

Review on Formulation, Evaluation And Comparative Study of Herbal Solid Perfume Stick

Abishekh S. Gawande¹, Miss. Nikita E. Bajad², Prof. Dr. Swati Deshmukh³, Abishek Kadam⁴, Govind Nirgunkar⁵

Students, Shraddha Institute of Pharmacy, Washim, India^{1,4,5}

Lecturer, Shraddha Institute of Pharmacy, Washim, India²

Professor, Shraddha Institute of Pharmacy, Washim, India³

Abstract: *There had been vast advances made when it comes to developing new fragrances and scents. But these advances lack when it comes to changing the formulation of perfumes. Solid perfumes have been in the market for a while and are still not known much due to the concept of their rigidity. Fragrant substances in the cosmetics in solid form aren't something new, but still, solid perfumes lack the ground of fame as compared to them. Solid perfumes have been very much used*

Keywords: fragrances.

I. INTRODUCTION

The word perfume has originated from the Latin word *perfumum*, meaning *through smoke*. Over the course of time, countless numbers of flavours and fragrances has introduced into everyday life, into foods, beverages and confectionery items, personal care products (soaps, toothpastes, mouthwashes, deodorants, bath lotions and shampoos), perfumes, and other cosmetics as well as pharmaceutical formulations. Addition of fragrance make such products more attractive or to mask the taste or smell of less pleasant ones.

Perfume or fragrance oil is a mixture of essential oils and scented compounds and solvents that are used to provide fragrance to the human body, objects, or rooms. Usually, the basic ingredients of perfume come from synthetic materials that come from chemicals, but now the basic ingredients of perfume from natural ingredients tend to be more desirable. The aroma produced by natural ingredients is derived from plants' essential oils. There are various plants that contain essential oils and can be used as natural perfumes are Jasmine, rose, lemon grass, lavender etc. Jasmine flowers are widely used in the perfume industry because of its strong aroma. There are several methods to isolate essential oils from the plants and flowers like steam distillation method, solvent extraction methods etc. Essential oil or volatile oil can irritate the skin and damage skin colour so it is not used in the form of a single compound. It must be formulated with carrier oil as excipient. [1]

Need of perfumes

- For maintaining the hygiene and personal care.
- Smelling good represents positive vibes and also elevates confidence.
- Wearing particular scents during different work may help in remembering certain events and activities.
- Fragrance also helps in mood enhancement.
- Essential oils in the perfumes are used in treatments through aromatherapy or naturopathy.
- Perfumes also play an important role in attracting or deviating.
- Overall, it just not only helps in improving health but also removing stress and creating a positive lifestyle.

Solid perfume

Solid perfumes, in general terms, are the perfume in a solid base instead of a liquid one like water or alcohol. The substances used for the solid base are waxes that can be easily melted to mix perfumes and, at room temperature, can easily be solidified. Examples of bases used are beeswax, Vaseline, petroleum jelly, etc. It is applied to the skin with

the help of fingers or a cotton swab. The strength of scent of a solid perfume is depends on the strength of essential oils used. Solid perfumes are a compact way of perfume that can be easily carried from one place to another. [2]

Advantages of solid perfume over liquid perfume [4]

Solid perfume	Liquid perfume
Solid perfume is skin friendly	Liquid perfume contains alcohol which acts as an irritant and hence causes dryness of the skin
Solid perfume does not leak so it can be easily carried from one place to another place	Liquid perfume has a chance of leakage while carried from one place to another place
Solid perfume contains waxes as a base so it acts as a long lasting	Liquid perfume contains alcohol as bases it gets evaporate after some time of spraying.

Skin

The skin covers the external surface of the body and is the largest organ in weight. It approximately covers 2 square meters. The skin mainly contains two parts: Epidermis and Dermis. The absorption of water-soluble substances through the skin is negligible but certain lipid-soluble materials penetrate the skin layers. Such substances are certain, drugs fat-soluble vitamins, and gases case as carbon dioxide and oxygen. In the of topical steroids, which are lipid-soluble, they reach easily to the papillary region of the dermis. Absorption through the skin has also given rise to the transdermal route of drug administration.

