

REVIEW ON DESIGN AND EVALUATION OF HERBAL LIPSTICK

Yogesh B. Raut, Sanjay K. Bais, Sonali S. Arve

Fabtech College of Pharmacy Sangola- 413307 India

Corresponding author Mail ID: sonaliarve170@gmail.com

ABSTRACT:

The design and evaluation of herbal lipstick represent a pivotal exploration into the intersection of beauty, sustainability, and health. This review navigates through the intricate realm of herbal cosmetics, focusing on the formulation, effectiveness, safety, sustainability, user experience, and market trends associated with herbal lipsticks. Delving into the formulation intricacies, it scrutinizes the selection and processing of herbal ingredients, dissecting their properties and contributions to the lipstick's overall quality. Emphasis is placed on color payoff and longevity, comparing these attributes with conventional lipsticks. Safety considerations encompass allergenicity and irritation potential, underpinned by insights from clinical testing, ensuring the herbal lipstick's compatibility with diverse skin types. Sustainability emerges as a core theme, evaluating the environmental impact of packaging materials and the ethical sourcing of herbal ingredients. User experience takes center stage, dissecting texture, application, and fragrance, providing a holistic view of the product's appeal. Market trends and consumer perceptions are scrutinized, offering a panoramic view of the herbal lipstick landscape. This review synthesizes findings to present an overall assessment of herbal lipsticks, offering recommendations for refinement and envisioning a future where beauty products seamlessly integrate herbal benefits with sustainability and consumer satisfaction.

Keywords: *Cosmetic, Herbal, Lip anatomy, Pricing, Allergies.*

INTRODUCTION

Lipstick, a timeless cosmetic adornment, has graced the lips of individuals across cultures and centuries. The history of lip products traces back to ancient civilizations, where various cultures embraced the art of lip coloring for symbolic, religious, or aesthetic reasons. Archaeological findings, such as the remnants of lip paint containers in ancient Egyptian tombs, attest to the enduring allure of lip enhancement.^[1]

In the early 20th century, the cosmetic industry witnessed a transformative phase with the commercialization of lipsticks. Traditional lip products, often composed of natural ingredients like beeswax, plant extracts, and pigments from minerals or plants, dominated the market. These formulations, rooted in simplicity and nature, paved the way for a beauty ritual that transcended generations.

Growing Interest in Herbal and Natural Cosmetics:

As the 21st century unfolds, a paradigm shift in beauty consciousness is palpable. Consumers are increasingly drawn to products that align with their desire for sustainability, health, and environmental responsibility. This shifting paradigm is prominently manifested in the growing interest in herbal and natural cosmetics, marking a departure from the synthetic-laden formulations that dominated the beauty industry for decades.^[2]



Figure 1: Woman Applying Lipstick

The surge in interest is underpinned by a collective awareness of the potential drawbacks associated with conventional cosmetics. Concerns about the presence of harmful chemicals, allergens, and environmental impact have prompted a discerning consumer base to seek alternatives that are not only effective but also mindful of their well-being and the planet.^[3]

Purpose: At the heart of the herbal lipstick movement lies a dual-purpose that resonates with modern consumers. Firstly, there is a compelling need to address the pervasive concerns about chemical ingredients found in mainstream lipsticks. The realization that conventional lip products may harbor synthetic substances with potential health implications has prompted a quest for alternatives that prioritize safety without compromising on aesthetics.

Secondly, herbal lipsticks are designed to tap into the rich tapestry of benefits offered by herbal extracts. Nature, with its myriad of botanical treasures, provides a holistic source of nourishment, healing, and beautification. Herbal ingredients, carefully curated and harnessed, bring forth a synergy that extends beyond mere cosmetic enhancement. These natural components often carry inherent therapeutic properties, offering a harmonious blend of aesthetics and wellness.^[4]

The shift towards herbal lipsticks represents a return to the roots, embracing the wisdom of traditional formulations while incorporating contemporary advancements in cosmetic science. This resurgence is not merely a fleeting trend but a conscious choice to redefine beauty rituals in a manner that aligns with both personal well-being and environmental stewardship.

In delving into the purpose of herbal lipsticks, it becomes evident that this movement is not just about applying a layer of color on the lips but about embracing a lifestyle that is mindful, nourishing, and in harmony with the natural world. It is a declaration that beauty can be a celebration of health, and that adorning oneself need not come at the expense of one's well-being or the planet's health.^[5]

As we embark on this exploration of herbal lipsticks, we journey into a realm where tradition meets innovation, where the wisdom of the ancients converges with the aspirations of the contemporary. It is a narrative that unfolds in shades and tints, revealing not just the transformative power of color but the potential for cosmetics to be a conduit for self-care and reverence for the earth. Join us as we unravel the layers of herbal lipsticks, exploring the history, addressing concerns, and basking in the botanical embrace of nature's beauty.

Structure of Lips:

The anatomy of the lips is a fascinating study of intricate structures that contribute to both functional and aesthetic aspects of the face. Comprising the vermilion border, philtrum, and oral commissures, the lips are a vital component of facial expression and speech. The vermilion border, the distinct edge between the colored part of the lips and the surrounding skin, is rich in blood vessels, contributing to the characteristic red hue. The transition zone between the skin and vermilion, known as the white roll, plays a role in lip contour and definition. The philtrum, a vertical groove between the upper lip and nose, adds individuality to facial features. It is a remnant of the embryonic development process, showcasing the fusion of facial structures. Within the lips, a

complex muscular arrangement allows for various facial expressions, aiding in communication and emotional conveyance. [6]The orbicularis oris muscle encircles the mouth, facilitating lip movements and closure. Connected to this muscle are the intrinsic and extrinsic muscles that contribute to the dynamic nature of the lips. The lips contain sebaceous glands and sweat glands, contributing to moisture and protection. Sensory nerve endings enhance tactile sensitivity, allowing individuals to perceive temperature, texture, and pressure. In terms of aesthetics, the fullness and symmetry of the lips are often associated with beauty standards. The lips play a crucial role in facial aesthetics and are frequently enhanced or accentuated through cosmetic procedures like lip augmentation. Overall, the anatomy of the lips is a harmonious blend of form and function, showcasing the intricate design that influences both our expressive capabilities and perceptions of beauty. [7]

