

# Added Value and Consumer Preferences of Salt-Derived Products in Kugar, Kebumen Regency, Central Java

Latif Sahubawa<sup>1\*</sup>, Abdul Rohman<sup>2</sup>, Sarto<sup>3</sup>, Suwarman Partosuwiryo<sup>1</sup>, Wahyu Supartono<sup>4</sup>,  
Bintang Diniar Kurnia Alam<sup>5</sup>

<sup>1</sup>Department of Fisheries, Faculty of Agriculture, Universitas Gadjah Mada, Indonesia

<sup>2</sup>Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Gadjah Mada, Indonesia

<sup>3</sup>Department of Chemical Engineering, Faculty of Engineering, Universitas Gadjah Mada, Indonesia

<sup>4</sup>Department of Agro-industrial Technology, Faculty of Agriculture Technology, Universitas Gadjah Mada, Indonesia

<sup>5</sup>Center for Marine Resources and Technology Studies, Universitas Gadjah Mada, Indonesia

\*Corresponding author's email: lsahubawa@ugm.ac.id

doi: <https://doi.org/10.21467/proceedings.151.27>

## ABSTRACT

Salt is a chemical compound shaped as a white powder or crystals known for its salty taste, which is then used to improve taste and preserve food in industries. There are three processed salt-derivative products: facial scrubs, foot baths, and bath bombs, whose effects are softening, smoothing, refreshing the skin, deodorizing, cleansing skin impurities, overcoming muscle fatigue, reducing muscle pain, and giving a feeling of relaxation. This research aims to process and analyze the chemical composition, added value, and customer preference for consumption and Spa Salt from Kugar, Kebumen Regency. The method used is diversification, chemical analysis, and economic value and consumer preference levels survey using fifty female panelists (students, lecturers, and consumers). This research has found some findings related to Spa Salt's chemical composition, the economic values of each product (HPP and selling price), and consumer preferences (detailed analysis and the overall level).

**Keywords:** Consumer Preference, Diversification, Skin Health and Beauty, SPA Salt

## 1 Introduction

Indonesia is the 2<sup>nd</sup> largest country in Asia and is the largest country in Southeast Asia. The ocean area of Indonesia is bigger than that of the land area of Indonesia, with two-thirds of its territory consisting of water, which is predicted to have a large fishery resource potential. This resource is one of the natural resources that have the potential to contribute to the welfare of coastal communities. The Indonesian seas have an area of approximately 5.8 million km<sup>2</sup> with a coastline of 81,000 km [1].

The Indonesian Maritime and Fisheries sector's economic growth potential reaches US\$ 1,338 billion annually. This potential comes from various business fields: (1) catch-fisheries industries (US\$ 20 billion); (2) aquaculture fisheries (US\$ 210 billion); (3) fisheries product processing (US\$ 100 billion); (4) marine biotechnology (US\$ 180 billion); (5) energy and mineral resources (Salt, BMKT) (US\$ 210 billion); (6) marine tourism (US\$ 60 billion); (7) sea transportation (US\$ 30 billion); (8) maritime industry and services (US\$ 200 billion); (9) coastal forestry (US\$ 8 billion); (10) coastal resources and small islands (US\$ 120 billion); and (11) unconventional resources (US\$ 200 billion) [2]. Compared to other development sectors, the Marine and Fisheries Sector's economic potential is quite significant, resulting in a multiplier effect on improving the national economy, especially for the maritime-fishery community.

Based on data from the Central Bureau of Statistics, the national salt demand in 2017 reached 4.4 million tons, while the maximum national production was 1.2 million tons. Referring to Regulation of the Minister of Industry No. 88, 2014, the NaCl content for industrial salt is at least 97%, and for the pharmaceutical industry is at least 99.5%, which meets international standards or pharma grade. Pharmaceutical salts are



© 2023 Copyright held by the author(s). Published by AIJR Publisher in "Proceedings of the 3<sup>rd</sup> International Conference on Community Engagement and Education for Sustainable Development" (ICCEESD 2022). Organized by the Universitas Gadjah Mada, Indonesia on December 7-8, 2022.

Proceedings DOI: [10.21467/proceedings.151](https://doi.org/10.21467/proceedings.151); Series: AIJR Proceedings; ISSN: 2582-3922; ISBN: 978-81-961472-6-6

raw materials for infusion preparations, tablet production, vaccine solvents, syrups, ORS, and hemodialysis fluids. Consequently, Indonesia will still undeniably be a country that imports industrial salt in large quantities up to 2022--as the salt imports' value has reached US\$120 million (equivalent to IDR 1.7 trillion) and is dominated by industrial salt imports. The Central Bureau of National Statistics shows that from January to October 2019, Indonesia still imported 3.5 million tons of salt and spent US\$168 (equal to IDR 2.3 trillion) million in foreign exchange. The government's policy regarding salt imports is based on three primary considerations: quality, production, and processing technology. Unfortunately, Indonesian farmers' salt quality is generally still low, with less than 95% NaCl level and limited production capacity using simple micro to small-scale salt production technology.

