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A Review: Herbal Lipstick by Using Natural Colouring Agent

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Abstract

A desire of consumers for safer, chemical-free alternatives drives up demand for herbal and natural cosmetics. The development of herbal lipstick using natural colouring substances sourced from plants is the primary goal of this study. The primary objective is to develop a lipstick that minimizes the risk of negative skin reactions and can be used for extended periods of time. The main ingredients for the necessary consistency, miniaturization, and easy application are beeswax, Shea butter, and coconut oil. As colouring additives, natural pigments including turmeric, hibiscus petals, and beetroot extract were used. These pigments were chosen based of their vivid shades, safety document, and extra benefits like antioxidant ability. This formulation presents an effective alternative to synthetic cosmetic products, contributing to both skin health and environmental sustainability. The study concludes that natural colouring agents can be successfully used in the preparation of herbal lipsticks, offering a promising option for consumers seeking natural, eco-friendly cosmetic options. The developed lipstick was examined for various parameters, including melting point, substance, and dissemination, stability, and colour retention. The results demonstrated that the herbal lipstick provided a smooth usage, lasting colour, and remained stable under typical environmental conditions.

Keywords - herbal lipsticks, natural colouring agents, extract, pigment, chemical stability.

INTRODUCTION

During the beginning of civilization, individuals both men and weaver used herbal cosmetics, often referred to as "natural cosmetics" tendency toward using their looks to impress others was reported [1], and there are many kinds of herbal. Cosmetics products to complete your beauty schedule, is highly harmful to the skin. Humans have been using herbs for many kinds of employs, including food, medicine, and relaxing as science and technology developed, there existed examined [2]. The growing practice to employ herbs as a complete, comprehensive approach to health and beauty care. Possibly the most sensitive area of our body is the lips. Additionally, it is close to the mouth and nose. The intended effects are obtained by absorbing the vapours of certain perfumery combinations and allowing the organic colours and scents used in lipstick to permeate the skin, lips, and other tissues. This allows the brain to release neurochemicals through receptors in the nose and mouth. When used cosmetically, the lipstick's purpose is natural, organic, health-promoting, and herbal colours, scent is beneficial because natural colours are already being researched and regarded as effective agents for improving physical health was examined [3]. An associated investigation Cosmetics comprise nail and toenail care goods, cosmetics for the face and eyes, deodorants, hair gels, sprays, colouring, lotions for skin care, powders, perfumes, lipsticks, and nail polish, as well as infant supplies. Bubble bath,

bath salts, and a plethora of other goods are in great demand in both established and emerging countries [4]. The demand for homemade remedies is growing quickly as they had no adverse consequences, according to reports [5]. In an alternate investigation in a biological system, natural color, or pigment, is one that has been made, combined and produced by, or gathered within, living cells, and organic dyes might be described as substances derived from plants and non-chemically prepared animal foods [6]. The objective of the present research was to formulate and evaluate lipsticks made completely of organic components considering the significance of natural products [7]. The components used in the investigation were extracts from the Rosa fuliginous petals with Bougainvillea flowers spectabilis extract, beetroot juice (Beta vulgaris) and an extract taken from Crocus saliva's flower [8]. The herb alkanet tectorial, additionally referred to as alkanet or rattan jot, is an element of the Boraginaceous family [9]. Alkane Tincture displays a vivid blue blossom. The plant has blackish-looking, dark-red root. Surface but with a whitish centre and a blue-red interior [10]. The root as an alcohol-soluble dye, It does not dissolve in water but does dissolve in ether and oils. Alkanet root is described as having a whitish core and a dark red root that is blue-red within and blackish on its exterior. Since the beginning of time, alkanet root has been used to generate an intense red colouring compound that is used for food colouring, wine colouring, and beneficial colouring [11].

Plant description

Beet Root (Beta Vulgaris)

Colour: Crimson to Deep Pink

Pigment: Betacaine

Benefits: High in antioxidants and renowned for its watering effect.

