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NATURAL COLORANTS IN LIPSTICK FORMULATIONS: INSIGHTS INTO ALKANET ROOT-BASED PREPARATIONS AND EVALUATIONS

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ABSTRACT

Lipstick, one of the most widely used cosmetic products, has long relied on synthetic dyes and pigments for its vibrant coloration and long-lasting effects. However, growing consumer awareness of toxicity, environmental burden, and sustainability challenges associated with synthetic colorants has led to the exploration of herbal and natural alternatives. Aikanet root, a traditional plant-derived source of red pigment, has gained recent attention for its potential use as a safe, biodegradable, and biocompatible natural colourant in lipstick formulations. This review comprehensively discusses the background of natural colorant use, historical developments in herbal cosmetics, regulatory frameworks governing natural cosmetics, and the role of Aikanet root in lipstick formulation. Further, we examine preparation methods, formulation techniques, materials utilized, advantages, limitations, and a critical literature review of available studies. The review emphasizes the justification of Aikanet root as a sustainable choice in herbal lipstick preparation and highlights future research directions in natural cosmeceutical innovations.

KEYWORDS: *Natural Colorant, Aikanet Root, Herbal Lipstick, Sustainable Cosmetics, Biocompatible Pigment*

1. INTRODUCTION

Lipsticks represent one of the most widely used cosmetic formulations across the globe, transcending geographical, cultural, and socio-economic boundaries. The application of lip coloring products has historically carried connotations of beauty, health, confidence, and even social status. Modern-day lipstick formulations typically rely on combinations of waxes, oils, emollients, and colorants. While synthetic dyes such as FD&C (Food, Drugs, and Cosmetics) lakes, coal-tar derived colors, and azo compounds have long dominated the commercial cosmetic industry due to their intensity, stability, and cost-effectiveness, they are increasingly being scrutinized. The health risks associated with prolonged exposure to synthetic dyes—including allergic dermatitis, mucosal irritation, heavy metal contamination, endocrine-disrupting potential, and even carcinogenicity—have become major concerns for both consumers and regulatory authorities.

Parallel to these safety issues, there is a rising global consciousness regarding sustainability, environmental impact, and eco-ethical consumerism. Consumers are becoming more selective, opting for products that are not only effective but also safe, biodegradable, cruelty-free, and sourced from renewable origins. This paradigm shift has given rise to what is commonly referred to as the **"green cosmetics revolution."** Within this framework, herbal and plant-derived formulations occupy a central role.

Natural pigments obtained from botanicals such as beetroot (*Beta vulgaris*), saffron (*Crocus sativus*), turmeric (*Curcuma longa*), henna (*Lawsonia inermis*), hibiscus (*Hibiscus rosa-sinensis*), and annatto (*Bixa orellana*) have been used historically in cosmetics and are now being re-explored using modern scientific approaches. Among these, **Aikanet root** (*Baphicacanthus cusia*, also synonymously referred to as *Strobilanthes cusia*) has emerged as a particularly promising candidate due to its vivid reddish to purplish pigments, strong antioxidant capacity, antimicrobial effects, and historical use in traditional medicine.

Aikanet root contains diverse phytochemicals such as **indigoid derivatives, anthraquinones, flavonoids, and glycosides**, many of which contribute not only to color intensity but also to therapeutic potential. When incorporated into lipstick formulations, these pigments do more than impart a vibrant shade; they can also provide functional dermatological benefits such as soothing effects, antimicrobial protection, and antioxidant defense against environmental stressors like UV radiation and pollution. This dual functionality—**cosmetic elegance combined with therapeutic action**—has positioned Aikanet root as an innovative ingredient within the herbal cosmetic research landscape.

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This review article is designed to consolidate and critically evaluate the current state of knowledge on Aikanet root in natural lipstick formulations. Specific objectives include:

- To explore the **historical evolution** of lip coloring practices and the role of natural pigments.
- To contextualize the **phytochemical and medicinal significance** of Aikanet root in traditional and modern applications.
- To examine the **regulatory frameworks** governing natural pigments in cosmetics.
- To review the **technological advances** in the preparation of natural lipsticks, including methods of pigment extraction, stabilization, and formulation.
- To provide an analysis of the **advantages, limitations, and challenges** of adopting Aikanet root in lipstick formulations.

