More fuzzy
		6. The product was more clumped together.

3.2. *Data Gathered from the Respondents*

First impression of the Salt Bath Bomb

Trial 1: Respondents stated that it had a nice smell and it "helped moisturize" their dry skin after a bath.

Trial 2: Respondents said the second sample was too oily, and the smell was strong.

Trial 3: Respondents said it looked and smelled nice.

Overall, respondents showed positive feedback on their first impression of the Salt Bath Bomb.

Therapeutic claim of the Salt Bath Bomb

Trial 1: Respondents expressed that it "helped them relax their muscles and relieved their stress".

Trial 2: Respondents affirmed that the sample "improved their skin hydration."

Trial 3: Respondents stated that the sample gave the "aroma therapy feeling" they usually get when they go to a spa salon.

Overall, the respondents agreed that the sample brought a therapeutic effect.

Innovativeness of the Salt Bath Bomb

Trial 1: Respondents said that the use of sea salt as the main ingredient had made the Salt Bath Bomb innovative.

Trial 2: Respondents said that it was their first time to use such a product. They also noticed that the second sample produced bubbles, which made it more slippery than the first sample.

Trial 3: Respondents said that it was closely similar to the first sample. Overall, the respondents strongly agreed that the development of the sample was innovative.

Recommendation of the Salt Bath Bomb

Overall, According to the respondents, they are very likely to recommend the Salt Bath Bomb.

Excellent quality of product

Trial 1: Good product Trial 2: Good product Trail 3: Good product 8

Overall, respondents strongly agreed that the quality of the Salt Bath bomb was excellent.

What do you like most about the Salt Bath Bombs?

Overall, the respondents liked the scent of the Salt Bath Bomb most. They also liked the therapeutic effect of Salt Bath Bomb, such as "it relieved their stress and stabilized their mood."

What is your recommendation with the developed Salt Bath Bomb?

Overall, the respondents suggested that "it would be better to have a good quality of packaging" since it can be a form of gift later. They also recommended to clump the product more so that it will retain its shape for a longer period.

4.0 Conclusion and Recommendations

Conclusion

The main objective of this study was to develop Salt Bath Bombs which can be enjoyed by the locales. Moreover, it also aimed to:

Find out, based on trials, the desired Salt Bath Bomb;
find out the impression of participants about the developed Salt Bath Bomb;
find out if there is a therapeutic effect of Salt Bath Bomb based on participants' observation;
find out the factor of innovativeness for the developed Salt Bath bombs;
Find out the recommendations of the respondents about the Salt Bath Bombs and

Collect data on how the participants enjoyed the Salt Bath Bomb

After the conduct of the study, the objectives were met. It was found that trial 3 had the best composition in making salt bath bombs. It was also found that the impression of the participants regarding the product was positive. According to them, there was a therapeutic effect of the Salt Bath bomb when they used it. They also thought that the salt bath bomb was innovative due to the utilization of sea salt. They recommended to use packaging and making smaller versions of the salt bath bomb.

Recommendations

Since the study was conducted in a limited time frame, suggestions and recommendations were listed below for improvement.

When developing a similar study, use a longer time frame or duration.

Invite more participants. The more data, the better the result of the tests to be conducted.

Since the study had limited time and budget, the conduct of laboratory studies was suggested to test the nutrients found in the salt bath bomb, which could be the reason for its effects on human skin.

Conduct the trials in local inns and hotels around Pangasinan. Since salt bath bombs were not common in local households, it was better to test their effectiveness in inns and hotels where scented cosmetic products and body products were typically used. Develop an enhanced formula from the salt bath bomb. Other ingredients that can improve the skin condition can also be added to the formula of the salt bath bomb.

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Appendix Trials 1,2 & 3