II. LITERATURE REVIEW

Hilda Maysarah. - The Formulation of stick perfume from jeumpa flower s essential oil (Michelia champaca) has been conducted in this article. Essential oil from jeumpaflowers was obtained by steam distillation method. There were two formulas examined in this study, those are F1 (cera alba 35, 07%), F2 (cera alba 40, 07%), using 8% concentrations of jeumpa flowers essential oil. Organoleptic, homogeneity, melting point, strength and stability were evaluated as quality parameters of stick perfume.

Melati Septiyant. - In this study, cocoa butter was used as raw material for solidperfume. Its optimal concentration in the product was determined. Solid perfume was made bymelting cocoa butter and beeswax at 90oC followed by adding jasmine oil as fragrance. The formulation variation of solid perfume was done with cocoa butter concentration 10%, 20%, 30%, 40% and 50% (w/w) and addition of patchouli oil as fragrance fixative agent. The following tests were carried out on the products: functional group analysis, hardness test, homogeneity test, physical stability test, melting point test, antioxidant test, and organoleptic test.

Líliá Calheiros de Oliveira Barretto – Solid perfumes are combinations of waxes, oils and fragrances concentrated in compact packaging that can simply be carried safely and with great convenience. United States Patent Office reports an invention of a solid perfume dated of 1942 (US2300769A patent number) that referred to a wax consistency stick impregnated with a fragrant essence employed for personal use. More recent data (US7723284B2 patent number; 2010) describes a solid perfumed preparation with high persistency in the form of micro beads which can be used in cosmetics and in household product industries.

Esther Gyedu-Akoto - The purpose of this paper is to assess the pilot-scale production, quality and sale of cocoa butter and shea butter body pomades in Ghana and to highlight the role of regulatory bodies in promoting these products. Cocoa butter- and shea butter-based body pomades were produced and sold to the general public at the Cocoa Research Institute of Ghana to determine their economic feasibility. The quality of the products was assessed by the Ghana Standards Authority and the Food and Drugs Authority.

Rashmi Saxena Pal. - Perfume has been in the life of humans since ancient times. Today's era has led to the formation of different fragrant liquids as per the people's perception. Solid perfume is generally constituted of all herbal ingredients, except in some cases, it has usually three main ingredients: beeswax, carrier oil, and essential oils. It is applied topically on pulse points with the help of a finger or a cotton swab. Various evaluation tests were performed individually on ingredients to identify them and assess their quality. These evaluation techniques were of organoleptic, physical, and

chemical nature. The prepared formulation of herbal solid perfume consisted of many merits as ease of application, patient convenience, portable formulation, less risk in storage, higher efficiency in low quantity.

2.1 AIM

To present work deals with formulation, evaluation and comparative study of herbal solid perfume stick containing jasmine oil extract which have analgesic, antidepressant properties and pleasant smell. The goal of the project is to effectively formulate herbal solid perfume stick with multiple beneficial uses like reduce depression, nervous exhaustion, improve confidence due to presence of jasmine oil extract in formulation and it also gives soothing and calming effects to the individual.

2.2 OBJECTIVES

- To prevent skin from bad or unpleasant odour.
- To improve self-confidence.
- To provide skin hydration and nourishment.
- To prevent skin problem like dry, greasy and sensitive skin.
- To produce the feeling of optimism.
- To provide anti-inflammatory and antidepressant action

2.3 HISTORY

The word perfume is a Latin term "perfumum". The Egyptians were the first to use perfume followed by the Arabs, Carthaginians, Chinese, Greeks, Hindus, Israelites and Romans. While fragrant liquids used for the body are often considered perfume, true perfumes are defined as extracts or essences and contain a percentage of oil distilled in alcohol. The Egyptians were the first culture to devise glass; and consequently, the first ones to use perfume in bottles. Perfumes have been used for over 5,000 years. It is believed that the ancient Egyptian's were the first to incorporate perfume into their culture. The Egyptians believed that the perfume was from the sweat of their sun god, Ra. Originally perfume (fragrances) was made from a combination of plant or animal products and rich oils. From Egypt perfume spread to other locations including Rome and Greece. Perfume was also widely prized in ancient China and Iran, although the Chinese used the scent in the form of incense. Archaeologists have found evidence of perfume's use throughout history and more often than not it comes in the form of intricate perfume containers or vessels