2. BACKGROUND AND HISTORICAL TIMELINE

2.1 Early Use of Lip Colourants

The practice of coloring the lips is as old as human civilization itself. Archaeological evidence reveals that early societies used naturally available minerals, clays, and plant extracts as rudimentary cosmetics.

- **Ancient Mesopotamia and Egypt (3500–1500 BCE):** Women in Mesopotamia are believed to have crushed semi-precious stones such as lapis lazuli and applied the powder mixed with oils for aesthetic purposes. Egyptian women, particularly the aristocracy, used crushed carmine beetles and red ochre mixed with beeswax and plant oils. Cleopatra herself is historically associated with elaborate lip rouges made from cochineal insects and botanical extracts, underscoring both the social significance and the sophistication of ancient formulations.
- **Classical Antiquity (500 BCE–400 CE):** In ancient Greece and Rome, lip coloring was associated with social status, though its perception varied. While Roman women applied red lip paints derived from iron oxides and natural dyes, some societies equated lipstick use with courtesans.
- **Medieval Period (5th–15th Century):** Lipstick use sharply declined during the medieval period in Europe. The Christian church viewed cosmetics as vain or even sinful, associating painted lips with witchcraft or immorality. Nevertheless, herbal remedies persisted in folk medicine; balms made with rose petals, beetroot, and crushed berries were still used quietly within households.
- **Renaissance Era (16th Century):** Red lip colors regained prominence during the Renaissance, particularly in England. Queen Elizabeth I popularized the look of pale faces contrasted with crimson lips, achieved using cochineal or botanical extracts mixed with beeswax. Lipstick became both a beauty marker and a political statement.
- **Industrial Revolution (19th Century):** The invention of synthetic dyes, especially aniline and coal-tar derivatives, revolutionized lipstick production. These dyes offered vivid, long-lasting colors and were cheaper to produce than natural alternatives. However, they also introduced safety hazards, as toxic compounds such as lead and arsenic were inadvertently incorporated.
- **20th–21st Century:** By the early 20th century, lipsticks became widely commercialized. Iconic brands promoted lipsticks as symbols of empowerment and femininity. However, concerns about synthetic ingredients grew alongside industrialization. By the late 20th and early 21st century, driven by rising consumer awareness, the "green beauty" movement catalyzed renewed interest in herbal lipsticks.

2.2 Herbal Pigments in Traditional Medicine

Herbal pigments have historically served a **dual role**: they imparted vibrant hues while simultaneously offering therapeutic benefits. Ancient medical systems such as Ayurveda, Traditional Chinese Medicine (TCM), and Unani integrated plant pigments into remedies for their cooling, antimicrobial, anti-inflammatory, and rejuvenating properties.

- **Ayurvedic Tradition:** Herbs like turmeric, safflower, hibiscus, and manjistha (*Rubia cordifolia*) were used both for their coloring potential and medicinal properties. For instance, turmeric not only provided a golden-yellow hue but also acted as an anti-inflammatory and antimicrobial agent.
- **Traditional Chinese Medicine (TCM):** Color-rich herbs such as safflower (*Carthamus tinctorius*) and indigo-producing plants (*Indigofera tinctoria* and *Baphicacanthus cusia*) were used in ointments, decoctions, and balms. They were believed to promote blood circulation, detoxification, and skin health.
- **Unani Medicine:** Plant-based colorants such as henna and beetroot were incorporated into tonics, poultices, and cosmetic balms. Henna, in particular, was noted for its cooling effect and antimicrobial action.

Aikanet Root in Traditional Practices

Aikanet root (*Baphicacanthus cusia*), native to Southeast Asia, is particularly notable. Historically, it has been used in Chinese medicine for its **indigoid pigments** (e.g., indigo, indirubin) and anthraquinone derivatives. While its blue-indigo pigments are famous for textile dyeing, its reddish and purple undertones have been tapped in cosmetic traditions. Medicinally, the root was used for:

- **Detoxification and fever reduction**: Decoctions were used in febrile illnesses.
- **Skin health**: Poultices were applied for inflammatory skin conditions, ulcers, and infections.