Concerning that, the government promised to continue encouraging the community's salt production development to meet the national consumption and industrial salt needs and increase the quality of the industrial salt standards. The government is committed to developing the community's salt production. However, importing is the best way to be done if the industrial salt needs cannot be supplied domestically. Hence, Indonesia continues to import industrial salt to meet various salt industry activities, especially for pharmaceuticals and health matters. To guarantee industrial salt's needs fulfillment and the community's salt production stability, the government continues to work in an integrated manner by maintaining good stability. This is done by increasing the community's salt production competitiveness and selling value. In contrast, the industrial salt needs continue to be fulfilled through the new potential areas development of the community's salt industry and the production process, innovation, and product diversification [3].

The Coordinating Ministry for Maritime Affairs and related ministries or agencies are developing a salt products diversification (SPA salt) grown in several regions (Cirebon and Bali) to increase the selling value of domestic salt. Diversification was chosen as it can improve quality, encourage the community's salt production, and be a variation of home industry salt where the products can be marketed in hotels, including for exports. The community's salt business, which has been going on for generations in Indonesia, can grow and become competent with industrial salt (with a different market) through diversification as salt farmers are encouraged to produce salt with high NaCl levels (min. 94%).

Kebumen Regency has coastal and marine areas with 57.5 km of coastline, spanning from Mirit District in the east (bordering Purworejo Regency) to Ayah District in the west (bordering Cilacap Regency). Kebumen Regency's coastal area has the potential to be developed as an export-quality smallholder salt production area. The Central Government, through the Indonesian Ministry of Maritime Affairs and Fisheries, has established a National Economic Zone in Kebumen based on the smallholder salt industry as one of the leading commodities with significant economic value and potential to be exported to foreign countries. According to the Head of Kebumen's Environment, Maritime Affairs, and Fisheries Service, the local government formed the community's salt business group in Kugar in 2018, and it has grown and evolved until 2022. Up to six Kugar's pro capacity salt production reaches 2-3 tons per harvest cycle (two months) or around ninety tons per year [3].

The Kebumen Regency Environment, Maritime Affairs, and Fisheries Service has signed a Cooperation Agreement (PKS) with the UGM Maritime Research Center regarding Research, Community Service, Technology Development, and Management of the Community's Salt Production to increase production capacity, salt products' diversification, development, and marketing from Kugar, Kebumen Regency. Various series of activities carried out in 2021 and 2022 that have been done, are ongoing, or are planned to be done in the future, namely Kugar members' training and assistance in the production process, derivative products' diversification and development (Spa Salt's health, beauty, and consumption), and exploring product marketing networks with related industries. Salt products' diversification and development in Kebumen must be the local government and groups' primary concern, as only two out of

six business groups use *kerosok* salt as hand sanitizer and therapy for various diseases (foot-soaking liquid) until 2022. Salt-derivative products have yet to be produced for skin health and facial beauty due to the salt production group members' limited knowledge and skills and the limited participation and facilitation of related agencies and universities [3]. This research's main objectives are to facilitate training and assistance in the quality *kerosok* salt production, processing the three types of SPA salt for skin health and facial beauty (foot bath salt, face scrub salt, and bath bomb salt), as well as analysis of the chemical composition, economic value, and consumer preferences.

## **2 Research Methodology**

### **2.1 Equipment and Materials**

Equipment or instruments used in product processing (SPA salt) consist of plastic and stainless steel basins, sprayer bottles, spatulas or whisks, trays, digital scales, measuring cups, glass or plastic jars, hot air guns, analytics, bath bomb molds, as well as SPA salt chemical quality analysis equipment which is a set of AAS-flame, UV-Vis Spectrophotometry, Argentometry Mercury Analyzer [4, 5]; and the sheen score analysis of consumer preferences [6]. The materials used for processing SPA salt include crystalline salt grains (clean white) from Kugar Kebumen; seawater salt (refined); cosmetic-grade avocado butter, mango butter, and glycerin; food-grade coconut oil; essential water (witch hazel); essential oil flowers; seaweed powder; spirulina powder; lime fruit; dried orange peel; or lemon essential oil; food coloring (yellow, green, and pink); virgin coconut oil (VCO); dried lemon grass; dried lavender; and dried jasmine.