"In the late 19th century, organic chemistry expanded the scent pallet with improved purification of plant odorants and new synthetic. The use of synthetic compounds increased from 30 per cent in 1970 to almost exclusively synthetics today. This was because originally the use of aromatic materials was to burn incense. To be a pure perfume it must have at least 22% of essential oils. To develop a new scent, perfumers combine dozens of oils, each with a distinct smell characteristic, to create a blend that they hope will exceed the sum of its parts. IFF has 5,300 employees and produces more than 31,000 compounds, about 60% of which are flavours and 40% fragrances. [5]

The evolution of perfume

The first inventor of perfume is a lady named Tapputi from Mesopotamia. After some years, it handed from one nation to another and passed until it touched the hands of Europeans. Now, the history of perfumes turned as Europeans developed the procedure of making it and familiarized the notion of "modern scents". It had alcohol solution with essential oils and was first bottled by late 1300's. Europeans then named it "Hungary water" because they learnt the procedure from the Hungarians. With the usage of contemporary technology this procedure has become even more refined, with perfume firms and makers employing scientists and chemists to make an even more sophisticated product. [6]

The importance of perfume

There are a lot of reasons why individuals apply perfumes, but eventually it boils down to the fact that they make us feel joyful. The reason we feel happy is profoundly reliant on the individual, but can range from the presence of

pheromones, memoirs the scent summons, a feeling of confidence and the aptitude to show uniqueness via fragrances. This boost of positivity in our routine life upsurges vivacity, improves our drive to accomplish great things in life without feeling low. Perfume is certainly an amazing bottle of magic. Find the fragrance that makes you cheerful and reap the advantages today. You can spurt some perfume on the inside of your wrist and you can smell it after sometime. [7]

III. MATERIALS AND METHOD

Raw Materials:-

Materials chosen in this work were complete of natural origin. Herbal solid perfume requires three main ingredients that are:

- Beeswax
- Carrier oils
- Essential oils

Beeswax

It takes the carrier oil from a liquid state to a solid-state. Beeswax also works as a barrier to retain the essential oil-based perfume for a longer duration of time. It is usually the wax part of honeycomb, with yellow or light brown color, a characteristic odor of honey is solid, noncrystalline in appearance, insoluble in water, is chemical, composed of 80% myricyl palmitate, myricyl stearate, 15% free cerotic acid, cerolein, hydrocarbons, lactones, cholesterol esters, and pollen pigments. [8,9]



Fig 1. Beeswax

Almond oil

Seeds of *Prunus dulcis*, Rosaceae, give oil, as which is golden yellow, odorless, chemically contains 40-55% fixed oils, 20% proteins, mucilage, emulsion, 2.5-4% amygdalins. These oils are also referred to as nourishing or moisturizing oils, also working as a vehicle for this formulation. Many carrier oils like grape seed oil, almond oil, jojoba oil, avocado oil, and coconut oil can also be used. [10]

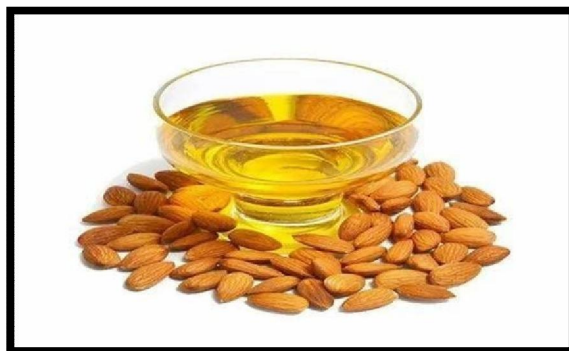


Fig 2. Almond Oil

Coconut oil

Is an edible oil derived from the wick, meat, and milk of the coconut palm fruit. Coconut oil is a white solid fat below around 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 detergent production. Due to its high levels of saturated fat, numerous health authorities recommend limiting its consumption as a food. [11,12]