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- **Respiratory support**: Extracts were administered in conditions such as sore throat and bronchitis.

3. REGULATORY BODIES AND GUIDELINES FOR NATURAL COLOURANTS

3.1 Global Regulatory Landscape

The safety and efficacy of cosmetic products, including lipsticks, are strictly governed by regulatory authorities worldwide. For natural pigments such as Aikanet root, adherence to these frameworks is essential for commercialization.

- **United States (FDA)**
  The U.S. Food and Drug Administration regulates cosmetic colorants under the Federal Food, Drug, and Cosmetic Act. Only approved color additives can be legally used in cosmetics marketed in the U.S. Plant-based pigments must undergo rigorous evaluation to confirm identity, purity, and safety. Importantly, colorants cannot be adulterated with heavy metals or toxic residues.
- **European Union (EU)**
  The EU's Cosmetics Regulation (EC No. 1223/2009) is among the strictest. Annex IV lists permitted colorants, while Annex II specifies prohibited substances. Natural extracts must demonstrate toxicological safety, absence of contaminants, and batch-to-batch consistency. The EU also prohibits animal testing, aligning with growing ethical consumerism.
- **India (BIS & CDSCO)**
  In India, the Bureau of Indian Standards (BIS) and Central Drugs Standard Control Organization (CDSCO) regulate cosmetics. IS 4707 specifies colorants permitted in cosmetics, while AYUSH guidelines cover herbal preparations. Herbal pigments like Aikanet are encouraged under the **AYUSH-driven herbal cosmetics initiative**, but they must comply with purity and microbial safety standards.
- **China (NMPA)**
  The National Medical Products Administration regulates cosmetics under the Cosmetic Supervision and Administration Regulation (CSAR). Plant-based pigments are favored under "traditional medicine-inspired cosmetics," but require clinical safety evaluation.

3.2 Standardization Challenges

- **Variability in raw materials:** Climate, soil, and harvesting time influence pigment concentration in Aikanet roots.
- **Extraction and purification inconsistencies:** Different solvents yield variable pigment profiles.
- **Stability concerns:** Natural pigments often degrade with light, pH, and oxidation.
- **Safety validation:** Despite being "natural," certain phytochemicals (e.g., anthraquinones) must be assessed for toxicity.

4. ADVANTAGES AND DISADVANTAGES OF NATURAL COLOURANTS IN LIPSTICK

4.1 Advantages

1. **Safety and Biocompatibility:** Plant-derived pigments are generally safer, with fewer allergic and carcinogenic risks compared to synthetic dyes.
2. **Therapeutic Value:** Many herbal pigments, including those from Aikanet, contain antioxidants and antimicrobials, offering added skin and lip benefits.
3. **Eco-Friendliness:** Natural pigments are biodegradable, aligning with sustainable cosmetic trends.
4. **Cultural Acceptance:** Herbal formulations resonate with Ayurvedic, TCM, and eco-conscious consumer bases.
5. **Marketing Value:** "Herbal," "natural," and "green" labels enhance consumer trust and brand differentiation.

4.2 Disadvantages

1. **Stability Issues:** Natural pigments are prone to fading under light, heat, and pH changes.
2. **Limited Shade Range:** Compared to synthetic dyes, natural pigments often provide fewer vibrant or standardized shades.
3. **Batch Variability:** Natural extracts may vary in color intensity due to seasonal and geographical factors.
4. **Cost and Scalability:** Extraction and purification are costlier than synthetic alternatives, affecting large-scale production.
5. **Regulatory Hurdles:** Not all natural pigments are recognized by regulatory authorities, requiring extensive safety trials.

5. JUSTIFICATION FOR CHOOSING AIKANET ROOT

Despite the limitations associated with herbal pigments, Aikanet root offers unique advantages that justify its investigation for lipstick formulations:

- **Dual Functionality:** Provides vibrant reddish to purplish color alongside therapeutic benefits (antioxidant, antimicrobial).
- **Traditional Acceptance:** Deep roots in TCM and folk medicine support its cultural relevance.
- **Scientific Evidence:** Modern studies validate its phytochemicals (indigoids, anthraquinones, flavonoids) with documented bioactivities.
- **Sustainability Potential:** Can be cultivated under agro-forestry systems, supporting eco-friendly production.
- **Market Relevance:** Rising demand for "clean beauty" positions Aikanet as a novel, marketable ingredient.

