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Review Article on Herbal Lipstick from Dragon Fruit Extraction

Sheetal Hanuman Sangle[1], Vaishnavi Sandip Nikumbh[2], Neha Jayram Patil[3], Bhumika Jitendra Chavan[4], Ms. Sayali P. Pawar[5], Ms. Piyusha Pawar[6]

Abstract: ***This study focuses on the formulation and evaluation of herbal lipstick prepared from dragon fruit extract (Hylocereus polyrhizus) as a natural colorant. Cosmetics, especially lipsticks, are widely used to improve facial aesthetics; However, synthetic colours and chemicals in conventional lipsticks often cause it allergic reactions, pigmentation and other side effects. In response, there was a growing demand for natural or natural cosmetic products that are safe, efficient and sustainable for the environment. Dragon fruit is rich in beta lain pigments (betacyanins and betaxanthins) which also gives a vivid pinkish-red colour natural antioxidants and vitamins that provide therapeutic benefits to the lips. The herbal lipstick formulation with Dragon Fruit Extract includes waxes (such as beeswax), oils (such as coconut and castor oil) and emollients for achieve the desired consistency, spread and smooth texture. Evaluation parameters including melting point, pH, colour stability, surface anomalies and Skin irritation tests confirm the quality, safety and durability of the formulation. To the resulting lipstick has excellent moisturizing and antioxidant properties, making suitable for daily use without negative effects. Herbal lipsticks not only improve the appearance of the lips, but also nourish them, protective and healing benefits. They are environmentally friendly, biodegradable and free toxic substances such as lead, parabens and synthetic dyes. Despite certain limitations In terms of shorter longevity and pigment instability, plant-based lipsticks offer a more durable alternative to conventional lip products. Integration of the Dragon The fruit extract in the lipstick formulation represents a step forward in the development of natural cosmetic and health innovations, which combine the benefits of plants science with modern formulation techniques [25].***

Keywords: Dragon fruit extract; beta lactin pigments; natural colour; Antioxidants; phytochemistry; lip care; Ecological cosmetics; natural formula; Phyto cosmetics [24]

I. INTRODUCTION

1) Cosmetics have been an integral part of human culture since ancient times.it is mainly used to enhance beauty and protect the skin from environmental aggressions stress factors. Among the various cosmetic products, an important place is occupied by lipsticks since they contribute not only to the aesthetic appeal, but also to lip protection and hydration. However, in recent years there have been colours and chemical ingredients found in commercial lipsticks such as lead, parabens and petroleum-based ingredients [1]. Consequently, the consumer preference has shifted towards herbal or natural cosmetics, which are safer, biodegradable and environmentally friendly [2].

2) The concept of herbal lipstick includes the use of pigments, oils, and non-toxic and beneficial lip waxes. These formulations they are designed to provide colour, softness and safe protection additives. The growing demand for natural products has encouraged researchers to explore the use of fruits, flowers and plant extracts as natural products colours and active ingredients [3].

3) Among the different possible sources, dragon fruits (Hylocereus polyrhizus) have it attracted a lot of attention because of its pinkish-pink and rich colour phytochemical composition. The skin of the dragon fruit and the pulp contain it pigments such as betacyanin and betaxanthins, which are responsible for this distinctive shade [4]. These compounds belong to the beta lactin group pigments known for their antioxidants, antiinflammatory and photoprotective properties [5]. In addition to providing colour, antioxidants present in the dragon fruit extract can protect the lips from oxidative stress caused by UV rays and pollution [6].

4) Herbal formulation of lipstick with not only dragon fruit extract it provides a natural colouring, but also adds nutritional and protective values cosmetic product. The presence of vitamins (such as vitamins C and E), minerals and polyphenols improve the health of the lips by preventing dryness and cracking [7]. In addition, the extraction of natural pigments from the fruit of the dragon is profitable and sustainable, in line with the growing trend of ecouser-friendly cosmetic production [8].

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5) The preparation of herbal lipstick usually involves the use of natural wax (such as beeswax or carnauba wax), emollients (such as coconut oil, castor oil or shea butter) and natural colours. Include dragon fruit extract in it the base can give a lipstick with a smooth texture, easy to apply and rich natural colour [9]. Product evaluation usually includes fusion testing point, pH, diffusion, colour fastness and microbial safety, ensuring that it is complete cosmetic quality standards [10].