Fig 3. Coconut oil

Jasmine Oil

Jasmine is also known as King of Flowers and definitely the most masculine of all the floral aromas, especially Jasmine Sambac which is more musky, spicy, mysterious and exotic than the Jasmine grandiflorum. Jasmine grandiflorum is softer and gentler. The potency and incredible fragrance power of Jasmine Essential oil make it a great investment even though it is one of the most expensive oils. Jasmine grandiflorum generally works with all oils. It helps to round out scents, and tends to work particularly well with other aphrodisiac oils such as Ylang Ylang and Sandalwood. The main chemical components that are presented in Jasmine oil include linalool, benzaldehyde, benzyl alcohol, benzyl acetate, β -farnesene, citronellol, and nerolidol, etc. Jasminaldehyde (also known as jasmine aldehyde and α -pentylcinnamaldehyde) is a fine chemical used as an aroma compound in perfumes. It is responsible for jasmine's characteristic scent. [13, 14]



Fig 4. Jasmine oil

IV. METHOD USED FOR JASMINE OIL EXTRACTION

In extraction of jasmine oil, here we used two methods,

Solvent Extraction by using Soxhlet apparatus

Oil separation from solvent (ethanol) by using Stem Distillation method

Solvent Extraction by using Soxhlet apparatus :-

Firstly wash all the glasswares and all parts of soxhlet apparatus with tap water.

Then dried it and assemble the soxhlet apparatus.

After assembling apparatus accurately weigh 50 gm of jasmine flower powder .

Then this powder fill into packet of filter paper and insert it into thimble of soxhlet apparatus.

Then wet the powder with solvent i.e. ethanol.

After wetting, inlet of water starts and set the temperature of heating mantle at 30°C.

Extraction of jasmine oil carried out by solvent extraction method until powdered drug became faint in colour.

Oil separation from solvent (ethanol) by using Stem Distillation method :-

After extracting jasmine oil by using solvent extraction method it must contain traces of ethanol.

For removing the traces of ethanol we used steam distillation method.

Firstly we assemble the steam distillation apparatus to round bottom flask which contains extract along with ethanol.

Solvent i.e. alcohol has low boiling point than jasmine oil hence, it gets evaporated and collected in receiver and jasmine oil extract remains in round bottom flask. [17]

V. EVALUATION PARAMETERS

Chemical assessment

Saponification value

It is defined as the number of milligrams of KOH required to hydrolyze 1 gram of wax. It is expressed as mg KOH/g.

$SAPONIFICATION\ VALUE = 56.1 \times (B - S) \times N \times W$ (1) Where; B = volume in ml of the standard hydrochloric acid required for the blank, S = volume in ml of standard hydrochloric acid required for the wax, N = normality of standard hydrochloric acid, and M = mass in grams of the wax taken for the test.

Acid value

It is defined as the number of milligrams of KOH required to neutralize 1 gram of the wax. It is expressed as mg KOH/g.

$ACID\ VALUE = 56.1 \times V \times N \times W$ (2) Where; V = volume in ml of standard potassium hydroxide solution used N = normality of standard potassium hydroxide solution, M = mass in grams of the wax taken for the test.

Ester value

It is defined as the difference between the acid value and saponification value.

$Ester\ Value = Saponification\ Value - Acid\ Value$ Ester to acid ratio It is defined as the number obtained by dividing the ester value by the acid value. [18]

Physical assessment

Determination of homogeneity - The formulations were tested for homogeneity by touch and visual appearance.

Determination of spreadability - Spreadability may be expressed by area extent to which the topical application spreads when applied to the parts of the skin that is affected. Sample of known weight was applied on a known area and spreadability factor was determined.

Determination of solubility The solubility of the formulation was checked in different mediums.

Determination of absorption The amount of formulation absorbed in a given area was observed.

Determination of the type of smear - It was determined by applying the solid perfume on the skin surface of a human Palm. After applying solid perfume, the type of smear or film formed on the skin was checked.