Extraction procedure

Harvest and clean the new beet root peel and cut the root vegetable into thin slices. Air-dry the slices to remove any moisture. Grind the dried slice to affine powder. To extract the pigment involve the powder in a solution of water or glycerine filter the solution to remove the concentrated beet root pigment [12].

***Figure 1**: Beet Root*

Hibiscus Petals (Hibiscus Rosa Sinuses)

Colour: Bright Red

Pigment: Anthocyanin's.

Benefits: Has antioxidant benefits while adding bright tens to clip colour [13].

Extraction procedure

Collect fresh hibiscus petal air-dry petals to eliminate any moisture. Crush the dried petal to a coarse powder. Macerate the powder in a suitable solvent, such as oil glycine. Filter the mixture to separate the colour solution from the solid remainders. Converted the solution by slowly heating or evaporation [14].

***Figure 2**: Hibiscus Petals*

Turmeric (Curcuma Longa)

Pigment: Curcumins

Benefits: Anti- inflammatory characteristics gives a warm golden colour.

Extraction procedure

Peel and sun-dry the turmeric rhizomes. Grind the dried rhizomes to a fine powder combine turmeric power with a suitable solvent such as ethanol (15). To obtain the turmeric extract stir the mixture and filter it adjust the extract pelf to ensure stability. Evaporate the solvent to get concentrated turmeric pigment [16].

Figure 3*: *Turmeric

Alkanet Root (Alana Tinctures)

Colour: Purple to Burgundy

Pigment: Alanine

Benefits: Known for its related rich hue; frequently employed to achieve darker shades.

Extraction Procedure

Crush this alkanet root into small fragments. Macerate the crushed root in a solvent, like an oil or alcohol. Allow the mixture too steep for an extended time [17]. Filter the fluid to remove any solid particles. To precipitate the pigment, evolution the solvent conditions. Dry pigment out to use in lipstick formulas [18].

***Figure 4**: Alkanet Root*

Annatto Seeds (Bias Orellana)

Colour: Orange to Red.

Pigment: Blixen

Benefits: Creates a natural shade with antioxidant benefits

Extraction process:

Solvent starts by crushing the annatto seeds and involving them in a solvent like hexane after immersing the seeds, the mixture is filtered and the solvent evaporated resulting in the annatto extract[19]. Enzyme- assisted extraction start by crushing the seeds, which are then treated with enzyme such as papain and brome lain. The mixture usually gets incubated for two hours at 37 degrees before being separated as annatto [20].

The annatto seeds are ground up before their extraction using supercritical fluid. The crushed seeds are then process with a saturated the solution producing annatto extract [21].

Ultra sound -assisted extraction involves breaking down the seed and them treating them with an ultrasound washing. After that the annatto extract was collected [22].

***Figure 5**: Annatto Seeds*

Chlorophyll (Green Plant)

Colour: Green
Pigment: Chlorophyll
Benefits
Refreshing green fresh green plant material. Mix the material with a small amount if water. Filter the mixture to produce a green liquid.
Extraction process
Chlorophyll using a solvent such as ethanol. evaporation cleanses and focuses the solution Chlorophyll extraction is done by crushing fresh green leaves, such as spinach, with a mortar and pestle and then adding a solvent like ethanol, acetone, or methanol [23]. This solvent breaks down the plant material, releasing the chlorophyll into a green solution. After thorough grinding, the mixture is filtered to remove plant debris, leaving a chlorophyll- rich extract. If needed, further purification can be achieved through centrifugation or additional filtration. This technique is widely used in scientific research for isolating chlorophyll, particularly in studies related to plant biology and photosynthesis [24].