6) Therefore, the development of a herbal lipstick from dragon fruit extract represents an innovative step towards safer and more sustainable cosmetics and formulations. It combines traditional knowledge of medicinal plants and modern cosmetics. technology to create an aesthetic, skin-friendly and responsible for the environment. The study of such formulations can open new ones routes in the herbal cosmetics industry and promotes the use of natural resources for commercial and health benefits.

II. DEFINITION

Lipstick is a cosmetic product composed mainly of pigments, oils, wax and emollients used to add colour, shine and texture to the lips. It is one of the most used cosmetic items, especially by women, to improve aesthetics attraction and attractiveness of the lips. Lipsticks come in different shapes and types, including matte, glossy, creamy and herbal variants, which meet different preferences and skin tones. In the British context, the term "lippy" is often used as an informal synonym lipstick Traditionally, lipsticks are made in the form of a solid stick, where the colour the pigment is dispersed in a greasy or waxy base containing ingredients such as beeswax, carnauba wax and various natural or synthetic oils. This combination provides smooth application, good texture and adhesion to the lips. The formula not only provides a good look, but also provides protection against environmental factors, helping to keep the lips hydrated and soft [11].



III. BENEFITS OF HERBAL LIPSTICK

1) Herbal lipsticks are gaining popularity because of their natural composition, their safety and therapeutic properties. Unlike classic lipsticks that can contain synthetic colours and harmful chemicals, herbal lipsticks are formulated from plants ingredients such as natural waxes, oils and colours obtained from fruits, flowers, and herbs. These natural ingredients not only beautify the lips, but also nourish, heal and protect from damage caused by external factors such as pollution, the sun and the drought.

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2) One of the main advantages of herbal lipstick is that it does not contain toxic chemicals. such as lead, parabens and petroleum-based substances that are generally found synthetic lipstick. This makes the herbal lipstick safe for long-term use, even for people with sensitive skin. In addition, the presence of natural antioxidants as vitamins C and E help prevent lip pigmentation, thus reducing oxidation stress, and preserve the natural colour and softness of the lips.
3) Herbal Lipsticks also offer moisturizing and healing effects thanks to the inclusion of natural oils such as coconut oil, castor oil or almond oil, which keep the lips hydrated and smooth. These oils act as emollients, preventing cracking and drying while improves the structure and elasticity of the lips. In addition, the use of natural pigments such as because the extract of beet, hibiscus or dragon fruit gives a vivid and long-lasting colour without causing irritation or allergies.
4) Another important advantage is that herbal lipsticks are ecological and biodegradable, contributing to sustainable cosmetic practices. They correspond the growing global demand for eco-friendly and cruelty-free beauty products such as generally free of animal tests and synthetic preservatives. Its natural Its fragrance and light formulation make it a favourite choice for consumers who promote beauty and health.
5) Essentially, herbal lipsticks not only improve the appearance of the lips but also serve as a protective and therapeutic formulation, which combines the principles of phytotherapy with modern cosmetic technology. Thus, they represent a safer, healthier and more Ecological alternative to conventional lip products [12].

IV. VARIOUS LIP PROBLEMS

The lips are one of the most delicate and sensitive parts of the human face, they lack sebaceous glands and melanin protection, making them more prone to damage and drought Constant exposure to sun, wind, pollution and harsh chemicals can lead to some lip problems. Using synthetic lip products, poor hydration, vitamin deficiencies also aggravate these conditions [13]. The most common Lip problems are described below:

A. Dry and Chapped Lips

Dryness and cracking are among the most common lip problems. They happen because of loss of moisture caused by dehydration, cold or exposure to wind and the rays of the sun. Using chemical lipsticks or lip balms that contain alcohol can make things worse the state Regular use of natural moisturizers such as shea butter, coconut oil or Beeswax can help retain moisture and prevent cracking [14].

B. Pigmentation and Dark Lips

Lip pigmentation is often caused by excessive use of synthetic lip products, smoking or prolonged exposure to the sun. Chemistry and artificial colours in lipstick it can penetrate the delicate skin of the lips, causing stains over time. Plant ingredients rich in antioxidants and vitamins, such as aloe vera, turmeric and Beetroot extract can help reduce pigmentation and restore the skin's natural colour lips [15].

