

FORMULATION OF ESSENTIAL OIL BASED ON SOLID PERFUME

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ABSTRACT

Significant advancements have been made in the development of new fragrances and scents. However, these innovations fall short in altering the formulation of perfumes. Although solid perfumes have been available in the market for some time, they remain relatively unknown due to perceptions of their rigidity. While fragrant substances in solid form are not new in cosmetics, solid perfumes have yet to achieve the same level of recognition. Solid perfumes have been widely utilized.

KEYWORDS: Fragrances.**I. INTRODUCTION**

The term "perfume" originates from the Latin word "perfume," meaning "through smoke." Over time, a vast array of flavors and fragrances has been introduced into daily life, encompassing foods, beverages, confectionery, personal care products (such as soaps, toothpastes, mouthwashes, deodorants, bath lotions, and shampoos), perfumes, other cosmetics, and pharmaceutical formulations. Adding fragrance enhances the appeal of these products or masks unpleasant tastes or smells.

Perfume or fragrance oil is a blend of essential oils, scented compounds, and solvents used to impart fragrance to the human body, objects, or rooms. Typically, the basic ingredients of perfume are synthetic chemicals, but natural ingredients are increasingly favored. The aromas from natural ingredients are derived from plant essential oils. Various plants like jasmine, rose, lemongrass, and lavender are known for their essential oils and are commonly used in natural perfumes. Jasmine flowers are particularly popular in the perfume industry due to their strong fragrance. Essential oils can be extracted from plants through methods like steam distillation and solvent extraction. However, essential oils can irritate the skin and alter skin color if used alone; thus, they must be mixed with a carrier oil as an excipient.^[1]

Need for perfumes

- Maintaining hygiene and personal care.
- A pleasant scent boosts positive vibes and confidence.
- Specific scents can help in recalling certain events and activities.

- Fragrances enhance mood.
- Essential oils in perfumes are used in treatments such as aromatherapy or naturopathy.
- Perfumes can attract or deter others.
- Overall, perfumes improve health, alleviate stress, and promote a positive lifestyle.

Solid perfume

Solid perfumes are perfumes in a solid base rather than a liquid one like water or alcohol. The solid base substances are typically waxes that melt easily to mix with perfumes and solidify at room temperature. Examples of bases used include beeswax, Vaseline, and petroleum jelly.^[2]

Advantages of Solid Perfume Over Liquid Perfume^[4]**1. Skin Friendliness**

- Solid Perfume: Contains waxes and natural ingredients, making it gentle on the skin.
- Liquid Perfume: Often contains alcohol, which can irritate and dry out the skin.

2. Portability

- Solid Perfume: Does not leak, making it easy to carry around without risk of spills.
- Liquid Perfume: Has a higher chance of leaking when transported.

3. Longevity

- Solid Perfume: Uses waxes as a base, allowing it to last longer on the skin.
- Liquid Perfume: Contains alcohol, which evaporates quickly, reducing its longevity.

Skin

The skin is the body's largest organ by weight, covering approximately 2 square meters. It consists mainly of two parts: the epidermis and the dermis. While the skin's absorption of water-soluble substances is minimal, lipid-soluble materials can penetrate its layers. Such substances include certain drugs, fat-soluble vitamins, and gases like carbon dioxide and oxygen. For example, lipid-soluble topical steroids can easily reach the dermis's papillary region. This ability to absorb substances has led to the development of transdermal drug administration methods.

1. AIM

The purpose of this work is to formulate, evaluate, and compare a herbal solid perfume stick containing jasmine oil extract, known for its analgesic, antidepressant properties, and pleasant aroma. The project's goal is to effectively create a herbal solid perfume stick that offers multiple benefits, such as reducing depression, alleviating nervous exhaustion, and boosting confidence due to the jasmine oil extract. Additionally, it aims to provide soothing and calming effects to the user.

2.2 OBJECTIVES

To prevent unpleasant body odors.

- To enhance self-confidence.
- To provide skin hydration and nourishment.
- To address skin issues like dryness, greasiness, and sensitivity.
- To induce feelings of optimism.
- To offer anti-inflammatory and antidepressant benefits.

2.3 HISTORY

The term "perfume" derives from the Latin word "perfume." The Egyptians were pioneers in the use of perfume, followed by the Arabs, Carthaginians, Chinese, Greeks, Hindus, Israelites, and Romans. While fragrant liquids used on the body are often considered perfumes, true perfumes are defined as extracts or essences containing a percentage of oil distilled in alcohol. The Egyptians, who also invented glass, were the first to use perfume bottles. Perfumes have been used for over 5,000 years, and ancient Egyptians incorporated perfumes into their culture, believing they were the sweat of their sun god, Ra. Early perfumes were made from a combination of plant or animal products and rich oils. From Egypt, the use of perfume spread to Rome and Greece, and it was also highly valued in ancient China and Iran, where it was often used as incense.