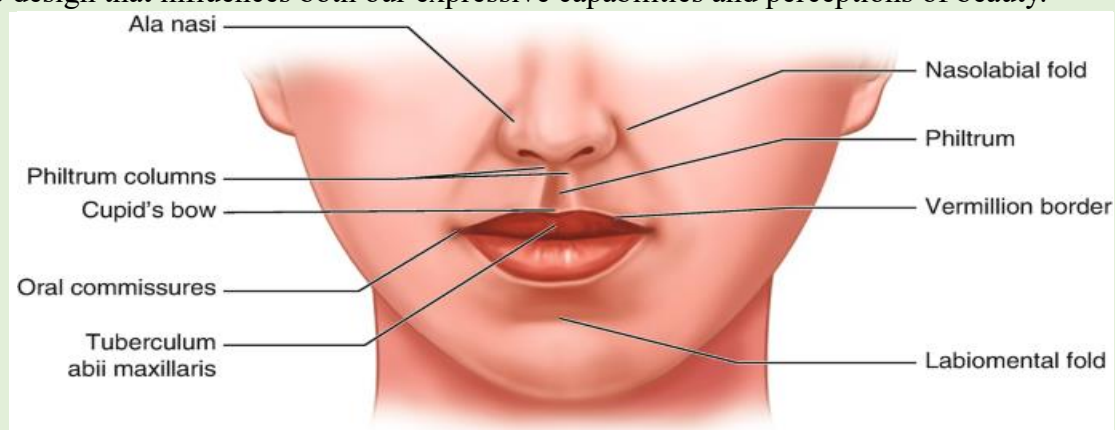


Figure 2: Anatomy of lips

Difference between skin of lips and regular skin:

1. Structure and Thickness:

- **Lip Skin:**

The skin of the lips is considerably thinner compared to regular skin. It lacks a stratum lucidum layer, a translucent layer found in other skin regions. The epidermis on the lips is thinner, making the blood vessels and underlying tissue more visible, giving the lips their characteristic red or pink color.

- **Regular Skin:**

Regular skin, found on areas like the arms and legs, has a more stratified structure, including the stratum lucidum, providing additional thickness and protection. [8]

2. Keratinization:

- **Lip Skin:**

The skin on the lips is less keratinized, meaning it has fewer layers of dead, keratin-filled cells. This allows for greater flexibility and sensitivity. The lack of a thick stratum corneum contributes to the smooth and delicate texture of the lips.

- **Regular Skin:**

Regular skin undergoes a higher degree of keratinization, forming a robust stratum corneum that provides protection against environmental stressors.

3. Moisture and Lubrication:

- **Lip Skin:**

The lips lack sebaceous glands, which produce oil to moisturize the skin. Instead, they have a minimal number of sebaceous glands and rely on saliva for moisture. The mucosal membrane on the inner surface of the lips contributes to their wetness and lubrication.

- **Regular Skin:**

Regular skin is equipped with a higher density of sebaceous glands, ensuring a continuous supply of natural oils that contribute to skin hydration.

4. Hair Follicles and Sweat Glands:

- **Lip Skin:**

The lips are devoid of hair follicles and have limited sweat glands, contributing to their smooth appearance. The sweat glands present are of the eccrine type, which produce a more dilute sweat compared to the apocrine glands found in regular skin areas.

- **Regular Skin:**

Regular skin is characterized by the presence of hair follicles and a greater number of sweat glands, allowing for temperature regulation and hair growth.

5. Vascularization:

- **Lip Skin:**

The lips are highly vascularized, meaning they have an extensive network of blood vessels close to the surface. This accounts for their vibrant color and sensitivity. The lack of melanin, the pigment responsible for skin color, contributes to the pink or red appearance of the lips.

- **Regular Skin:**

Regular skin has a less prominent vascular network, and the presence of melanin determines its color.

6. Sensory Perception:

- **Lip Skin:**

The lips are rich in sensory nerve endings, providing heightened tactile sensitivity. This feature is crucial for activities like kissing, eating, and speaking.

- **Regular Skin:**

While regular skin also contains sensory nerve endings, the concentration is not as high as in the lips.

7. Aging and Vulnerability:

- **Lip Skin:**

The lips are more susceptible to environmental factors and aging due to their thinner structure and limited protection from oil glands. Over time, factors like sun exposure and expressions contribute to fine lines and wrinkles around the lips.

- **Regular Skin:**

Regular skin, with its thicker structure and greater oil production, tends to exhibit signs of aging at a comparatively slower rate. The skin of the lips stands out as a specialized and unique component of the human integumentary system. Its distinct features, including thinness, lack of sebaceous glands, and heightened sensitivity, contribute to both its aesthetic appeal and functional role in sensory perception and communication. Understanding these differences is crucial for skincare and cosmetic practices tailored to the specific needs of lip skin.^[9]

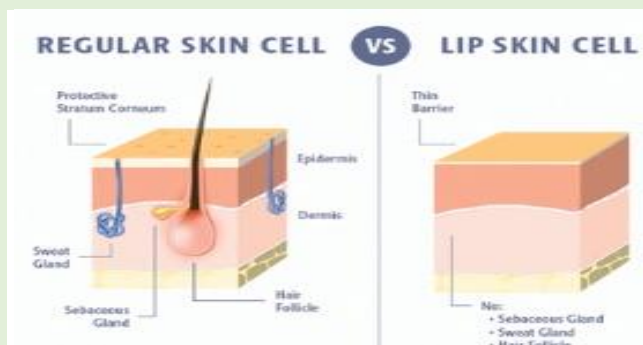


Figure 3: Diff. in Skin Structure

Lip Disorders:**1. Angular Cheilitis:**

Symptoms: Angular cheilitis presents as painful sores or cracks at the corners of the mouth, accompanied by redness and swelling. These lesions may become inflamed and crust over.

Causes: Fungal or bacterial infections, such as *Candida albicans* or *Staphylococcus aureus*, are common culprits. Factors like nutritional deficiencies, excessive moisture, or ill-fitting dentures can contribute.^[10]



Figure 4: Angular Cheilitis

2. Cheilitis:

Symptoms: Cheilitis is characterized by inflammation, swelling, and redness of the lips. It may also involve symptoms like dryness, scaling, or fissures.

Causes: Various factors can contribute, including allergies to lip care products, exposure to irritants (e.g., certain foods or medications), infections, or nutritional deficiencies.^[11]



Figure 5: Cheilitis

3. Herpes Labialis (Cold Sores):

Symptoms: Cold sores are fluid-filled blisters that typically appear on or around the lips. They cause swelling, itching, and pain, often accompanied by a tingling sensation before the blisters emerge.