C. Allergic Reactions

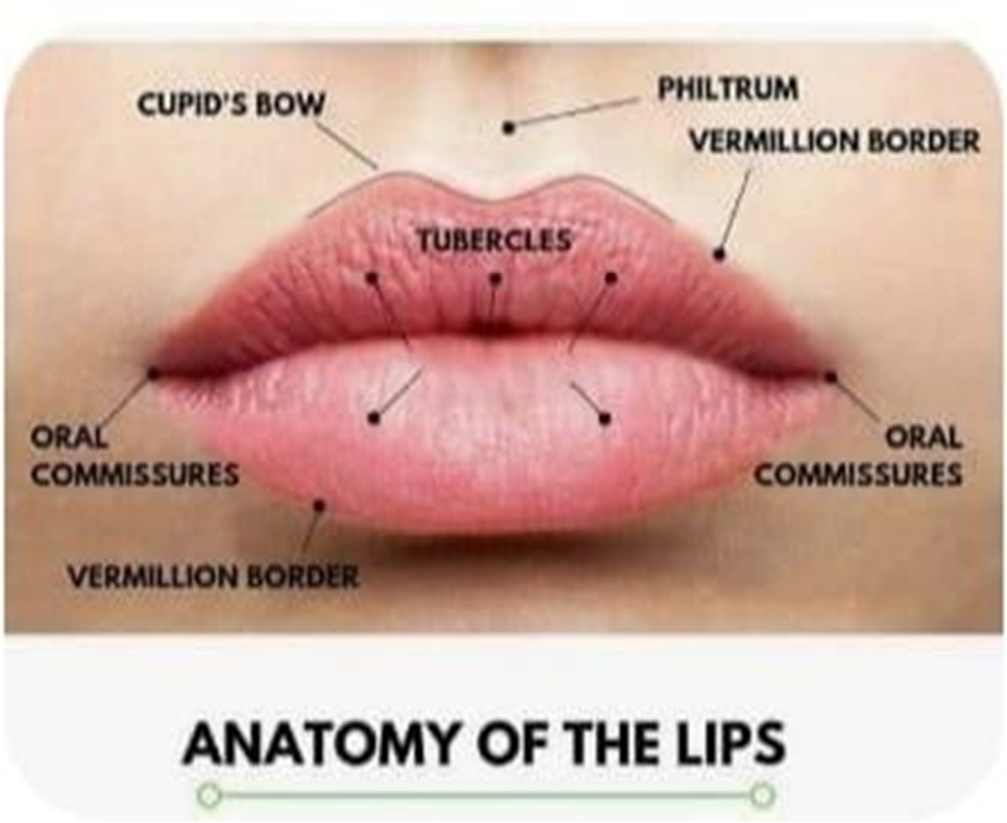
Some people suffer from allergic contact dermatitis due to chemical ingredients in cosmetics, such as preservatives, perfumes or dyes. This causes itching, redness and swelling of the lips. Use herbal lipsticks formulated with natural oils and vegetable pigments can significantly minimize the risk of allergic reactions because they are free of aggressive synthetic compounds [16].

D. Cracked and Bleeding Lips

Cracked or bleeding lips are usually caused by extreme dryness, infections or lack of vitamins (especially vitamin B complex and iron). Such conditions can cause pain and discomfort. Herbal formulations containing healing agents such as honey, castor oil and aloe vera can effectively soothe and repair damaged lip tissue [17].

E. Premature Aging of the Lips

Due to the lack of sebaceous glands, the lips tend to lose elasticity faster than other skin. zones. Prolonged exposure to UV rays and free radicals accelerates it the appearance of fine lines and a dull complexion. Lip care products are enriched with Antioxi oxidative damage, promoting soft and youthful lips[17].



V. IDEAL PROPERTIES OF HERBAL LIPSTICK

An ideal herbal lipstick should not only give the lips an attractive and long-lasting colour, but also provide safety, softness and nutrition. From herbal lipsticks are prepared from natural ingredients, their formulation must maintain stability, uniformity and cosmetic appeal comparable to classic lipsticks. What follows are the essential characteristics of an ideal herbal lipstick formulation:

A. Non-toxic and Safe Composition

The main characteristic of a good herbal lipstick is that it should not contain harmful chemicals such as lead, parabens and artificial colours. All colours are basic the materials must come from natural sources, ensuring that the product is safe for long-term use and suitable for all skin types [18].

B. Smooth Texture and Easy Application

An ideal herbal lipstick should have a smooth and even texture that allows Effortless application with no slippage or breakage. The presence of natural wax such as beeswax carnauba wax provide stability and structure, while oils such as Castor oil or coconut oil improves slip and spread on the lips [19].