### **2.2 Research Methods**

#### **2.2.1 Preparation**

The research activity consisted of several stages, namely: (1) materials and equipment preparation for the SPA salt processing and use; (2) materials and laboratory instruments or equipment preparation for chemical composition analysis; (3) score sheet preparation to test the consumer preference level; (4) economic value analysis; and (5) analyzing the products' effect on facial and body skin's freshness, health, and beauty.

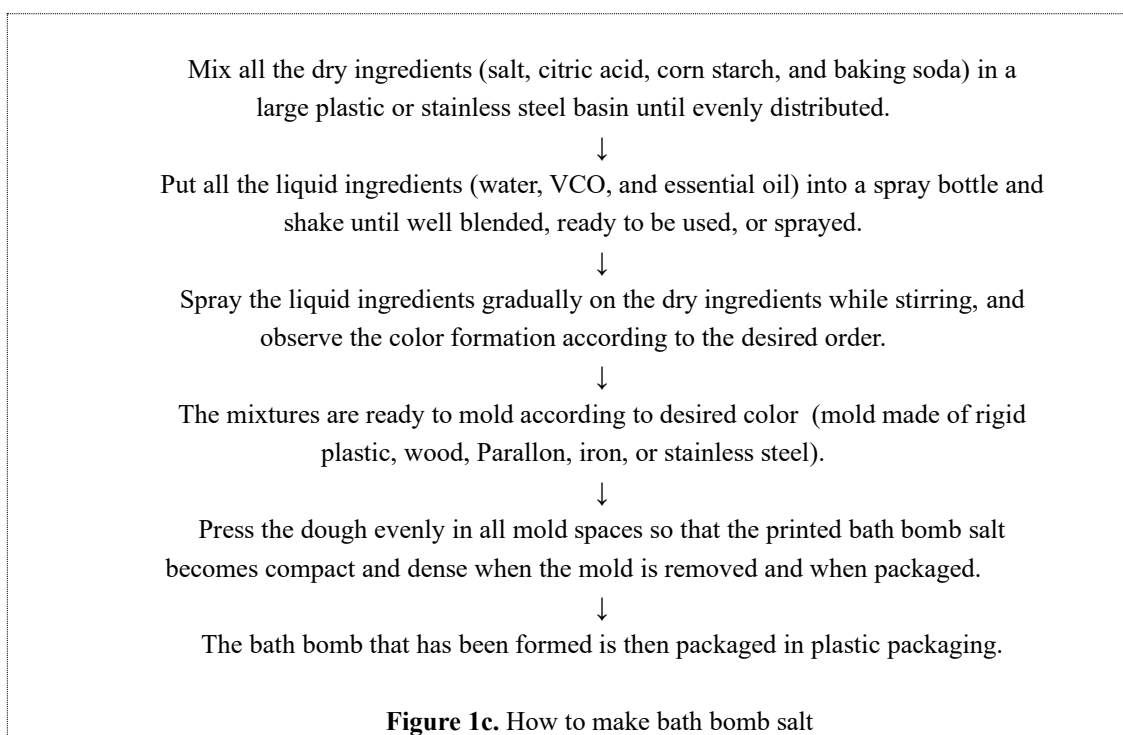
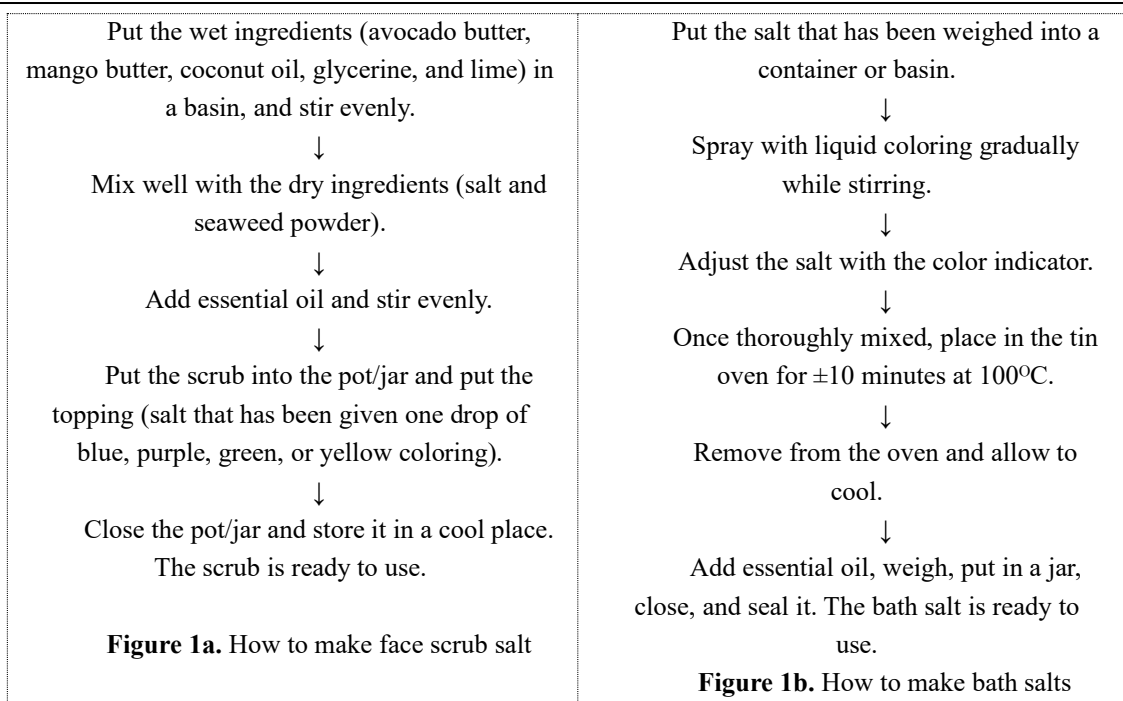
#### **2.2.2 Product Processing (SPA salt)**