In the late 19th century, organic chemistry expanded the range of scents with improved purification of plant odorants and new synthetic compounds. The use of synthetic materials in perfumes increased from 30% in 1970 to almost exclusively synthetics today. Originally, aromatic materials were used primarily to burn incense. To be considered a pure perfume, it must contain at least

22% essential oils. Perfumers combine dozens of oils to create new scents, aiming for a blend that exceeds the sum of its parts. Companies like IFF, which employs 5,300 people and produces more than 31,000 compounds (about 60% flavors and 40% fragrances), play a significant role in the industry.^[5]

The Evolution of Perfume

The first known perfumer was a woman named Tapputi from Mesopotamia. Over time, the knowledge of perfume-making spread from one civilization to another, eventually reaching Europe. Europeans further developed the process and introduced the concept of "modern scents," which involved essential oils in an alcohol solution, first bottled in the late 1300s and called "Hungary water" after learning the method from the Hungarians. Today, modern technology has refined the process even more, with perfume companies employing scientists and chemists to create sophisticated products.^[6]

The Importance of Perfume

Individuals apply perfumes for various reasons, ultimately because they make us feel happy. The joy derived from perfume can depend on several factors, such as the presence of pheromones, the memories a scent evokes, a sense of confidence, and the ability to express individuality through fragrances. This boost in positivity can increase our energy levels, enhance our motivation, and help us achieve great things without feeling low. Perfume is truly an enchanting product. Find the fragrance that brings you joy and experience its benefits today. A simple spray on the inside of your wrist allows you to enjoy the scent throughout the day.^[7]

III. MATERIALS AND METHODS

Raw Materials

The materials chosen for this work are entirely of natural origin. The formulation of herbal solid perfume requires three main ingredients

- Beeswax
- Carrier oils
- Essential oils

1. Beeswax

Beeswax transitions the carrier oil from a liquid to a solid state and acts as a barrier to retain the essential oil-based perfume for longer. It is typically yellow or light brown, with a characteristic honey odor, solid and noncrystalline, insoluble in water, and composed of 80% myricyl palmitate and myricyl stearate, 15% cerotic acid, cerolein, hydrocarbons, lactones, cholesterol esters, and pollen pigments.^[8,9]



Fig. 1: Beeswax.

2. Almond Oil

Derived from the seeds of *Prunus dulcis*, Rosaceae, almond oil is golden yellow and odorless. It contains 40-55% fixed oils, 20% proteins, mucilage, and 2.5-4%

amygdalins. It is known for its nourishing and moisturizing properties and acts as a vehicle for the formulation. Other carrier oils like grape seed oil, jojoba oil, avocado oil, and coconut oil can also be used.^[10]



Fig. 2: Almond oil.

3. Coconut Oil

Extracted from the wick, meat, and milk of coconut palm fruit, coconut oil is a white solid fat below 25°C (77°F) and a clear thin liquid oil in warmer climates. Unrefined varieties have a distinct coconut aroma. It is used as a

food oil and in industrial applications for cosmetics and detergents. Due to its high saturated fat content, health authorities recommend limiting its consumption as food.^[11,12]



Fig. 3: Coconut oil.

4. Jasmine Oil

Known as the King of Flowers, jasmine oil, especially Jasmine Sambac, is more musky, spicy, and exotic than Jasmine grandiflorum, which is softer and gentler. Jasmine oil is a valuable investment due to its potency

and incredible fragrance power. It contains linalool, benzaldehyde, benzyl alcohol, benzyl acetate, β -farnesene, citronellol, and nerolidol, among others. Jasmine aldehyde is responsible for jasmine's characteristic scent.^[13,14]



Fig. 4: Jasmine Oil.

IV. METHOD USED FOR JASMINE OIL EXTRACTION

Solvent Extraction Using Soxhlet Apparatus

1. Clean all glassware and parts of the Soxhlet apparatus with tap water and dry them.
2. Assemble the Soxhlet apparatus.
3. Weigh 50 grams of jasmine flower powder and place it in a filter paper packet, then insert it into the thimble of the Soxhlet apparatus.
4. Wet the powder with ethanol and start the water inlet, setting the heating mantle to 30°C.
5. Continue extraction until the powder becomes faint in color.