C. Stability and Melting Point

The lipstick should be stable under normal storage conditions and preserve form without sweating or softening. The melting point should be slightly higher normal body temperature
(about 60°C) to prevent the lipstick from melting easily applied or stored in hot environments [19].

D. Pleasant Colour and Aroma

Herbal lipsticks must have a natural and aesthetic colour, derived from safe botanical pigments such as dragon fruit extract, beetroot or hibiscus. In addition, a light natural fragrance, such as that of essential oils (rose, lavender or lemon), improves user satisfaction without causing irritation or allergies [20].

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E. Moisturizing and Healing Properties

One of the most important characteristics of herbal lipstick is its ability to keep the lips hydrated, soft and protected. Including natural emollients and antioxidants like vitamin E, aloe vera and shea butter help prevent cracks, dryness and cracks, which promote the healing of damaged tissues [18].

F. Durable, non-sticky nature

A well-formulated herbal lipstick should ensure long-lasting colour retention be sticky or greasy. The natural pigments must adhere well to the lips, thus ensuring constant tone throughout the period of use, maintaining comfort and respiration [20].

VI. EVALUATION PARAMETERS OF HERBAL LIPSTICK

The assessment of herbal lipstick is essential to ensure that the product meets cosmetic standards. quality standards, maintain stability and ensure a safe and efficient application. During the formulation process, several physical, chemical and biological parameters are tested to evaluate performance and acceptability.

A. Colours

When preparing herbal lipstick, the colour is one of the most important elements parameters. The colour of the final product depends on the type and concentration natural pigment used, such as dragon fruit, beet or hibiscus extracts. Colour intensity and uniformity can be observed visually after application. Various fruits pigments give the lipstick different shades and levels of shine, influencing consumer appeal and product quality [21].

B. Melting Point

Determining the melting point is essential, as it indicates the ability of the lipstick to melt with stand different temperatures without deformation. The melting point of The prepared herbal lipstick is usually determined using the capillary tube method a digital melting point device. A suitable melting point ensures that the lipstick stays put solid at room temperature but melts slightly on contact with the lips for added softness application (Panda et al., 2018) [21].

C. Surface Anomalies

The appearance of the surface of the lipstick is examined for possible defects such as air blistering, fungal growth or surface crystallization. A smooth, shiny and even finish surface shows the good quality of production and purity of the product. Area observation helps ensure that the lipstick is free of contamination or germs contamination, vital for user safety [22].

D. Stability Over Age

Stability tests are performed to evaluate product performance over time controlled conditions. The sample of lipstick is stored at 40 ° C for an hour and that's it bleeding, staining or crystallization is observed on the surface. This test helps to determine if the formulation maintains its physical and chemical integrity during storage and use (Panda etal., 2018) [21].

E. The pH Parameter

The pH value of herbal lipstick is an essential indicator of its compatibility with skin and lips. The pH is determined with a digital pH meter, which helps ensure this the formulation is neither too acidic nor too basic, as an inappropriate pH can cause irritation or dryness. A pH close to neutral (about 6-7) is considered ideal for the lips. products [22].

F. Skin Irritation Test

The skin irritation test is performed to ensure that the product is safe for topical use. To the test is usually performed on human volunteers in accordance with approved ethical guidelines, such as those of the Institutional Animal Ethics Committee (IAEC) of Jeypore Faculty of Pharmacy. The prepared lipstick is applied to a small area of the skin or lips, and any signs of redness, itching or inflammation are monitored at regular intervals (every 10 minutes). The absence of such reactions confirms the safety of the product human use [21].

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G. Aroma Stability

The smell or fragrance of herbal lipstick contributes to the satisfaction of consumers. To The herbal formulation is usually stored under standard cold storage conditions condition, and the smell is monitored periodically. A gradual loss of smell afterwards about 30 days indicates the need for natural stabilizers or essential oils to preserve aroma over time [22].

VII. BENEFITS OF HERBAL LIPSTICK

Herbal lipsticks have become increasingly popular due to their natural origin, safety, and multifunctional benefits. Unlike conventional lipsticks that are based on synthetic colors and chemical additives, herbal lipsticks use plant ingredients, which provide both cosmetic and therapeutic properties. The main advantages of herbal lipsticks are described below.

A. Safe, non-toxic Formulation

Plant based lipsticks are formulated with natural waxes, oils and pigments toxic chemicals such as lead, parabens and synthetic preservatives. This is it are safe for long-term application, minimizing the risk of irritation, allergies or other dermatological problems. Their non-toxic nature makes them suitable for everyone Skin types, including sensitive lips[7].