The SPA Salt used in this study can be categorized into three parts, which are for facial beauty (refined, facial scrub salt), for diseases therapy through foot-soaking (granular, bath salt), and for a bath in the form of colored and glowing balls (solid, bath bomb salt). The processing procedure for each type of SPA salt is shown in Figures 1a, 1b, and 1c, with the shape shown in Figure 2.

#### **2.2.3 Usage Guidance**

SPA salt that has been formed or processed is then ready to use (facial, bath, or washing). The guidance to make these products are explained in the following tables. The usage guidance can be explained as follows:

- 1). To use it as a face scrub, apply SPA salt mixed with essential oils on the face, neck, and other body parts evenly. Gently massage it and leave it for about ten minutes. Rinse skin with running or warm water until clean, then wipe it with a dry towel.
- 2). To use it as bath salt, take four tablespoons of SPA salt mixed with essential oil, put it in a tub or bucket wide enough to be filled with warm water (approximately ten liters), and stir until all the salt dissolves. Soak feet for about twenty minutes while gently squeezing and brushing them with a soft brush. Remove feet and rinse with running tap water, then wipe with a dry towel and apply lotion according to skin type.



3). To use it as bath bomb salt is to first fill the water (warm water is suggested as it would make the bath bomb dissolves and releases all the nutrients more easily) into a bathtub until it reaches the desired volume, then add the bath bomb. Dip the body into the bath while gently massaging the limbs for the desired time. Bath salt (bath salt) is a salt product that dissolves in water and reduces wrinkles on the skin. Bath salts, made from the main ingredients sodium bicarbonate and citric acid, are also added with a mixture of various essential oils, making the body more relaxed and calm. The essential oils in bath salt products often used are olive oil, milk oil, lavender oil, almond oil, and jasmine oil. The use of this type of essential oil gives a relaxing effect when used [7]

#### 2.2.4 SPA Salt Chemical Quality Analysis

In general, the SPA Salt's chemical composition as a required quality for body health consists of Sodium (Na), Sulfate (SO<sub>4</sub>), Heavy metals (Cu, Pb, Hg), and NaCl, using Atomic Absorption Spectrophotometry or AAS-flame method, Spectrophotometry UV-vis, mercury analyzer, and Argentometry [4, 5].

#### 2.2.5 The Consumer Preferences and Market Segmentation Level Analysis

Consumer preference analysis aims to determine consumer acceptance or preference for the three SPA salt processed products. This analysis is done by surveying 50 panelists (30 Universitas Gadjah Mada and Universitas Ahmad Dahlan students, ten Universitas Gadjah Mada's lecturers, and ten consumers who have tested the products). This consumer preference level analysis uses sensory tests, as shown in Table 2. The consumer preferences analysis results were further tested on the usage effect on the facial, skin, or body freshness and beauty, as shown in Table 1.

**Table 1: Hedonic test (level of preference) on the use of SPA salt [6]**

Hedonic scale	Numeric scale	Color	Smell	Texture	Amount	
					people	%
1). Strongly like	5	15	10	12	37	74
2). Like	4	5	4	4	13	26
3). Neutral	3	-	-	-	-	-
4). Dislike	2	-	-	-	-	-
5). Strongly dislike	1	-	-	-	-	-
<b>Total</b>		<b>20</b>	<b>14</b>	<b>16</b>	<b>50</b>	<b>100</b>

#### 2.2.6 SPA Salt Effect Analysis by the Panelists.

The SPA salt usage effects (face salt, foot-bath salt, and bath bomb) on skin and body health are shown in Table 2.