Causes: Cold sores are primarily caused by the herpes simplex virus (HSV-1). Stress, sunlight, fever, or compromised immune function can trigger outbreaks.^[12]



Figure 6: Herpes Labialis (Cold Sores)

4. Oral Lichen Planus:

Symptoms: Oral lichen planus may manifest as white, lacy patches or open sores on the lips, along with redness and swelling. It can be associated with discomfort or a burning sensation.

Causes: This condition is often linked to an autoimmune response, where the immune system mistakenly attacks the cells of the oral mucosa. Certain medications may trigger or exacerbate lichen planus.^[13]



Figure 7: Oral Lichen Planus

5. Allergic Reactions:

Symptoms: Allergic reactions on the lips can lead to swelling, redness, itching, or the development of sores. The severity can vary based on the individual's sensitivity.

Causes: Allergens from foods, medications, cosmetics, or other substances can trigger allergic reactions. Common allergens include certain metals, fragrances, preservatives, or specific foods.

6. Actinic Cheilitis:

Symptoms: Actinic cheilitis presents as dry, scaly, and swollen lips with discoloration. Over time, it can lead to the formation of precancerous lesions.

Causes: Chronic sun exposure is the primary cause of actinic cheilitis. Ultraviolet (UV) radiation can induce changes in lip cells, increasing the risk of developing skin cancers, including squamous cell carcinoma.^[14]



Figure 8: Actinic Cheilitis

It's crucial to consult a healthcare professional for an accurate diagnosis and appropriate treatment if you experience persistent or severe symptoms associated with these lip disorders. Treatment approaches may include antifungal or antiviral medications, corticosteroids, lifestyle adjustments, or, in the case of potential malignancy, surgical interventions.^[15]

Types of lipstick:

Depending on the thickness of cosmetic products, there can be many types such as lipstick, lipstick, lipstick and liquid lipstick. By the number of secondary functions lipsticks can be divided into:

1. **Matte Lipstick:** Provides a flat, non-shiny finish and tends to be long-lasting.
2. **Cream Lipstick:** Offers a creamy texture with a bit of shine, providing hydration to the lips.
3. **Satin Lipstick:** Combines the richness of matte with a subtle sheen, offering a smooth finish.
4. **Gloss Lipstick:** Provides a high-shine finish for a wet look and is often more sheer in color.
5. **Sheer Lipstick:** Offers a translucent color, allowing the natural lip color to show through.
6. **Lip Stain:** Provides a long-lasting tint to the lips, giving a natural and subtle appearance.
7. **Liquid Lipstick:** Comes in a liquid form, drying to a matte or semi-matte finish for long-lasting wear.
8. **Metallic Lipstick:** Contains metallic pigments for a shimmery and reflective finish.
9. **Pearl/Frost Lipstick:** Offers a frosted or pearlized finish with a slightly metallic shine.
10. **Hydrating Lipstick:** Infused with moisturizing ingredients to keep lips hydrated, often with a satin finish.
11. **Long-Wearing Lipstick:** Formulated for extended wear, resisting smudging and fading throughout the day.
12. **Lip Crayon:** A pencil-like lipstick that is easy to apply and often provides a matte or satin finish.
13. **Two-Tone Lipstick:** Features two complementary shades in one bullet, creating a gradient or ombre effect.
14. **Color-Changing Lipstick:** Reacts with the pH of your lips to create a custom color based on your skin's chemistry.
15. **Velvet Lipstick:** Offers a smooth and soft finish, sitting between matte and cream lipsticks in terms of texture.^[16]

Mechanism Of Lipstick:

The revolving face consists of a cup with a nose piece that fits the cup and controls the movement of the cup, and a cup body that fits the lipstick bullet. The screw is inside the spiral and is withdrawn, attached to the valve body, and is rotatably attached to the nose pad. The spiral has a spiral line with guiding grooves produced on its inner surface. The outside of the screw is constructed with two helical projections. The screw rod and cover body move up or down when the spiral body spins because the two spiral protrusions are guided by the spiralguide groove inside the spiral body.^[17]



Figure 9 : Mechanism of lipstick

The basic manufacturing process of lipstick:

The basic production processes involved in the formulation of herbal lipstick are as follows:

1. Pigment pre-milling

In order to give the lipstick a consistent, even, and smooth color, the pigment pre-milling step of the process breaks down the powder's agglomerates.

2. Mixing and Melting:

Melting and mixing are the following steps. Since waxes are solid at room temperature, mixing them with other materials won't help the process along. It can usually be mixed with oil and melted to the melting base to get a homogenous outcome. After that, components are combined and pigment is applied.

3. Molding:

The actual molding process involves pouring the melted lipstick into a plastic or metal mold while it is still hot, as this helps it solidify, and then gently pressing the mixture out of the mole.



Figure 10: Molds for lipstick

4. Flaming:

The next stage involves flaming the lipstick, which involves holding it over a flame and twisting it for a maximum of one second before removing it to prevent it from melting and losing its shape and giving it a glossy finish. After that, the lipstick is put inside the holder.

Defects of Lipsticks:

Formulation-related issues:

- Sweating: Because of excessive oil content or poor oil binding, this is the most prevalent issue with lipstick formulation. It could appear in any type of weather or temperature range.
- The term "bleeding" describes the process whereby colored liquids separate from the waxy base.
- Streaking: A narrow band or line of a different color or substance is present in the finished product.

Moulding related problems:

- Laddering: After congealing and setting, lipstick has many layers rather than a smooth, uniform look.
- Deformation: This is a mold issue where the lipstick's shape appears distorted. It is obvious and shows up on the lipstick's two sides.
- Cratering : a phenomenon that manifests in split molding and ignites when the stick acquires dimples.
- Mushy failure: This issue occurs when the lipstick's middle becomes unstable and cracks.

Control of Lipstick Quality:

Quality control of herbal lipstick is a crucial aspect of the cosmetic manufacturing process to ensure that the final product meets safety, efficacy, and regulatory standards. This involves comprehensive testing and adherence to specific guidelines throughout the production stages. Here is a brief overview of key aspects of quality control for herbal lipsticks: ^[18]

1. Raw Material Inspection:

Thorough examination of raw materials, including herbal color pigments, waxes, oils, and other ingredients, to verify their quality and authenticity. Testing for potential contaminants, such as heavy metals, pesticides, or microbial organisms.