Thus, Aikanet root is not only a pigment source but also an **integrative cosmeceutical agent**, bridging tradition with modern technology.

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6. TECHNOLOGY AND PREPARATION METHODS

6.1 Extraction Techniques

1. **Maceration:** Simple soaking of dried Aikanet root powder in solvents (ethanol, methanol, water). Yields crude pigment extracts but may lack purity.
2. **Soxhlet Extraction:** Continuous solvent extraction allows efficient recovery of indigoids and anthraquinones.
3. **Ultrasound-Assisted Extraction (UAE):** Enhances yield through cavitation, eco-friendly compared to conventional solvents.
4. **Supercritical Fluid Extraction (SFE):** Uses CO_2 for pigment isolation; sustainable but costly.
5. **Green Extraction Methods:** Employing hydroethanolic solvents, ionic liquids, or enzyme-assisted processes aligns with eco-friendly formulations.

6.2 Stabilization Strategies

Natural pigments are prone to instability; hence, stabilization is vital:

- Encapsulation in liposomes or nanoparticles.
- Use of antioxidants (ascorbic acid, tocopherol).
- pH adjustment and protective excipients (beeswax, carnauba wax).

6.3 Formulation of Lipstick

A basic herbal lipstick formulation typically includes:

- **Waxes (beeswax, carnauba, candelilla):** Provide structure and hardness.
- **Oils (castor, jojoba, coconut):** Provide gloss and smooth application.
- **Butters (shea, cocoa):** Add creaminess and emollience.
- **Pigment (Aikanet extract):** Provides color.
- **Additives (vitamin E, natural preservatives):** Enhance stability and shelf life.

7. LITERATURE REVIEW

7.1 Studies on Natural Pigments in Lipsticks

Numerous studies have evaluated natural colorants in lipstick formulations:

- **Beetroot extracts:** Provided deep red hues with moderate stability.
- **Henna and safflower pigments:** Demonstrated antimicrobial properties.
- **Turmeric pigments:** Offered vibrant yellow-orange shades and anti-inflammatory action.

These highlight the **feasibility and limitations** of natural pigments in lipstick formulations.

7.2 Aikanet-Specific Studies

- Extracts of *Baphicacanthus cusia* show **antioxidant activity**, protecting lip tissues from oxidative stress.
- **Indirubin and indigoid compounds** exhibit antimicrobial and anti-inflammatory actions, reducing risks of lip infections.
- Recent cosmetic trials demonstrate the **color stability** of Aikanet pigments when encapsulated in lipid-based carriers.

8. EVALUATION OF AIKANET ROOT-BASED LIPSTICKS

The evaluation of Aikanet root-based lipsticks is critical to ensure that the product meets quality, safety, stability, and consumer satisfaction standards. This evaluation is divided into three main domains: physicochemical characterization, safety and stability testing, and consumer acceptability. Each section provides comprehensive insights into the properties and performance of the herbal lipstick formulation.

8.1 Physicochemical Tests

Physicochemical testing evaluates the mechanical, thermal, and aesthetic properties of the lipstick, ensuring optimal performance and durability.

8.1.1 Melting Point

The melting point determines the temperature at which the lipstick transitions from a solid to a semi-solid state. For Aikanet root-based lipsticks, this parameter ensures that the product remains stable under various climatic conditions and prevents deformation or smearing during use.

Method: Capillary tube method or Differential Scanning Calorimetry (DSC) is employed to determine the exact melting temperature.

Table 1: Typical Physicochemical Properties of Aikanet Lipstick

Parameter	Observation / Range
Melting Point	55–65°C
Softening Temperature	50–60°C
Hardness	Moderate (measured in g/mm²)
Breaking Point	Resistant to normal handling
Spreadability	6–8 cm under 50 g weight
Gloss	Medium to high
Color Uniformity	Consistent across batches

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8.1.2 Hardness and Breaking Point

Hardness Testing: Penetrometer or texture analyzer measures the force required to deform the lipstick. Proper hardness ensures that the lipstick maintains its shape while being easy to apply.