**Table 2: Test scoring the effect of using SPA salt on skin and body health.**

No	Health Effects of Using Spa Salt	Effect scoring *			
		1	2	3	4
1	Smooth the skin of the feet	-	-	-	-
2	Soften the skin of the feet	-	-	-	-
3	Cure skin infections	-	-	-	-
4	Flex & reduce muscle pain	-	-	-	-
5	Lift dead skin cells	-	-	-	-
6	Eliminate leg aches	-	-	-	-
7	Eliminate itching on the skin of the feet	-	-	-	-
8	Create a relaxed atmosphere/ relieve stress	-	-	-	-

Description \* 1 = unnoticeable, 2 = slightly noticeable, 3 = noticeable, 4 = very noticeable

#### 2.2.7 Value added or economic analysis of SPA salt using the HPP method.

The cost of goods sold are all costs incurred to acquire the goods sold or the cost of the goods sold, using the following formula [8].

$$HPP = \text{Beginning inventory cost} + \text{Net purchases} - \text{Ending inventory}$$




### 3 Results and Discussion

#### 3.1 Types of SPA salts produced

This study produces three types of SPA salt: face scrub, foot bath, and bath bomb. Face scrub salt is used for facial and neck skin and is a paste that can be produced in two variants: lemon and spirulina. Foot bath salt is used to soak feet or hands in the form of granules or large crystal grains, which can be produced in three variants: purple-dried lavender, green-dried lemon grass, and yellow-dried jasmine. Bath bomb salt is used for bathing and is in solid or chunk form, which can be produced in only one variant, namely, colorful. Some of the additional ingredients for SPA salt processing that is often to be used at home for body scrubs and facials are (1) Natural chocolate for facial masks; (2) Apple pie spa for making skin radiant; (3) Papaya for skin exfoliation; (4) Avocado for hair conditioner; (5) Sugar and honey scrub for hands; and (6) Coffee for a body scrub. Although we can find these products easily on commercial platforms, we must also remain cautious against counterfeit products circulating in the commercial market. SPA Salt diversification and development is minimal, even though *kerosok* salt's potential (raw material) in Indonesia is very accessible.

#### 3.2 SPA salt chemical composition

Based on the research results above, it was concluded that SPA salt's chemical composition includes NaCl (94.45%); Na (36.38%); SO4 (1.10%); Cu (0.99%); Pb (3.80 mg/kg); and Hg (20.30 µg/kg). It was also concluded that the chemical composition for consumption salt includes NaCl (95.44%); Na (18.71%); SO4 (0.54%); Cu (1.28%); Pb (2.05 mg/kg); and Hg (20.30 µg/kg). Compared to the salt produced in Madura and Purworejo, SPA and Consumption Salt level of NaCl, Na, SO4, CU, Pb, and Hg in Kebumen Regency has higher quality and have met the national salt quality standard [6] concerning iodized consumption salt with a value limit of NaCl (min. 94%), Pb (max. 10.0 mg/kg), Hg (max. 0.1 mg/kg), and Cd (max. 0.5 mg/kg). The SPA and *kerosok* or consumption salt quality from Kebumen Regency has met the standards and can be used as raw material for industrial salt.

SPA salt type	 (a) <b>Face scrub salt</b>	 (b) <b>Foot bath salt</b>	 (c) <b>Bath bomb salt</b>
<b>Net weight:</b>	110 grams	230 grams	100 grams
<b>Packaging weight:</b>	23 grams	45 grams	5 grams
<b>HPP:</b>	IDR 26,125	IDR 10,500	IDR 6,600
<b>Selling Price:</b>	IDR 52,250	IDR 35,000	IDR 20,000
<b>Profit:</b>	IDR (52,250 – 26,125)/26,125 x 100% = 100%	IDR (35,250 – 10,500)/10,500 x 100% = 233%	IDR (20,000 – 6,600)/6,600 x 100% = 203%
	<b>HPP: cost of goods sold) product (SPA salt) cost of goods sold) product (SPA salt)</b>		

**Figure 2:** Types of SPA salt (a) face scrub salt, (b) foot bath salt, (c) bath bomb salt

### 3.3 Added Value of SPA salt

Cost of Goods Sold (HPP) is a component of the income statement loss, which is the concern of company management in controlling operations company. It comprises raw materials, direct labor, and factory overhead costs [9]. The economic value (HPP and selling price) of each product is IDR 26,125 and IDR 52,250 for face scrub salt, IDR 10,500 and IDR 35,000 for foot bath salt, and IDR 6,600 and IDR 20,000 for bath bomb salt, with the respective profits of 100%, 233%, and 203%. More details from each type of SPA salt are explained in the Figure 2 above.