2. Color Consistency:

Ensuring consistency in color across different batches by using standardized herbal color pigments and maintaining precise formulation ratios.

3. Microbiological Testing:

Conducting microbial tests to detect the presence of bacteria, yeast, and mold, ensuring that the final product is free from harmful microorganisms.

4. Stability Testing:

Subjecting the herbal lipstick to stability tests, including exposure to varying temperatures, humidity, and light, to assess its performance over time and prevent color changes or texture alterations.

5. Purity and Potency Testing:

Verifying the purity of herbal extracts used in the formulation through techniques such as high-performance liquid chromatography (HPLC) or gas chromatography-mass spectrometry (GC-MS). Assessing the potency of active herbal ingredients to ensure they meet specified concentration levels for desired therapeutic or aesthetic effects.

6. Allergen Testing:

Conducting allergen testing to identify and quantify potential allergens, ensuring that the herbal lipstick is safe for individuals with sensitivities.

7. pH Testing:

Measuring and controlling the pH of the herbal lipstick to ensure it falls within the desired range, promoting compatibility with the skin and preventing irritation.

8. Texture and Consistency Evaluation:

Assessing the texture, consistency, and viscosity of the herbal lipstick to ensure a smooth and even application on the lips.

9. Packaging Compatibility:

Evaluating the compatibility of the herbal lipstick with its packaging materials to prevent interactions that may compromise product quality.

10. Regulatory Compliance:

Ensuring compliance with local and international cosmetic regulations, including labeling requirements, ingredient lists, and safety standards.

Herbal components included in lipsticks:

Bases:

A significant class of ingredients for producers of cosmetics and personal hygiene goods is waxes. Numerous items and industries use waxes. Although their main use is in candles, they are also widely utilized as thickeners or emulsifiers in the culinary, cosmetic, and pharmaceutical industries. Chemically speaking, waxes are intricate blends of fatty acids, hydrocarbons, and esters. They are impervious to germs, oxidation, and dampness. Wax falls into four categories. Three types of waxes are most commonly used in cosmetic products: candelilla, carnuba, and beeswax.

Oils:

- **Jajoba Oil (Simmondsia Chinensis):** Jajoba oil closely resembles the natural oils produced by the skin, providing hydration without greasiness. It contributes to the emollient properties of herbal lipsticks.
- **Coconut Oil (Cocos Nucifera):** Known for its moisturizing benefits, coconut oil adds a smooth texture to lipsticks. It also offers a pleasant tropical aroma.
- **Avocado Oil (Persea Americana):** Rich in vitamins and fatty acids, avocado oil nourishes and conditions the lips, promoting softness and elasticity.

3. Coloring Agents:

- **Alkanet Root (Alkanna Tinctoria):** Alkanet root is used as a natural colorant, imparting shades of purple and red to herbal lipsticks. It is known for its earthy and rich color.
- **Beetroot Powder (Beta Vulgaris):** Beetroot powder provides vibrant shades of red and pink. It is a popular natural colorant in herbal cosmetics and is often rich in antioxidants.
- **Hibiscus Petal Powder (Hibiscus Rosa-Sinensis):** Hibiscus petals offer a natural source of red color for lipsticks. They also bring antioxidant properties to the formulation.

4. Flavoring Agents:

- **Peppermint Oil (Mentha Piperita):** Peppermint oil is commonly used as a flavoring agent in herbal lipsticks, providing a refreshing and cooling sensation.
- **Vanilla Extract (Vanilla Planifolia):** Vanilla extract contributes a sweet and pleasant flavor to herbal lipsticks. It is often used to enhance the overall sensory experience.
- **Citrus Essential Oils (e.g., Orange, Lemon):** Citrus essential oils add fruity and zesty flavors to lipsticks. They can also provide a subtle fragrance.^[19]

These herbal ingredients not only contribute to the aesthetic appeal of herbal lipsticks but also offer potential skincare benefits. The use of natural and plant-based components aligns with consumer preferences for clean and sustainable beauty products. It's important to note that specific formulations may vary among different brands, and some herbal lipsticks may contain additional botanical extracts for their unique properties. ^[20]

Base	Oils	Flavouring agents
Cocoa butter	Coconut oil	Strawberry
Bees wax	Olive oil	orange
Carnauba wax	Castor oil	Saffron
Candelilla wax	Glycerine	Raspberry
Avocado butter	Arachis oil	Vanilla
Olive wax	Grape seed oil	Rose oil
Olive butter	Sesame oil	Cherry
Raspberry butter	Corn oil	Sandalwood

Table 2. The natural ingredients

Method of extracting different color pigments from herbs:

Several herbs and plant-based sources are commonly used to extract natural color pigments for herbal lipsticks. These sources offer a spectrum of hues, allowing cosmetic manufacturers to create a diverse range of colors. Here are some examples of herbal color pigments used in herbal lipstick formulations: ^[21]

1. Beetroot (*Beta vulgaris*):

Color: Shades of red to deep pink

Pigment: Betacyanin

Benefits: Rich in antioxidants and known for its moisturizing properties.

Extraction Procedure:

Harvest and clean fresh beetroot. Peel and slice the beetroot into thin pieces. Air-dry the slices to remove moisture. Grind the dried slices into a fine powder. Extract the pigment by soaking the powder in a mixture of water or glycerin. Filter the solution to obtain the concentrated beetroot pigment.

2. Hibiscus Petals (*Hibiscus rosa-sinensis*):

Color: Bright red

Pigment: Anthocyanins

Benefits: Possesses antioxidant properties; adds vibrancy to lip color.

Extraction Procedure:

Collect fresh hibiscus petals. Air-dry the petals to eliminate moisture. Crush the dried petals into a coarse powder. Macerate the powder in a suitable solvent, such as oil or glycerin. Filter the mixture to separate the pigment-infused solution from solid residues. Concentrate the solution through gentle heating or evaporation.

3. Turmeric (*Curcuma longa*):

Color: Yellow to orange

Pigment: Curcumin

Benefits: Anti-inflammatory properties; imparts a warm, golden tint.

Extraction Procedure:

Peel and sun-dry turmeric rhizomes. Grind the dried rhizomes into a fine powder. Combine the turmeric powder with a suitable solvent like ethanol. Stir the mixture and filter to obtain a turmeric extract. Adjust the pH of the extract for stability. Evaporate the solvent to yield concentrated turmeric pigment.