B. Nourishing and Moisturizing Properties

Unlike chemical lipsticks, vegetable variants contain natural emollients, such as castor oil, coconut oil, shea butter and beeswax that nourish and hydrate the lips. These ingredients prevent drying and cracking to improve the structure and sweetness of the lips. They also help to maintain the natural moisture balance of the lips, especially in dry or cold climates [24].

C. Antioxidant and Healing Effects

Lots of plant ingredients like dragon fruit, beetroot, aloe vera and hibiscus extracts they are rich in vitamins, minerals and antioxidants. These ingredients protect the lips oxidative stress caused by free radicals and environmental exposure. In addition, Help heal damaged tissues and prevent premature aging of the lips restores natural elasticity [7].

D. Eco-friendly and Biodegradable

Herbal Lipsticks are environmentally friendly because they are made from renewable materials. natural resources and are biodegradable. They are generally free of animal products ingredients and not tested on animals, in accordance with cruelty-free and environmentally friendly principles. conscious movement in the cosmetic industry. This makes it a responsible choice for environmentally conscious consumers [24].

E. Economical and Locally Available Ingredients

The preparation of herbal lipstick uses available plant material such as fruit peels, flower petals and natural oils, cost-effective and accessible. This provides an opportunity for local production and supports small-scale cosmetics. industries by reducing the dependence on imported synthetic chemicals [24].

F. Pleasant Aroma and Natural Appearance

Herbal lipsticks usually have a sweet, natural fragrance derived from essential oils. oils or plant extracts, making them more pleasant to use compared to chemicals perfumed lipstick. They also provide a natural tint and shine, enhancing the lips. beauty in a subtle, elegant way without overwhelming shine or artificial viscosity [24].

In conclusion, herbal lipsticks offer a safe, effective and long-lasting alternative conventional lip products. Its beauty is the therapeutic mixture its benefits make it ideal for consumers looking for natural cosmetic solutions that it also promotes lip health and respect for the environment.

VIII. THE DISADVANTAGES OF HERBAL LIPSTICK

Although herbal lipsticks offer many safety advantages, natural lipsticks composition and respect for the environment, also present certain limitations and challenges compared to conventional synthetic formulations. These disadvantages arise mainly of the volatility of natural ingredients, limited colour intensity and shorter shelf life.

A. *Limited Colour variety and Pigment Stability*

One of the main drawbacks of herbal lipstick is the limited range of shades that can be used. to be obtained with natural pigments. While the fruits and flowers are like dragon fruit, beet and hibiscus provide attractive colours, their pigment stability is often affected by light, heat and pH changes. Over time, the colour may fade or change, reducing product recall [21, 23].

B. *Shorter Life*

Due to the lack of synthetic preservatives, herbal lipsticks are usually a The shelf life is shorter than chemical products. Natural oils and wax are prone to oxidation and microbial growth, which can lead to spoilage or spoilage if it is not stored under suitable conditions [22, 24].

C. *Texture and Application Challenges*

Maintaining a consistent texture, firmness and softness is often a challenge Herbal lipstick formulations. Natural wax can produce a slightly irregular or grainy appearance. the structure and the lack of some synthetic binders can make the application less uniform or of shorter duration [19, 24].

D. *Fragrance Volatility*

Natural fragrances derived from essential oils or plant extracts are volatile and tend to evaporates or degrades over time, especially when exposed to air or light. As a result, The fragrance of the lipstick may diminish after storage, thus reducing consumer satisfaction[22].

E. *Cost of Standardization and Quality Control*

Although the ingredients are often available locally, it maintains consistent quality and colour the intensity of herbal formulations requires extraction, purification and standardization, which can increase production costs. This poses a challenge for small-scale or cottage industries aiming to meet market standards [24].

F. *Sensitivity to Environmental Conditions*

Herbal lipsticks are more sensitive to temperature and humidity fluctuations. High temperature can cause melting or sweating, while excessive humidity can lead to microbial contamination. Therefore, special storage conditions are necessary maintain product stability [21, 22].

IX. CONCLUSION

Development of herbal lipstick from natural sources such as dragon fruit extract represents an important advance in the field of natural cosmetics. Plant Lipsticks not only provide beautiful and long-lasting colour, but also offer therapeutic properties. benefits due to the presence of natural antioxidants, vitamins and hydration the agents. Unlike synthetic formulations, they are non-toxic, safe and ecological. user-friendly, aligned with the growing global trend towards sustainable and healthy products. conscious beauty products.