***Figure 6**: Chlorophyll*

Saffron (Crocus Statius)
Colour: warm yellow to orange
Pigment: Cronin pigment offers an attractive golden tint and is known to brighten the complexion.
Extraction process
Threads soak them in an oil or glycerine -based solvent. Allow the mixture too steep for an extended time. Filter the solution to separate the saffron pigments. Adjust the pill for optimal actability. Slowly boil the solution to concentrate it [25].
First, saffron threads (stigmas) are manually picked. These threads are then dried at 50-60°C for about 30 minutes. After drying, the threads are ground into a fine powder. This ground saffron is soaked in a solvent such as water or ethanol. The mixture is then filtered to obtain the saffron extract. Modern extraction methods include Solvent Extraction (using ethanol, methanol, or acetone, Ghorbanifar, 2017), Ultrasound-Assisted Extraction (using ultrasound waves, Koumaditis, 2018), Supercritical Fluid Extraction (using CO_2, Ordoudi, 2017), and Enzyme-Assisted Extraction (using enzymes, Rajaei, 2018). Key extraction parameters include temperature (50-60°C), pressure (100-200 bar), extraction duration and solvent ratio (1:10 to 1:50).

The primary components of saffron extract include croc in (a colouring agent), croqueting (flavonoid), and safranal (an aroma compound) anpicrocrocin (a bitter compound).

***Figure 7* :** *Saffron*

Madder root (Rubies Tinctures)
Colour: Red to Reddish Brown.
Pigment: Alizarin.
Benefits
Used historically for natural dyeing; provide earthy tones to lip products.
Extraction procedure
Crush madder root to affine power. Macerate the power in a solvent, including alcohol of oil. Filter the solution for removing the madder root pigment. adjust the phi for optimal stability. Dissolve the solution to purify it.
Solvent extraction: The most common method for extracting anthrax quinines from madder root. Various solvents, such ethanol, methanol, acetone, and water, can be used. The solvent employed effects the yield and purity of the extract. Ethanol and methanol are often used because of their ability to dissolve a wide spectrum of anthraquinones while producing high yields. Water is more environmentally friendly; however, it may have a lesser concentration of active chemicals. Acetone is less common; however, it can extract specific substances that may not be solvent. The roots are generally crushed into a fine powder, immersed in the chosen solvent, and filtering to eliminate any solid residues. The solvent is evaporated so it Produces a concentrated extraction [26].

***Figure 8*:** *Madder Root*

Formulation of herbal lipsticks using natural colorants

This herbal lipstick's instruction contains natural waxes, oils, butters, pigments, leading to a safe effective, and sustainable product. A detailed formulation is given below, along with references to back up the ingredient choice [27].

Ingredient	Percentage of sample	Role of ingredient
Beeswax	30%	Provides structure and firmness to the lipstick
Coconut oil	20%	Emollient hydrates, smoothest lips
Shea Butter	20%	Moisturizing softens lips
Natural colourant	10%	Provides natural colour to the makeup
Castor oil	15%	Add shine and improves texture
Vitamin E oil	2%	Preservative and antioxidant
Essential oil	3%	Adds fragrance and mild

Table 1*: *Formulation

Preparation herbal lipstick

Melt the base

Weigh the beeswax, Shea butter, and oil. Melt them together with a double boiler. Beeswax is heated to about 63 to 64 degrees Celsius, while Shea butter melts when heated to about 37 degree. Continuous stirring is needed to obtain an even mixture.

Adding natural colorants

Once completely melted, remove the base from heat. Gradually integrate the natural colorants. You can use strong natural dyes or powdered colorant such as beetroot powder colorant such as beetroot powder for deep reds. mix thoroughly to ensure the pigment is evenly distributed. Beetroot has been widely investigated as a natural pigment due to its substantial amount of betonies. Which are stable in acidic conditions making them well suitable for lipstick [28].

Pouring into Melds

After thoroughly combining the colorant, add vitamin E oil (antioxidant) and optional essential oils for smell stir until everything has been fully combined.

Pour into combination

Transfer the warmed liquid into lipstick moulds or small containers before it hardness. Top the mould lightly to remove any air bubbles.

Cooling and setting

Let lipsticks cool at room temperature or fridge for quicker setting. Allow it to set completely prior to taking it out of the mould.

Final testing: after hardening the lipstick, evaluate its colour texture and application on the lips. If needed, after melt and changes the ratios to make the lipsticks softer or firmer [29]

Evaluation of herbal lipsticks

Keeping a consistent standard for herbal lipstick is crucial. The ingredients of herbal lipsticks were assessed based on factors such surface inconsistencies, thixotropic, force of application, melting point, and breaking point.