4. Alkanet Root (*Alkanna tinctoria*):

Color: Purple to burgundy

Pigment: Alkannin

Benefits: Known for its natural deep coloring; often used to achieve darker shades.

Extraction Procedure:

Crush alkanet root into small pieces. Macerate the crushed root in a solvent like oil or alcohol. Allow the mixture to steep for an extended period. Filter the solution to remove solid particles. Precipitate the pigment by adjusting the solvent conditions. Dry the obtained pigment for use in lipstick formulations.^[22]

5. Annatto Seeds (*Bixa orellana*):

Color: Orange to red

Pigment: Bixin

Benefits: Offers a natural tint and antioxidant properties.

Extraction Procedure:

Crush annatto seeds to obtain a coarse powder. Mix the powder with a suitable oil or solvent. Heat the mixture to facilitate pigment extraction. Filter the solution to separate the annatto pigment. Adjust the pH for stability. Concentrate the solution through evaporation.

6. Chlorophyll (from Green Plants):

Color: Green

Pigment: Chlorophyll

Benefits: Refreshing green hues; antioxidant and detoxifying properties.

Extraction Procedure:

Collect fresh green plant material (e.g., spinach or parsley). Blend the material with a small amount of water. Filter the mixture to obtain a green liquid. Extract chlorophyll using a solvent like ethanol. Filter and concentrate the solution through evaporation.

7. Saffron (*Crocus sativus*):

Color: Warm yellow to orange

Pigment: Crocin

Benefits: Adds a luxurious golden tint; known for its skin-brightening properties.

Extraction Procedure:

Infuse saffron threads in a solvent like oil or glycerin. Allow the mixture to steep for an extended period. Filter the solution to separate saffron pigments. Adjust the pH for stability. Concentrate the solution through gentle heating.

8. Dragon's Blood Resin (*Daemonorops* spp.):

Color: Deep red

Pigment: Dracorhodin

Benefits: Provides a rich, dark red color; believed to have skin-soothing properties.

Extraction Procedure:

Crush dragon's blood resin into small particles. Macerate the crushed resin in a suitable solvent (e.g., ethanol). Filter the solution to remove solid debris. Precipitate the pigment by adjusting solvent conditions. Collect and dry the obtained dragon's blood pigment.

9. Madder Root (*Rubia tinctorum*):

Color: Red to reddish-brown

Pigment: Alizarin

Benefits: Used historically for natural dyeing; lends earthy tones to lip products.

Extraction Procedure:

Crush madder root into a fine powder. Macerate the powder in a solvent like alcohol or oil. Filter the solution to separate the madder root pigment. Adjust the pH for stability. Concentrate the solution through evaporation.

10. Cocoa Powder (*Theobroma cacao*):

Color: Brown

Pigment: Theobromine

Benefits: Adds natural brown tones; imparts a subtle chocolate scent.

Extraction Procedure:

Obtain high-quality cocoa powder. Mix the powder with a suitable oil or glycerin. Stir the mixture to extract cocoa pigments. Filter the solution to obtain the concentrated cocoa pigment. Adjust the pH if needed. Concentrate the solution through gentle heating.

Evaluation Tests of lipsticks

1. Color and Texture:

Procedure: Observe the lipstick's color in natural light. Assess the texture by applying a small amount to the back of the hand or lips. Note the color intensity, uniformity, and the smoothness of the texture.

2. pH:

Procedure: Use pH paper or a pH meter to measure the pH of the lipstick. Apply a small amount of the lipstick on the pH paper or probe, and note the pH reading. Ensure that the pH falls within the acceptable range for lip products (typically around 4.5 to 7.5).^[23]

3. Determination of Melting Point:

Procedure: Use a melting point apparatus. Heat a small sample of the lipstick until it melts completely. Record the temperature at which the melting occurs.

4. Breaking Point:

Procedure: Apply the lipstick to a glass slide. Observe any cracking or breaking of the lipstick over time.

5. Determination of Hardness:

Procedure: Use a penetrometer to measure the hardness of the lipstick. Apply a consistent force to the lipstick and record the depth of penetration.

6. Determination of Spreadability:

Procedure: Apply a small amount of the lipstick on a glass slide. Use a standard spreadability apparatus to measure the spread diameter. Assess the ease with which the lipstick spreads on the surface.

7. Softening Point:

Procedure: Use a softening point apparatus. Heat a small sample of the lipstick until it softens. Record the temperature at which the softening occurs.

8. Ring and Ball Method:

Procedure: Utilize a ring and ball apparatus. Heat a small sample of the lipstick until it becomes soft. Measure the temperature at which the ball passes through the lipstick.

9. Rancidity:

Procedure: Perform organoleptic evaluation for any off-putting odor. Conduct a peroxide value test to assess oxidative rancidity.

10. Microbiological Test: -

Procedure: - Use appropriate microbiological techniques. - Take a sample from the lipstick and culture it to check for the presence of bacteria, yeast, and mold. - Assess compliance with microbiological limits defined by regulatory standards.

11. Perfume stability:

Procedure: For thirty days, the produced herbal lipsticks were tested to measure scent.

12. Skin Irritation Test:

Procedure: - Conduct a patch test on a small area of skin (typically on the forearm or behind the ear) using a small amount of the lipstick. - Observe for any signs of irritation, redness, or inflammation over a specified period.^[24]

Packaging :

1. Assessment of the packaging design and materials.

The assessment of packaging design and materials for herbal lipstick is crucial in understanding the product's overall sustainability and appeal. The packaging serves as the first point of contact for consumers and contributes significantly to the product's environmental impact.

In evaluating the design, attention should be given to functionality, aesthetics, and eco-friendliness. An effective herbal lipstick packaging design not only enhances the visual appeal but also considers practical aspects like ease of use and storage. Elements such as color schemes, typography, and imagery should align with the brand's identity and convey a message of natural and herbal attributes.^[25]

The packaging design should reflect transparency in communicating the herbal components, fostering consumer trust. Incorporating eco-friendly symbols or certifications can also enhance the product's credibility. Overall, a well-thought-out packaging design, coupled with environmentally conscious materials, not only aligns with the herbal theme but also caters to the increasing consumer demand for sustainable beauty products.