Oil Separation from Solvent Using Steam Distillation

1. Assemble the steam distillation apparatus connected to a round-bottom flask containing the extract with ethanol.
2. Heat the mixture to evaporate the ethanol, which has a lower boiling point than jasmine oil.
3. Collect the evaporated ethanol in a receiver, leaving jasmine oil in the flask.^[17]

V. EVALUATION PARAMETERS

Chemical Assessment

- **Saponification Value:** Measures the amount of KOH required to hydrolyze 1 gram of wax. $[\text{Saponification Value}] = 56.1 (B - S) \times N \times W$
- **Acid Value:** Measures the amount of KOH required to neutralize 1 gram of wax. $[\text{Acid Value}] = 56.1 \times V \times N \times W$
- **Ester Value:** Difference between saponification and acid values.^[18]

Physical Assessment

- **Homogeneity:** Tested by touch and visual appearance.
- **Spreadability:** Determined by applying a sample to a known area and measuring the spread.
- **Solubility:** Checked in different mediums.
- **Absorption:** Observed in a given area.
- **Smear Type:** Assessed by applying the solid perfume to the palm.
- **Emolliency:** Checked for slipperiness and residue left after application.
- **Physical Appearance:** Visually inspected against a dark background.
- **After Feel:** Assessed the skin texture after application.
- **Ease of Removal:** Determined by washing with tap water.
- **Irritancy Test:** Monitored for any irritancy or allergic reactions over 24 hours.^[19]

BENEFITS OF SOLID PERFUME

- **Free of Alcohol:** Unlike liquid perfumes, solid perfumes are skin-friendly and do not contain irritants like alcohol.
- **Leakage-Free:** Solid perfumes do not leak, making them convenient for travel and storage.
- **Long-Lasting:** Adheres to the skin layer, providing a long-lasting effect.
- **Moisturizing and Nourishing:** Contains oils and moisturizers beneficial for dry skin.
- **Compact Size:** Small and unbreakable containers, easy to carry.
- **Travel-Friendly:** No liquid restrictions at airports.
- **Less Likely to Cause Skin Reactions:** Made from natural oils, reducing the risk of skin reactions.^[20,21]

VI. RESULTS

Organoleptic Assessment

- Color: Whitish
- Odor: Jasmine scent
- Appearance: Uniform
- Roughness: Absent
- Texture: Smooth and uniform.

Properties Observation Inference

- Colour: Whitish white
- Odour: Jasmine scent
- Appearance: Uniform
- Roughness: Absent
- Texture: Smooth and uniform

The prepared formulation was found to be pleasant, smooth, and acceptable in terms of organoleptic properties.

VI. RESULTS

Organoleptic Assessment

The organoleptic evaluation of the prepared formulation revealed the following details about its color, odor, appearance, texture, etc. The formulation was found to be pleasant, smooth, and acceptable.

Table 1: Organoleptic Properties.

| Properties | Observation | Inference |
|------------|------------------|--|
| Colour | Whitish | White |
| Odour | Jasmine scent | Jasmine Smell |
| Appearance | Uniform | Formulation has uniformity |
| Roughness | Absent | Formulation is smooth |
| Texture | Smooth & Uniform | Formulation is uniform and smooth in texture |

Chemical Assessment

Chemical evaluation of the lipid-based formulation confirmed values that meet the confirmatory standards for the quality of the incorporated wax.

Table 2: Chemical Assessment Results.

| Chemical Test | Chemical Test |
|----------------------|-----------------|
| Saponification value | 95.37 mg KOH/gm |
| Acid value | 21.2 mg KOH/gm |
| Ester value | 74.17 mg KOH/gm |
| Ester to acid ratio | 3.498 |

VII. CONCLUSION

There have been significant advances in the development of new fragrances and scents.

However, these advances often do not extend to changes in the formulation of perfumes. Solid perfumes have been available on the market for some time, yet they remain less wellknown due to their perceived rigidity. While fragrant substances in solid form are not a new concept in cosmetics, solid perfumes have not gained the same level of recognition. They are popular in regions like Turkey and Bulgaria, where they are often known as perfumed creams.

Solid perfumes, whether prepared at home or in a laboratory, are made from all-natural ingredients. The evaluation of herbal solid perfume formulations can be compared to the assessments used for emulsions or cosmetic creams. The ingredients used provide both therapeutic and additive benefits. For instance, beeswax acts as a moisturizer and helps in solidifying the perfume. Almond oil, used as a vehicle, has its therapeutic value. Essential oils are included in dilute forms to mitigate the risk of toxicity and allergic reactions. Each essential oil offers different therapeutic benefits and fragrances, often utilized in aromatherapies.

Despite being a less researched topic, solid perfumes have notable advantages, such as easy portability and storage. They are also suitable for individuals who prefer less intense fragrances. The strength of the scent in solid perfumes can be adjusted to suit personal preferences, making them versatile for a diverse population. There remains considerable potential for further research and development in the field of solid perfumes to establish more comprehensive and rigid information.

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