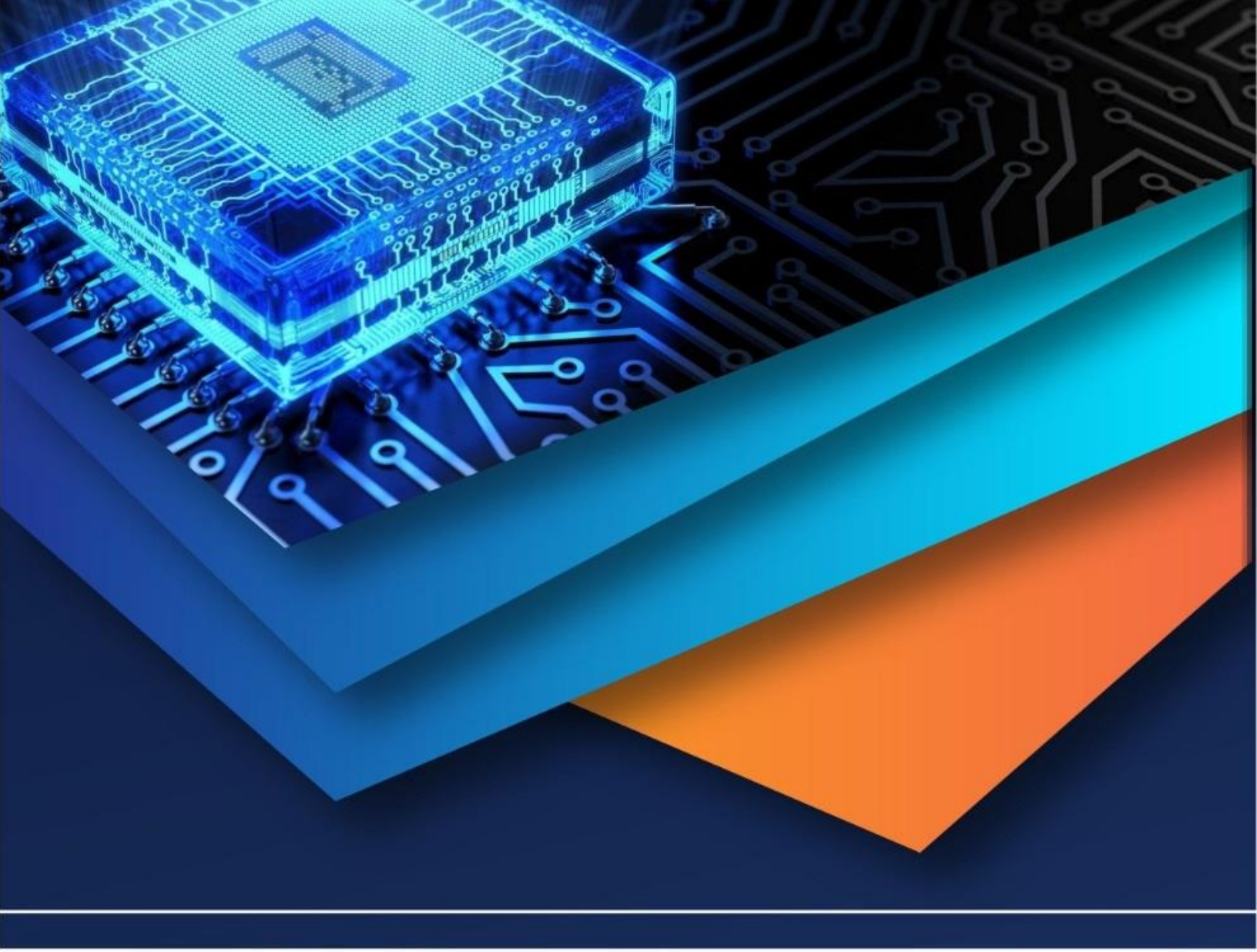
The study and formulation of herbal lipsticks show that natural ingredients it can effectively replace synthetic dyes and chemicals without compromising the product quality or customer satisfaction. Although challenges like limited pigment Stability and shorter life still exist, these problems can be minimized Improved extraction, stabilization and preservation techniques.

In general, herbal lipsticks offer a holistic approach to lip care, combining beauty improvement through nourishment and protection. They embody the perfect blend of nature and science, which offers a promising alternative for individuals who value purity, safety and ecological responsibility in cosmetic products.

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