2. Exploration of eco-friendly packaging options

The exploration of eco-friendly packaging options for herbal lipstick reflects a commitment to environmental sustainability, aligning with the growing global awareness of ecological concerns. Eco-friendly packaging prioritizes the use of materials that minimize environmental impact throughout their lifecycle. Recycled and biodegradable materials are key considerations in this exploration.

Recycled paper or cardboard packaging is a popular choice, contributing to the reduction of deforestation and promoting the reuse of materials. Additionally, plant-based plastics derived from renewable resources offer a biodegradable alternative to traditional petroleum-based plastics, addressing concerns about plastic pollution.^[26]

Minimalistic packaging design is another eco-friendly approach, as it reduces material usage and waste. Dispensing with unnecessary layers and components not only minimizes the product's environmental footprint but also enhances the user experience through simplicity and ease of recycling.

Water-based inks and adhesives can be incorporated into the printing and assembly processes, further reducing the ecological impact of the packaging. By embracing these eco-friendly packaging options, cosmetic brands not only appeal to environmentally conscious consumers but also contribute positively to global sustainability efforts, fostering a more responsible and eco-conscious beauty industry.^[27]

Herbal Benefits :

1. Moisturizing Properties:

Herbal ingredients like shea butter, coconut oil, or aloe vera provide deep moisturization, preventing dryness, flakiness, and chapping. Long-lasting moisture contributes to softer and more supple lips.

2. Antioxidant Content:

Herbal extracts rich in antioxidants, such as green tea or vitamin E, protect lips from free radicals, combat environmental stressors, and contribute to maintaining youthful and healthy-looking lips.

3. Anti-Inflammatory Effects:

Herbal ingredients with anti-inflammatory properties, like chamomile or calendula, soothe irritated lips, reducing redness and swelling, and are ideal for individuals with sensitive or easily irritated skin.

4. Healing and Repairing Characteristics:

Herbal components like calendula or lavender support the healing of minor lip injuries, accelerate the repair process for cracked or damaged lips, and provide a natural remedy for maintaining optimal lip health.

5. Natural Sun Protection:

Herbal ingredients with inherent sun-blocking properties, such as raspberry seed oil, offer natural sun protection, guarding against UV damage, preventing sunburn, and are convenient for everyday wear, especially in sunny or outdoor environments.

6. Hydration Retention:

Herbal ingredients like hyaluronic acid or jojoba oil assist in locking in moisture, preventing dehydration, and combating the negative effects of environmental factors on lip hydration, ensuring sustained lip comfort.

7. Vitamins and Nutrients:

Presence of vitamins (e.g., vitamin A, C, or B) nourishes and revitalizes the delicate lip skin, while nutrient-rich herbal extracts contribute to overall lip health and support the lips' natural renewal processes.^[28]

8. Gentle Exfoliation:

Herbal ingredients with mild exfoliating properties, like sugar or fruit extracts, slough off dead skin cells, promoting smoother lip texture without causing irritation, and maintaining a polished and healthy lip appearance.

9. pH Balancing:

Herbal ingredients help maintain the lips' natural pH balance, contributing to a healthy lip environment and suiting those prone to pH imbalances or sensitivity.

10. Reduction of Irritants:

Herbal ingredients with anti-irritant properties, such as chamomile or calendula, reduce sensitivity, making them ideal for individuals with allergies or sensitivities to conventional lip products, and offering a soothing and calming effect on the lips.

11. Promotion of Lip Elasticity:

Herbal components like collagen-boosting herbs enhance lip elasticity, contributing to a plump and youthful appearance, and supporting the lips' ability to bounce back from expressions and movements.

12. Anti-Bacterial or Antifungal Properties:

Herbal extracts with natural antibacterial or antifungal properties, such as tea tree oil, promote lip hygiene, guard against infections, and maintain a clean lip environment, making them suitable for individuals with concerns about lip health and hygiene.^[29]

Allergen Information:

1. Clear and Detailed Labeling:

Clear and detailed labeling is a cornerstone in ensuring that consumers have access to vital allergen information. This involves providing a comprehensive list of ingredients used in the herbal lipstick, with explicit identification of potential allergens. The language used on the product packaging should be easily understandable, avoiding overly technical terms that might confuse consumers.

The primary goal is to enhance consumer awareness, empowering them to make informed choices based on their specific allergy concerns. If the lipstick contains common allergens such as nuts, gluten, or soy, this information should be prominently featured on the label. It's not just about listing ingredients but presenting them in a way that prioritizes allergens, drawing immediate attention to elements that might pose a risk to individuals with sensitivities.

Beyond merely listing allergens, brands are encouraged to employ user-friendly language. This is particularly important because consumers have varying levels of familiarity with cosmetic ingredients. By adopting language that resonates with a broad audience, the brand demonstrates a commitment to transparency and accessibility.^[30]

2. Transparent Cross-Contamination Measures:

In addition to clear labeling, providing transparent information about cross-contamination measures is crucial. Many manufacturing facilities handle a range of ingredients, and the possibility of cross-contamination cannot be ignored. Therefore, brands should communicate the steps taken to prevent cross-contact between allergens during the production process.

Consumers with severe allergies are not just concerned about the ingredients intentionally included in the lipstick but also about the inadvertent presence of allergens due to cross-contamination. Manufacturers need to detail the measures in place to avoid such situations. This includes the segregation of production lines, dedicated equipment for specific formulations, and stringent cleaning protocols.

Moreover, if the lipstick is produced in facilities that handle common allergens, this information should be clearly communicated on the packaging. Such transparency allows consumers to assess the potential risk based on their individual sensitivities. This level of detail is especially critical for those with allergies so severe that even trace amounts of an allergen can trigger a reaction.^[31]

3. Accessible Online Resources and Support:

In today's digital age, brands should extend allergen information beyond the physical product label. Having accessible online resources is a valuable way to provide additional details and support for consumers with specific allergy concerns. Brands can utilize their websites or other online platforms to offer in-depth information about the ingredients, potential allergens, and the safety measures implemented during production.

These online resources can include comprehensive FAQs addressing common allergen-related queries. Additionally, brands should ensure that customer support channels are readily available to assist with any specific concerns. Responsive and knowledgeable customer support is pivotal in addressing individual queries about allergen content, cross-contamination measures, or the suitability of the product for particular allergies.

