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Research Article

Formulation And Evaluation Of Herbal Medicated Bath Bomb

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ABSTRACT

Cosmetic chemistry has permeated everyday life and made cosmetics "bath bombs". After bathing in the pool, feel your body relaxed, comfortable, pleasant and fragrant. Bath bombs are usually made with citric acid, sodium bicarbonate, corn starch, coconut oil, and various natural colors and flavors. The reaction of citric acid (C6H8O7) and sodium bicarbonate (NaHCO3) in the presence of water produces CO2 gas, and the smell in the formula grows accordingly. Essentially, bath bombs are scented and formulated for a relaxing bath. The visual appearance, texture, nature and stability of formulation parameters, such as odor, pH and foam time, ensure that there are no significant changes during the test period. The purpose of this study is to successfully prepare medicinal bath bombs and evaluate them according to standard parameters.

INTRODUCTION

The word cosmetics come from the Greek word "kosmtikos", which means decorative art [1]. In the past, it was used to paint the body to instill fear of enemies and kill animals and enemies. Until 3000 BC, cosmetics were associated with hunting, religion, and prehistoric warfare. It is then used as a beauty and health product. Cosmetics are formulated for a variety of skin conditions and treatments, including wrinkles, acne, aging and oily skin. The beauty of the skin is determined by habits, health and environmental changes [2]. Herbal cosmetics are currently receiving a lot of attention due to their high availability and low pleiotropic effects. There are enough plants and plant extracts available in the market as cosmetics [3].

The requirements for the basic skin care:

Cleansing agent:

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Removes impurities and dead cells that clog skin pores. Examples of cleansers include vegetable oils such as sesame oil and palm oil [4].

Toners:

This helps to tighten the skin and prevents it from being exposed to many toxic elements in the environment. Examples of toners include hazelnut, geranium, sage, lemon, burdock, and essential oils [5].

Moisturizing:

It helps in making the skin soft and supple. It exhibits a healthy glow and is resistant to aging [6]. Examples of herbal moisturizers include vegetable glycerin, sorbitol, rose water, jojoba oil, aloe vera, and iris [7].

Bath bombs:

Bath bombs are a popular way to create an invigorating, relaxing and aromatic bath. It is a weak acid and a solid mixture that does not react in the dry state, but reacts strongly with water to form salts, water, and carbon dioxide [8]. It is a solid compound weak acid and noble in the dry state, but it reacts strongly with salt in water and water to form carbon dioxide [8].

For example, citric acid reacts with sodium bicarbonate in the presence of water.

Medicated Bath Bomb:

This medicinal bath bomb contains plant leaf extract. Several studies have proven that betel nut extract has antifungal activity [9]. An affordable product that improves mental and physical health. Plant bath bombs can be customized based on the patterns and colors used to make them, and they come in a variety of shapes, sizes, and festive colors to add a fun and exciting feel to your bathroom [10]. Bath bombs are a simple preparation to make a soothing, relaxing and aromatic bath. Although this moniker seems ominous, the formula is very interesting. Common bath bombs use ingredients such as citric acid ($C_6H_8O_7$), sodium bicarbonate ($NaHCO_3$), corn starch, coconut oil, and various natural colors and fragrances. The reaction in the presence of citric acid ($C_6H_8O_7$) and sodium bicarbonate ($NaHCO_3$) produces CO_2 gas from an aqueous solution of the formula. Basically, bath bombs are made for a soothing and relaxing bath. This is a new idea to add healing properties to bath bombs, such as antibacterial and antifungal properties. Cinnamon oil is added to the recipe to provide antifungal and antibacterial properties, and $MgSO_4$ (Epsom salt) is a muscle relaxant [11]. Many studies have proven that cinnamon extract has antifungal properties. The main component of the extract that has a killing effect on Candida albicans is cinnam aldehyde. Bath bombs made from ethanol extracts are effective in treating fungal skin infections. Patients use antibacterial, aromatic and relaxing baths. Turmeric compounds also have antibacterial properties. Bath bombs combine the benefits of therapy with pleasure and relaxation [11]. Herbal and medicinal bath bombs are designed to provide therapeutic and cosmetic benefits such as moisturizing, soothing, anti-bacterial, anti-bacterial, refreshing and cleansing.

Antimicrobial activity:

Antibacterial drugs are utilized as antibiotics to control contaminations in the human body, yet they can cause many side effects, particularly the increment of reactive oxygen species (ROS) in the human body [12,13]. ROS is extremely dangerous for human wellbeing and prosperity and is associated with the advancement of cancer growth [14-16]. Also, it might cause wellbeing chances [17-19]. Therapeutic plant materials utilized as medicinal plants include many plant species. Many compounds of this plant have medicinal properties such as antioxidant, antibacterial, anti-inflammatory, antibacterial, antifungal and antiviral activity [20].

Applications of bath bombs [3,11,21,22]:

- Bath bombs are a fun addition to all bath bombs.

- Instantly transform your regular bathroom into a spa-like bathroom.
- The oil in it is very effective in soothing and moisturizing many types of skin.
- Sodium bicarbonate has a detoxifying effect in your bath.
- Bath bomb scents are fun because there are so many scents to choose from.
- Promotes balanced thinking and makes you feel relaxed after use.