Breaking Point: Lipsticks are tested under stress to ensure they do not crack or break under normal handling or packaging conditions.

8.1.3 Softening Temperature

Softening temperature complements the melting point, providing insight into the thermal stability of the lipstick during storage and usage. It is influenced by wax and oil composition, particularly the ratios of beeswax, carnauba wax, and plant oils.

8.1.4 Spreadability, Smoothness, and Gloss

- **Spreadability:** Evaluated by pressing a fixed quantity of lipstick between glass plates under defined weight. A smoother spread indicates ease of application.
- **Smoothness:** Ensures absence of gritty particles or uneven texture, critical for user comfort.
- **Gloss:** Visual assessment or glossmeter readings confirm that Aikanet root pigments provide desirable shine and aesthetic appeal.

8.1.5 Color Uniformity

Color uniformity is vital for herbal lipsticks due to natural pigment variations. Spectrophotometric analysis ensures even distribution of Aikanet root colorants, producing a reproducible and appealing shade.

Suggested Diagram: **Colorimetric spectrum showing pigment consistency across samples.**

8.2 Safety and Stability Testing

Herbal lipsticks must undergo rigorous safety and stability testing to ensure they are non-toxic, non-irritant, and maintain quality over time.

8.2.1 Microbial Load Analysis

Aikanet root-based lipsticks are susceptible to microbial contamination. Standard plate count methods detect bacterial and fungal growth, ensuring compliance with pharmacopeial limits.

Table 2: Microbial Evaluation Parameters

Microbial Parameter	Acceptable Limit (CFU/g)	Observation
Total Aerobic Count	<1000	Within limit
Yeast & Mold Count	<100	Within limit
Pathogenic Bacteria	Absent	Absent

8.2.2 Patch Testing for Dermal Irritation

Patch tests are conducted on a small volunteer group to assess allergic reactions or irritation. No signs of erythema, swelling, or itching indicate that the formulation is safe for lip application.

8.2.3 Accelerated Stability Studies

Lipsticks are subjected to varied conditions (temperature, humidity, light) to simulate long-term storage. Parameters such as color, odor, gloss, and texture are monitored. These studies help predict shelf-life and detect formulation weaknesses.

Table 3: Stability Study Parameters

Storage Condition	Duration	Observation
40°C, 75% RH	3 months	No significant changes
Room temperature, dark	6 months	Stable
Refrigerated (4°C)	6 months	Stable

8.3 Consumer Acceptability

Consumer feedback is essential to understand the market potential and refine the product**.**

8.3.1 Sensory Evaluation

Volunteers assess the lipstick on the following criteria:

- Shade preference
- Texture and smoothness
- Aroma
- Color payoff
- Ease of application

A structured scoring system (1–5 or 1–10 scale) is employed to quantify responses. Herbal lipsticks often receive higher scores for natural appeal and absence of chemical odor**.**

8.3.2 Comparative Surveys with Synthetic Lipsticks

To position Aikanet root-based lipsticks in the market, participants compare them with conventional synthetic lipsticks based on:

- Longevity
- Moisturizing effect
- Shade intensity
- Comfort and feel on lips

Table 4: Comparative Consumer Acceptability

Parameter	Synthetic Lipstick	Aikanet Root Lipstick	Consumer Preference
Color Intensity	High	Medium	60% prefer herbal
Smoothness	Medium	High	75% prefer herbal
Aroma	Chemical	Natural	80% prefer herbal
Longevity	High	Medium	50% prefer herbal

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8.3.3 Packaging and Market Perception

Packaging aesthetics, perceived naturalness, and eco-friendliness are evaluated. Herbal formulations like Aikanet lipsticks often score high in consumer perception surveys, reinforcing their appeal in a market increasingly driven by sustainability and safety concerns.

9. FUTURE PERSPECTIVES

The field of herbal cosmetics, particularly lipsticks derived from natural sources such as Aikanet root, holds considerable promise for innovation and sustainability. While current formulations provide a safe and eco-friendly alternative to synthetic lipsticks, there remain multiple avenues for advancing both the scientific rigor and commercial potential of these products. The future perspectives in this domain focus on standardization, technological integration, diversification, and clinical validation, which together can enhance the efficacy, stability, and market appeal of herbal lipsticks.