Moreover, online platforms provide an avenue for brands to educate consumers about cosmetic allergens in general. This educational aspect can include tips on how to perform patch tests for individuals with sensitive skin, guidance on interpreting ingredient lists, and other relevant information. By offering a wealth of online resources, brands not only demonstrate their commitment to consumer well-being but also empower individuals to take charge of their own safety.^[32]

In summary, a robust approach to allergen information involves clear and detailed labeling, transparent communication about cross-contamination measures, and accessible online resources with responsive customer support. Through these measures, brands can foster trust, empower consumers, and ensure the safety of individuals with allergies or sensitivities.

Price Point :

1. Value for Money:

- **Ingredient Quality vs. Cost:**

When assessing the value for money of a herbal lipstick, it's essential to scrutinize the quality of ingredients relative to the cost. Premium herbal extracts, known for their efficacy and benefits, often come at a higher price point. A lipstick enriched with rare or sustainably sourced herbs may justify a steeper cost due to the associated production expenses. Conversely, if the ingredients are commonplace or lack distinct advantages, a higher price could raise questions about the product's value.

Consideration should extend beyond the presence of herbal ingredients to their concentration and overall formulation. A higher concentration of potent herbs or the inclusion of synergistic components can contribute to a more effective product, justifying a higher price. Conversely, if the herbal elements are diluted or overshadowed by less costly fillers, the value proposition diminishes.^[33]

- **Packaging and Presentation:**

The packaging and presentation of a herbal lipstick significantly influence the perceived value for money. High-quality, aesthetically pleasing packaging not only enhances the user experience but also contributes to the overall value perception. Eco-friendly packaging, though potentially more expensive to produce, aligns with the values of environmentally conscious consumers, justifying a higher price.

In contrast, if the packaging feels cheap or doesn't align with the brand's positioning, it may create a dissonance between the perceived value and the cost. Consumers often associate well-crafted, durable packaging with a premium product. Therefore, the overall presentation, including the tactile feel and visual appeal, plays a pivotal role in determining whether the price is commensurate with the perceived value.^[34]

2. Market Comparison:

- **Competitive Pricing Analysis:**

Comparing the price of the herbal lipstick with similar products in the market is crucial for assessing its competitiveness. A higher price should be justified by superior quality, unique benefits, or a distinct market position. If the product offers exceptional herbal formulations, innovative features, or a well-established brand reputation, a premium price may be warranted.

Conversely, if the price is notably lower than comparable products, it could raise concerns about ingredient quality, manufacturing standards, or the overall effectiveness of the product. Consumers may question why the price deviates significantly from the market average and whether there are hidden compromises^[35]

- **Inclusion of Extras or Benefits:**

The inclusion of extra features or benefits can influence the perceived value of a herbal lipstick in comparison to competitors. For example, if the product offers additional skincare benefits, such as sun protection, anti-aging properties, or unique herbal blends, it may stand out in the market, justifying a higher price.

Conversely, if the lipstick lacks distinguishing features or falls short in terms of product size or included benefits, a higher-than-average price might be harder to justify. Understanding how the product positions itself among competitors and whether it brings something extra to the table is crucial for evaluating its market competitiveness.

In essence, a comprehensive assessment of value for money and market comparison involves delving into the quality of ingredients, packaging, and presentation, while also considering how the product stacks up against similar offerings in the market.^[36]

CONCLUSION:

In the intricate world of herbal cosmetics, the design and evaluation of herbal lipstick demand a multifaceted approach. The extraction of color pigments is a pivotal process in crafting a product that not only enhances aesthetic appeal but also aligns with the growing demand for natural and sustainable alternatives. Utilizing herbal sources for pigments not only provides vibrant hues but also introduces a layer of authenticity that resonates with consumers seeking clean beauty options.

Physical evaluation tests are indispensable in ensuring that the herbal lipstick meets rigorous standards of quality and performance. From texture and feel to color retention and application, these tests serve as the litmus test for a product's efficacy. A well-executed battery of physical evaluations guarantees that the lipstick not only delivers on its promises but also provides a delightful user experience.

The infusion of herbal benefits into the lipstick further elevates its standing in the cosmetic landscape. Ingredients like shea butter, antioxidants, anti-inflammatory agents, and natural sun protectors contribute not only to the aesthetic enhancement of lips but also to their health and well-being. Moisturization, healing properties, and protection from environmental stressors are no longer mere aspirations but tangible outcomes of the herbal components carefully curated in the lipstick formulation.

Considering the importance of allergen information, a transparent and comprehensive approach is paramount. Clear labeling, detailed ingredient lists, and information on cross-contamination measures provide consumers

with the knowledge they need to make informed choices. As the awareness of cosmetic allergies grows, this aspect becomes not just a regulatory requirement but a crucial element of ethical consumer engagement.

The packaging of the herbal lipstick is more than a mere vessel; it is a visual representation of the brand's ethos. Eco-friendly packaging not only aligns with contemporary environmental concerns but also enhances the perceived value of the product. The tactile feel, visual appeal, and functionality of the packaging contribute to the overall user experience, creating a harmonious synergy between aesthetics and sustainability.

However, a holistic evaluation doesn't conclude without considering the crucial aspect of the price point. The balance between ingredient quality, packaging, and market competitiveness is delicate. A fair price that aligns with the quality of herbal extracts, the effectiveness of the product, and the overall user experience ensures that the herbal lipstick is not just a cosmetic choice but a judicious investment in self-care.

In conclusion, the design and evaluation of herbal lipstick encapsulate a harmonious blend of nature, science, and consumer consciousness. From the extraction of pigments to physical evaluations, herbal benefits, allergen information, packaging, and the price point, each facet contributes to a product that transcends the cosmetic realm, becoming a testament to the evolving landscape of beauty that values authenticity, sustainability, and consumer well-being.