MATERIALS AND METHODS:

Formulation table:

Table 1: Material used in the formulation

Sr. No.	Ingredients	Quantity	Role
1	Guduchi powder	0.30 gm	Relieve skin irritation
2	Sodium bicarbonate	50 gm	Weak Base
3	Citric acid	25 gm	Strong acid
4	Corn starch	13.5 gm	Binder
5	Coconut oil	Q.S.	Foaming agent
6	Sandalwood	Q.S.	Fragrance
7	Honey	2 gm	Smoothing
8	Food color	Q.S.	Coloring agent
9	Rose Petals	Q.S.	Decoration
10	Dried lavender	Q.S.	Fragrance

Procedure:

First all ingredients were weighed, sodium bicarbonate (50g), citric acid (25g) and corn starch (13.5g) are weighed and mixed well. Add coconut oil and color. Add 2 grams of honey, add perfume / fragrance. Mix all the ingredients; don't add water, which will accelerate the neutralization reaction. Make the mixture slightly moist. Freeze the finished mixture for 30-55 minutes. Carefully remove of the bath bomb from the mold.

Evaluation parameters [2,8]:

1. **Physical appearance:**

We collected five samples and evaluated their body appearance.

2. **Determination of PH:**

The pH meter is calibrated using a standard buffer solution. The bath bomb sample was mixed with 500 ml of distilled water and left for 24 hours. I took 10 ml of this sample solution and measured the pH of the sample. Similarly, samples without cornstarch and Epsom salt were evaluated. Analysis of pH of samples measured and compared.

3. **Determination of effervescent time [8,23]:**

The foaming time of the bath bomb formulation was evaluated and data obtained. Place the unopened bath bomb ingredients in a beaker containing 500 ml of room temperature distilled water. The collection time is finished when you get a clean and soap-free mixture. The average of five measurements should be reported for all formulations.

4. **Skin inflammation take a look at:**

Sprinkle a powder sample from the bath bomb onto the subject's hand. Mark the field with a blue-black marker. Observe for at least 24 hours. Notice what reaction occurs.

5. **Study of water temperature:**

Use a thermometer to measure the temperature of different bath bomb samples. Record and evaluate the exact temperature of your sample.

6. **Stability testing:**

The bath bomb samples were kept at room temperature for 2 weeks and any changes were noted.

RESULTS AND DISCUSSION:

The herbal medicated bath bomb had been successfully formulated.

Table 2: Evaluation parameters

Sr. No.	Evaluation Parameters	F1	F2	F3	F4	F5
1	Physical Appearance	Good	Good	Good	Good	Good
2	PH	7.1	7.8	7.3	6.9	7.9
3	Effervescent Time	53 sec	1.51 min	1.5 min	1.21 min	1.42 min
4	Skin irritation test	None	None	None	None	None
5	Stability Testing	Stable	Stable	Stable	Stable	Stable

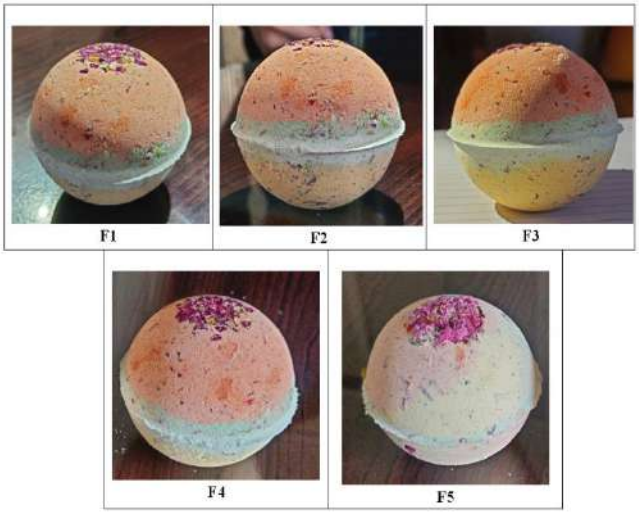

Figure 1: Figure of physical appearance of all formulations (formulations i.e. F1, F2, F3, F4, and F5)

Reaction:

Citric acid + sodium bicarbonate + water → salt + water + CO2

Citric acid + sodium bicarbonate + carbon dioxide in contact with water. It reacts as CO2 is produced, causing redness (fizzing) and foaming. Food coloring gently disperses with the color of bath water. Considering all the formulations, the major difference in all the formulations i.e. F1, F2, F3, F4, and F5 is in PH and the effervescent times.

For the bath bomb to show the anti-microbial or cleaning effects and the PH of formulations must be slightly alkaline (i.e. from 7.29 to 7.49). Considering all the formulations, the F3 formulation is having the slightly alkaline PH (i.e. 7.3), and also the effervescent time in the F3 formulation is 1.5 minutes, which was shows in the table 2. Hence, F3 formulation follows are the evaluation parameters are the being considered.

CONCLUSION:

As a starting point, we decided to mix and match naturally derived bath bombs. Bath bombs are good for health because they have antibacterial and antioxidant properties that inhibit the growth of bacteria and fungi. Today, the face of the bath bomb has spread all over the world. Natural bath bombs do not create pores or skin infections and do not grow microorganisms during the test period. The visual appearance, texture, nature and stability of formulation parameters, such as odor, pH and foam time, ensure that there are no significant changes during the test period. The naturally derived bath bomb formulation ensures that the correct pH is around 7.8 and creates a rich lather and lather. Herbal medicinal bath bombs are designed to provide therapeutic and cosmetic benefits such as moisturizing, soothing, detoxifying, cleansing microorganisms and cleansing the body.

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