Determination of Emolliency - Slipperiness, emolliency and amount of residue left after the applying fixed amounts of cream was checked.

Determination of Physical appearance - The physical appearance of solid perfume was inspected visually against a dark background.

After feel - The nature of the skin texture on the applied area was assessed after the application of the formulation.

Ease of Removal - The ease of removal of the cream applied was determined by washing the applied part with tap water.

Irritancy test An area was marked on one dorsal part of the hand. The prepared solid perfume was applied and the time was noted down. It was continuously monitored for any kind of irritancy or allergic reactions at regular time intervals for 24 hours. [19]

BENEFITS OF SOLID PERFUME

Free of Alcohol

Many liquid perfumes contain alcohol to help them evaporate after they are sprayed. Because of the presence of alcohol, liquid perfumes melt onto your skin. However, we know they are harsh on the skin, so avoiding them is the best

option. However a solid perfume is skin friendly and does not require drying, it is unlikely to contain irritants such as alcohol.

It is Leakage Free

A solid perfume will not leak and make a mess if you are traveling with it or simply keep it in a cupboard at home.

They are Long Lasting

Solid perfumes are so simple to use, you won't have any trouble re-applying it. They adhere to the skin layer hence they remain long lasting.

Moisturizing and Nourishing

These perfumes contain oils and other moisturizers that help to keep your skin moisturized. The balm-like texture is simple to apply to the wrists, It will not only keep you fresh but will also moisturize your skin. It is very beneficial for people with dry skin. It is extremely beneficial to people who have dry skin.

Small Size

Solid perfume come in a small, compact and unbreakable containers and it becomes really easy to carry them. They fit easily into the purse or even in a pocket. So, rather than carrying a breakable glass bottle of liquid perfumes, it is better to carry a solid one.

Travel-Friendly

We all know that we are bound by liquid restrictions at airport when travelling and leave perfumes at home. But solid scents, there are no such restrictions and you can travel easily overseas.

Less likely to cause skin reaction

As solid perfumes are usually made up of a combination natural oils so, there are very fewer chances of getting any skin reactions. [20, 21]

VI. RESULTS

Organoleptic assessment:

Organoleptic evaluation performed, revealed the details regarding the colour, odour, appearance, texture etc. of the prepared formulation, was found to be pleasant, smooth and acceptable

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

Table no. 1

Chemical assessment:

Chemical evaluation for the lipid based formulation, confirmed the values, which are confirmatory standards for quality of wax incorporated.

Chemical test	Results
Saponification value	95.37mg koh/ gm.
Acid value	21.2mgkoh/gm.
Ester value	74.17mgkoh/gm.
Ester to acid ratio	3.498

Table no. 2

VII. CONCLUSION

There had been vast advances made when it comes to developing new fragrances and scents. But these advances lack when it comes to changing the formulation of perfumes. Solid perfumes have been in the market for a while and are still

not known much due to the concept of their rigidity. Fragrant substances in the cosmetics in solid form aren't something new, but still, solid perfumes lack the ground of fame as compared to them. Solid perfumes have been very much used Around the region of Turkey & Bulgaria and generally known as perfumed cream. Solid perfume is made of all-natural ingredients whether it is an in-house preparation or a laboratory experiment. On its comparison to a cream, the grounds for assessment can be united. The assessments for herbal solid perfume are similar to the assessments for any emulsion or cosmetic cream. The ingredients used in it impart therapeutic as well as additive action when used in the formulation. Beeswax is a moisturizer and is also used for the solidification of the solid perfume. Almond oil has its therapeutic value and is used as a vehicle here. Essential oils are always used in dilute form due to the chances of high toxicity and allergic reactions. Each derived essential oil has its different therapeutic value and most of them contain fragrances. Due to the fragrant nature of their volatile substances, they are also used in aromatherapies. The likeness of solid perfume is still quite good due to its easy portability and storage. It is also suited for those people who are not comfortable with highly fragrant perfumes in the market. The fragrance of the perfume can be adjusted to one's comfort and, hence, the strength of the scent may vary among the population. Solid perfume is one of those less researched topics on which much rigid information has yet to be established.

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