REFERENCES:

1. Draelos, Z. D. (Ed.). "Cosmetic Formulation of Skin Care Products." CRC Press.(2015)
2. Personal Care Products Council (formerly CTFA). "International Cosmetic Ingredient Dictionary and Handbook."(2008).
3. Kurthika S V, Ram S S, Ahmed S A, Sadiq S, Mallick S D, Sree T R.; Formulation and evaluation of natural lipstick from colored pigments of beta vulgaris taproot. Research reviews: Journal of Pharmacy and Pharmaceutical Scirnces.2014;3(3):65-71.
4. Mishra P, Dwivedi S. Formulation and evaluation of lipstick containing herbal ingredient. Asian Journal of Medical and pharmaceutical Researches.2012; 2 (3):58-60.
5. A.R. Fernandes, M.F. Dario, C.A.S.O. Pinto, T.M. Kaneko, A.R. Baby, M.V.R. Velasco, Stability evaluation of organic Lip Balm, Braz. J. Pharm. Sci. 2 (2013) 49.
6. P.P. Sharma, Cosmetics- Formulation, manufacturing and quality control, fourth ed. Vandana Publications Pvt. Ltd., India, 2008.
7. B.M. Mittal, R.N. Saha, A Handbook of cosmetics, first ed., Vallabh Prakashan: New Delhi, India, 2000.
8. Avinash M D, Hari A M, Pradeep N S. Herbal lipstick formulation. A new approach. International Journal of Research in Ayurveda & Pharmacy.2011; 2(6):1795-97.
9. Malviya N, Isolation and Quantification of Lycopene from Water melon, Tomato and Papaya, Research Journal of Recent Sciences,3,2014,68-70.
10. Dwivedi Sumeet, Dwivedi Abhishek & Dwivedi S. N. Folklore uses of some plants by the tribals of Madhya Pradesh with special reference to their conservation. Ethno botanical Leaflets, (2008). 12:741-743

11. A.V. Sharma, P.V. Sharma, Flavouring agents in pharmaceutical formulations. *Ancient Science of Life*. 8 (1988) 38-40.
12. V.P. Kapoor, Herbal cosmetics for skin and hair care, *Natural Product Radiance*. 4 (2005) 306-314.
13. Swati D, Manisha S, Sonia S, Pavankumar K M, Dhiraj P, Ganesh N. Formulation and evaluation of natural lipstick prepared from bixaorellana seeds and beta vulgaris root extract and the comparative study *International Journal of Pharmacy and Pharmaceutical sciences*.2013;5(4):68- 70.
14. S. Pandey, N. Meshya, D. Viral, Herbs play an important role in the field of cosmetics, *International Journal of PharmTech Research*. 2 (2010) 632-639.
15. P.K. Chattopadhyay, Herbal cosmetics and ayurvedic medicines, *National institute of Industrial Research*. 1 (2005) 45-50.
16. Larsson SC, Naslund I, Rutegård J, Wolk A, Vitamin A, retinol, and carotenoids and the risk of gastric cancer: a prospective cohort study, *Am. J. Clin. Nutr.*, 2007; 85(2): 497–503.
17. B.H. Ali, N.A. Wabel, G. Blunden, Phytochemical, pharmacological and toxicological aspects of *Hibiscus sabdariffa* L.: a review. *Phytother Res*. 19 (2005) 369-375.
18. S.V. Magee, et al Botanical butter stick lip balm. US patent US20080089916 A1, 2008.
19. Harshad SD, Wankhade AB. Design and characterization of Nutraceutical lipstick of Beetroot Powder. *Innovative International Journal of Medical and Pharmaceuticals Sciences*, 2019; 4(2): 1-4.
20. M.S. Balsam, E. Sagarin, *Cosmetics science and technology*, second ed., Wiley Interscience Publication, NY, USA, 2008, 1, 365.
21. S. Deshmukh, M. Chavan, M. Sutar, S. Singh, Preparation and evaluation of natural lipsticks from bixa orellana seeds, *Int J Pharm Bio Sci*. 4 (2013) 139-144.
22. Sunil R, Shekhar T C, Ashutosh B. Formulation and evaluation of a herbal lipstick: A new approach. *International Journal of Pharmaceutical Erudition*, 2013; 3(1): 26-30.
23. Kaul S, Dwivedi S. Indigenous ayurvedik knowledge of some species in the treatment of human disease and disorders. *Inter J Pharm and Life Sci* 2010; 1 (1):44-49.
24. Kurthika S V, Ram S S, Ahmed S A, Sadiq S, Mallick S D, Sree T R.; Formulation and evaluation of natural lipstick from colored pigments of beta vulgaris taproot. *Research reviews: Journal of Pharmacy and Pharmaceutical Scirnces*.2014;3(3):65-71.
25. Saba S, Kiran B, Formulation and Evaluation of Medicated Lipstick of Allantoin, *Asian Journal of Pharmaceutics*, 2008, 2 (2), 90-95.
26. V.P. Kapoor, Herbal cosmetics for skin and hair care, *Natural Product Radiance*. 4 (2005) 306-314.
27. M.A. Mundo, O.I. Padilla-Zakour, R.W. Worobo, Growth inhibition of foodborne pathogens and food spoilage organisms by select raw honeys, *International Journal of Food Microbiology*, 97 (2004) 1-8.

28. Mahony, Effect of color on odour, flavor and acceptance properties of food and beverages, M.Tech Thesis, B.S., Chapman University, 2001.
29. Sainath M, et al. Formulation and Evaluation of Herbal Lipstick. International Journal of Advanced Research in Medical & Pharmaceutical Sciences (IJARMPS). 2016; 1910 14-19. (2016).
30. Kapoor, V. Herbal Cosmetics for Skin and Hair care. Indian Journal of Natural Products and Resources (IJNPR). 2005;4(4), 306–314.
31. Kukreja, B J., Dodwad, V. Herbal mouthwashes-A gift of nature, International Journal of Pharma and Bio Sciences, (2012):3(2), 46-52.
32. Kadian, R., Parle, M. Therapeutic potential and phytopharmacology of tulsi. Int. J. of Pharm. & Life Sci. (IJPLS). 2012;3(7):1858–1867.
33. Author, C., Dwivedi, A., & Nagar, B. Folk Lore Uses of Some Plants by the Tribes of Madhya Pradesh with Special Reference to Their Conservation. Ethnobotanical Leaflets, (2008): 12 763–771.
34. Bennett W, Bennett S. Cosmetic Formulary, II ed. Chemical Publishing Company, (NY); 1983. Asseervatham SB, Sasikumar JM, Kumar D. Studies on In-vitro free radical scavenging activity of Bixa Orellana L. bark extract. Inter J Pharm Pharm Sci 2012; 4(2): 719-726.
35. SK Bais, Borkar Swaranjali Bhiva, Advanced Herbal Drug Technology International Journal of Creative Research Thoughts, January 2023,11,(1) 926
36. JP Lavande Sanjay K Bais Priyanka S Deokate New Cosmetic Science: Design and Evaluation of Herbal Lipstick International Journal of Pharmaceutical Studies Jan-2023 1(1) 1-12.