### 3.4 Consumer Preferences Level

Based on the consumer preferences analysis results, as stated in Table 3a, 3b, and 3c, it is known that: (1) 66% strongly like and 34% like the face scrub salt; (2) 58% strongly like and 42% like the foot bath salt; (3) 74% strongly like and 26% like the bath bomb salt. Overall, 66% strongly like and 37% like salt-derived products.

**Table 3a:** *Hedonic test (level of preference) on the use of face scrub salt*

Hedonic scale	Numeric scale	Color	Smell	Texture	Amount	
					people	%
1). Strongly like	5	15	10	12	37	74
2). Like	4	5	4	4	13	26
3). Neutral	3	-	-	-	-	-
4). Dislike	2	-	-	-	-	-
5). Strongly dislike	1	-	-	-	-	-
<b>Total</b>		<b>20</b>	<b>14</b>	<b>16</b>	<b>50</b>	<b>100</b>

**Table 3b:** *Hedonic test (level of preference) on the use of foot bath salt*

Hedonic scale	Numeric scale	Color	Smell	Texture	Amount	
					people	%
1). Strongly like	5	11	8	10	29	58
2). Like	4	8	6	7	21	42
3). Neutral	3	-	-	-	-	-
4). Dislike	2	-	-	-	-	-
5). Very dislike	1	-	-	-	-	-
<b>Total</b>		<b>19</b>	<b>14</b>	<b>17</b>	<b>50</b>	<b>100</b>

**Table 3c:** *Hedonic test (level of preference) on the use of bath bomb salt*

Hedonic scale	Numeric scale	Color	Smell	Texture	Amount	
					people	%
1). Strongly like	5	13	9	11	33	66
2). Like	4	7	5	5	17	34
3). Neutral	3	-	-	-	-	-
4). Dislike	2	-	-	-	-	-
5). Strongly dislike	1	-	-	-	-	-
<b>Total</b>		<b>20</b>	<b>14</b>	<b>16</b>	<b>50</b>	<b>100</b>

The panelists' highest choice was bath bomb salt compared to other products for several important reasons: (1) it produces foam and is colorful when dissolved in water, (2) it produces a fragrant aroma, and (3) it has a high refreshing effect on the body. Bath salt is used for relaxation. Generally, bath salts are made of magnesium sulfate (Epsom salt). The usage is also very simple as it dissolves easily in warm water. Bath salts relieve muscle pain, relax joints, improve blood circulation, relieve headaches, relieve stress and anxiety, treat skin eczema, moisturize dry skin, and relieve itching [10].

### 3.5 SPA Salt Health Effects

Based on the test results of the effect of using SPA salts from 50 panelists, it appears that these three types of SPA salts (Table 4) have an impact on the freshness and health of the skin and body on a scale of 3 (noticeable) and scale 4 (very noticeable). This shows that SPA salt, processed from a mixture of sea crystal salt and natural additives, provides an excellent freshness and health effect.

**Table 4:** *Scoring test of the effect in using SPA salt on skin and body health*

No	Health Effects of Using Spa Salt	Effect Scoring *			
		1	2	3	4
<b>A.</b>	<b>Face scrub salt</b>				
1.	Smooth facial skin	-	-	√	-
2.	Soften facial skin	-	-	-	√
3.	Cure skin infections	-	-	√	-
4.	Lift dead skin cells on the face	-	-	√	-
5.	Eliminate itching on facial skin	-	-	√	-
<b>B</b>	<b>Foot bath salt</b>				
1.	Smooth the skin of the feet	-	-	√	-
2.	Soften the skin of the feet	-	-	√	-
3.	Cure skin infections	-	-	√	-
4.	Flex & reduce muscle pain	-	-	√	-
5.	Lift dead skin cells	-	-	√	-
6.	Eliminate leg aches	-	-	√	-
7.	Eliminate itching on the skin of the feet	-	-	-	√
8.	Create a relaxed atmosphere/relieve stress	-	-	√	-
<b>C</b>	<b>Bath bomb salt</b>				
1.	Smooth body skin	-	-	-	√
2.	Soften the skin	-	-	√	-
3.	Cure skin infections	-	-	√	-
4.	Flex & reduce muscle pain	-	-	√	-
5.	Lift dead skin cells	-	-	√	-
6.	Eliminate leg & body aches	-	-	-	√
7.	Eliminate/prevent foot & body ringworm	-	-	-	√
8.	Eliminate itching in the body	-	-	√	-