Organoleptic property

The colour, smell, and texture of the lipsticks were examined organoleptic properties.

Visual Characteristics

Colour: Depending on the herbal extracts utilized, natural colours might range from pink to crimson.

Texture

Semi-solid, Smooth, or Creamy.
Appearance: Matte or glossy finish, consistent colour dispersion.

Properties of Odour

Aroma

Natural essential oils that have a pleasant, floral, or herbal aroma.

Strength

Aroma is mild to moderate. Properties of Tactile qualities

Feel

Silky, hydrating, or nourishing for the lips.
Spread ability: Even coverage and simplicity of application.

Properties of Gustatory Behaviour

Taste

Depending on the natural ingredients, it may be mild, herbal, or sweet [30].

Melting point

The melting point of the herbal lipstick formulation was found using the open. Capillary tube method. The product was initially observed to melt slowly after the capillary was filled and held inside the capillary apparatus. Sometimes, after being monitored, the product was completely melted. Throughout the three iterations of the previously described procedure, the melting point ratio was recorded for every formulation [31]

***Figure 8**: Melting of lipstick*

Credibility

Utilizing a glass slide, the lipstick formulation is applied and any fragmentation, deformation, or breaking while application is noted and compared to the standard formulation [32].

Breaking point

Breaking point evaluation was used to assess lipstick strength. The lipstick was set up half an inch from the edge of support and held horizontally in a socket. At precise intervals of 30 seconds, the weight was progressively increased by a predetermined number (10 gm.), and the weight at which it broke was identified as the breaking point [33]. Lipstick typically has specific breaking points that affect its performance and stability. The melting point ranges from 45°C to 55°C (113°F to 131°F), while the softening point is between 35°C and 45°C (95°F to 113°F). The brittle point falls between -5°C and 10°C (23°F to 50°F).

Exceeding these breaking points can lead to changes in texture, loss of shape, colour bleeding, reduced durability, and an unpleasant texture or appearance. To ensure stability and quality, testing

methods such as thermal analysis (DSC, TGA), mechanical testing (tensile strength, compression), drop testing, and temperature/humidity chambers are commonly used.

Force of application

This test is employed to measure the force that should be applied in an equivalent way. A coarse brown paper piece was set on a shadowgraph balance, and one square inch of lipstick was applied at a 45° angle to completely cover the surface. The force of application is shown by the pressure readout [34].

Surface

It was evaluated for surface imperfections, such as the absence of crystal formation on surfaces and mould contamination, among other things.

Aging stability

Her belongings were kept for one hour at 40°C.Many variables were noted, such bleeding, surface crystallization, and application ease.

pH

We measured the pH of herbal lipstick formulas using a pH meter. Lipstick usually has a pH of 6.0 to 7.5, which ranges from neutral to mildly acidic. This pH range is necessary to guarantee the formula's stability, lip comfort, avoidance of skin irritation, and best possible colour payoff. Most lipsticks should have a pH of 6.5 to 7.5, which is neutral; lip balms and glosses, on the other hand, typically have a pH of 6.0 to 6.5, which is somewhat acidic. Lipsticks that are somewhat alkaline and have a pH higher than 7.5 may irritate skin. [35]

CONCLUSION

An eco-friendly and promising alternative for synthetic cosmetic is herbal lipstick made using natural colorants. Utilizing plant-based ingredients reduces the risk of allergies and environmental damage through offering safe, non-toxic colorants, such as beets and turmeric, and hibiscus. Since these natural ingredients tend to be high in vitamins and antioxidants, they also add to the lip balm's general nourishing properties. Properly selecting waxes, oils, and emollients is essential for the formulation of herbal lipstick that provides the required texture, durability, and colour stability. Stabilizers and preservatives made from natural sources, however, should be used to fight issues including colour fading, microbial development, and a shorter shelf life than conventional goods. In conclusion, natural colorant-infused herbal lipsticks provide additionally skin benefits in addition to meeting consumer demand for eco-friendly, chemical-free goods. This has the potential to combine aesthetics and health-conscious decisions in the cosmetics sector with further research and optimization.

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