Description \* 1 = unnoticeable, 2 = slightly noticeable, 3 = noticeable, 4 = very noticeable

The health and beauty salt (SPA) that is produced consists of the primary raw materials (particle/crushed, refined, and liquid salt) as well as additional/supporting materials which have excellent benefits and effects on the health of the skin and body. Salt can be used in beauty care products. Salt with a high magnesium



content is used as a raw material for beauty products. This type of salt is better known as magnesium sulfate salt or commonly known as Epsom salt. Magnesium sulfate is a salt that quickly absorbs water. Using Epsom salt is a therapy that can relieve stress and pain. Bath salt is a beauty product with many benefits, including relaxation and skin soothing. Bath salts are also one of the spa products used for soaking. When bath salts are put in water, evaporation reactions such as small explosions will occur. It happens because bath salt contains hydrated citric acid and reacts with sodium bicarbonate which causes tiny bubbles. Another supporting component is an essential oil that adds flavor to the product [11].

Based on the test results on the SPA salts usage effect from 50 panelists, these three types of products impact the skin and body's freshness and health, as measured on a scale of 3 (noticeable) and 4 (very noticeable). This shows that SPA salt provides an excellent freshness and health effect and benefits the skin and body's health. SPA salt, used for facials, baths, and body baths, is very beneficial for skin and body health, as it cleanses the body when bathing, creating a relaxed atmosphere, reduces stress, flexing muscle tension, reduces muscle soreness, heals infections, helps cleanse the skin, soothes and softens the skin, stimulates the growth of new skin cells while rejuvenating, maintains skin softness (moisturizing), eliminates sore feet, prevents foot ringworm, soothes the skin, eliminates itching on the skin or body.

In addition, adding cinnamon essential oil mixed with a carrier oil can also help relieve muscle pain as it has a warming effect on the skin and has anti-inflammatory benefits. Bath salts can also help reduce skin inflammation symptoms, eczema irritation, psoriasis, contact dermatitis, and athlete's foot which can be done by adding a cup of bath salts when symptoms flare up. Epsom bath salts can also help relieve irritation and inflammation in the skin. Bath salts can relieve itchy and dry skin, including those caused by insect bites. The addition of almond oil or oatmeal can improve skin moisture.

People with arthritis are recommended to soak and stretch the injured area in warm water treated with Epsom salts [12], which are believed to relieve stiff or painful joints, by mixing bath salts, ginger oil, and warm water until the texture resembles a paste, and massage slowly. Bath salts can also be used to soak feet in a mixture of warm water and can be done for people who have athlete's foot symptoms, treat fungus on the toes, and relieve gout pain to get rid of foot odor. Some of the methods above do not mean that only people who have a bathtub can do it, as we can mix salt with essential oils or other oils to make a shower scrub. Bath salt is often used as a body scrub because of its fine-grain texture, which can remove dead skin cells [7].

#### 4 Conclusion

The method used is diversification, chemical analysis, economic value, and consumer preference levels using 50 female panelists (students, lecturers, customers). There are three types of processed salt derivative products: facial scrub salt, foot bath salt, and bath bomb salt. Based on the research results as stated above, it was concluded that SPA salt's chemical composition includes NaCl (94.45%); Na (36.38%); SO<sub>4</sub> (1.10%); Cu (0.99%); Pb (3.80 mg/kg); and Hg (20.30 µg/kg). It was also concluded that the chemical composition for consumption salt includes NaCl (95.44%); Na (18.71%); SO<sub>4</sub> (0.54%); Cu (1.28%); Pb (2.05 mg/kg); and Hg (20.30 µg/kg). The economic value (HPP and selling price) of each product are IDR 26,125 and IDR 52,250 for face scrub salt; IDR 10,500 and IDR 35,000 for foot bath salt; and IDR 6,600 and IDR 20,000 for bath bomb salt, with the respective profits of 100%, 233%, and 203%. Based on the consumer preferences analysis results, as stated in Table 3a, 3b, and 3c, it is known that: (1) 66% strongly like and 34% like the face scrub salt; (2) 58% strongly like and 42% like the foot bath salt; (3) 74% strongly like and 26% like the face scrub salt Overall, 66% strongly like and 37% like the salt derived products. The effects of using bomb bath salt, face scrub salt, and foot bath salt are softening, smoothing, refreshing the skin,

eliminating body odor, cleansing skin impurities, overcoming muscle fatigue, reducing muscle pain, and giving a feeling of relaxation.

## **5 Declarations**

### **5.1 Acknowledgments**

This research activity went well and smoothly with the support and cooperation of the research team. Therefore our most enormous gratitude is expressed to fellow authors. Our biggest gratitude also goes to the Salt Business Group (Kugar) and the Department of Environment, Maritime Affairs and Fisheries of Kebumen Regency, Central Java, for their cooperation in the production and processing of salt and the provision of salt production facilities.

### **5.2 Funding Source**

We would like to thank the Director and Staff of the Directorate of Community Service, Universitas Gadjah Mada, Yogyakarta, who financed and facilitated this research activity from the Assisted Village Development Grant, Fiscal Year 2022, with Contract Number. 400/UN1/ DPM/ YANMAS/PM/2022.

### **5.3 Publisher's Note**

AIJR remains neutral with regard to jurisdictional claims in published map and institutional affiliations.

## **How to Cite**

Sahubawa *et al.* (2023). Added Value and Consumer Preferences of Salt-Derived Products in Kugar, Kebumen Regency, Central Java. *AIJR Proceedings*, 185-194. <https://doi.org/10.21467/proceedings.151.27>

## **References**

- [1] L. Sahubawa, A. Pertiwingrum, dan H. Sasonko, *Biokonversi dan Bioekonomi Limbah Kulit Ikan: Potensi, Teknologi Pengolahan, dan Komersialisasi*. 2022. Yogyakarta: Gadjah Mada University Press.
- [2] Rusiyanto, E. Soesilowati, dan Jumaeri, "Penguatan Industri Garam Nasional Melalui Perbaikan Teknologi Budidaya dan Diversifikasi Produk. *Santekol*," *Jurnal Sains dan Teknologi*, vol. 11, no. 2, pp. 129-142, 2013. <https://doi.org/10.15294/saintekol.v11i2.5572>.
- [3] A. Kuswandono, *Garam Rakyat Didorong untuk Penuhi Standar Internasional*, 2021. <https://www.mongabay.co.id/2018/04/30/garam-rakyat-didorong-penuhi-standar-internasional-bagaimana-caranya/>
- [4] S. M. Khopkar, *Konsep Dasar Kimia Analitik*, 2020. Jakarta: UI Press.
- [5] I. G. Gandjar, and A. Rohman, *Kimia Farmasi Analisis*. 2007. Yogyakarta: CV Pustaka Pelajar.
- [6] Badan Standarisasi Nasional, "Pengujian Organoleptik dan atau Sensori pada Produk Perikanan," *Standar Nasional Indonesia (SNI)*, no. 2346, 2015. Jakarta: Badan Standarisasi Nasional.
- [7] Putri, M. Cendana, I. Maflahah, Supriyanto, dan D.A. Asfan, "Pendugaan Umur Simpan Garam Mandi (Bath Salt) Aroma Serreh Menggunakan Metode Accelerated Shelf-Life Testing (ASLT)," *Journal of Science and Teknologi Rekayasa*, vol. 15, no. 1, pp. 92-99. 2022. <https://doi.org/10.21107/rekayasa.v15i1.13855>.
- [8] Sujarweni, dan V. Wiratna, *Pengantar Akuntansi*. 2016. Yogyakarta: Pustaka Baru Press.
- [9] N. Novyarni, dan A. Yuliasih, "Analysis of Cost of Goods Sold Before and After the Issuance of Regulation of the Minister of Finance (Pmk) No. 97/Pmk.010/2015 in the Metal Industry of Iron and Steel Listed on Bei," *Jurnal STEI Ekonomi*, vol. 27, no. 1, 2018. <https://doi.org/10.36406/jemi.v27i01.117>
- [10] Y. Tansil, Y. Belina dan T. Widjaja, "Produksi Garam Farmasi dari Garam Rakyat," *Jurnal Teknik ITS Surabaya*, vol. 5, no. 2, pp. 80-84. 2016. <https://doi.org/10.12962/j23373539.v5i2.16427>
- [11] I. Maflahah, R. N. Febriana, C. Indarto, D. F. Asfan, "Characterizing the quality of bath salt enriched with lemongrass essential oils as a fragrant agent," *International Conference on Sustainability Agriculture and Biosystem*, vol. 1059, 2021. <https://doi.org/10.1088/1755-1315/1059/1/012074>.
- [12] R. D. Putri, R. A. Destryana dan R. Santosa, "Pemanfaatan Garam Krosok sebagai Kreatif Bisnis Masyarakat Pesisir", *Journal of Food Technology and Agroindustry*, vol. 2, no. 1, pp. 15-19. 2020. <https://doi.org/10.24929/jfta.v2i1.956>