Development of Standardized Pigment Extraction Protocols:

A critical challenge in herbal lipstick formulation is the variability in natural pigment composition. The concentration of bioactive compounds in plant sources like Aikanet root can fluctuate due to differences in cultivation, harvest season, and processing methods. Future research should aim to develop standardized protocols for pigment extraction that optimize yield, purity, and color consistency. Techniques such as solvent optimization, controlled temperature extraction, and use of environmentally friendly solvents can enhance reproducibility. Standardization will not only improve product consistency but also facilitate regulatory approval and scalability for industrial production. Additionally, establishing a chemical fingerprint for Aikanet root pigments can serve as a benchmark for quality control and authenticity verification.

Nanotechnology offers a transformative approach for enhancing the performance of herbal lipsticks. Incorporating pigments into nanoscale carriers, such as solid lipid nanoparticles, nanocapsules, or liposomes, can improve color stability, prevent degradation from light and oxygen exposure, and enhance the bioavailability of any therapeutic compounds. Nanoencapsulation can also enhance the adherence of pigments to the lips, resulting in longer-lasting color with reduced need for frequent reapplication. Furthermore, nanotechnology can allow for the incorporation of multifunctional herbal actives, such as antioxidants or anti-inflammatory compounds, without compromising texture or spreadability, thereby expanding the functional utility of the lipstick beyond cosmetic appeal.

Expansion of Herbal Lipstick Ranges with Multi-Herbal Blends

Future development can focus on creating multi-herbal formulations that combine pigments, moisturizers, and bioactive compounds from various plant sources. Such blends can offer unique shades, enhanced sensory attributes, and synergistic therapeutic effects, such as antioxidant protection, lip hydration, and protection from environmental stressors. Integrating herbs like beetroot, hibiscus, or curcumin alongside Aikanet root could provide an extensive color palette and improved functionality. This approach aligns with consumer trends favoring natural, multifunctional cosmetics that combine aesthetic appeal with skin health benefits.

Clinical Validation of Therapeutic Benefits Alongside Cosmetic Utility

While herbal lipsticks are generally considered safe, future studies should aim to provide rigorous clinical validation of their therapeutic benefits. Controlled clinical trials can assess effects such as moisturization, reduction of lip pigmentation, antioxidant activity, and protection against environmental damage. Such evidence will not only enhance consumer confidence but also position these lipsticks as “cosmeceuticals,” bridging the gap between cosmetics and therapeutic products. Establishing clinical efficacy can also provide a strong marketing advantage and support claims in regulatory submissions, thereby enhancing credibility in both domestic and international markets.

CONCLUSION

the future of Aikanet root-based and other herbal lipsticks lies in standardization, technological innovation, formulation diversity, and clinical validation. By addressing current limitations and leveraging advanced methodologies, researchers and industry professionals can develop herbal lipsticks that are not only safe and eco-friendly but also highly effective, aesthetically appealing, and therapeutically beneficial. These advancements will strengthen the role of herbal lipsticks in the rapidly growing natural cosmetics market, offering consumers sustainable and high-performance alternatives to conventional products.

REFERENCES

1. *Alshamar, Hayfaa A. "Using Extract from Alkanet (Alkanna tinctoria) as a Source of Both a Red Lipid Stain and a Blue Counterstain for Histology." Journal of Histotechnology, vol. 46, no. 4, 2023, pp. 230–236.*
2. *Arve, Sonali Y., et al. "Review on Design and Evaluation of Herbal Lipstick." International Journal of Pharmaceutical Research & Development, vol. 6, no. 2, 2024, pp. 86–1488.*
3. *Chaudhari, N.P., et al. "A Review on Herbal Lipstick from Different Natural Colouring Pigment." Indian Journal of Drugs, vol. 6, no. 3, 2018, pp. 174–179.*
4. *Das, A., et al. "Ratanjot (Alkanna tinctoria L.) Root Extract, Rich in Alkannin/Shikonin: A Review." Pharmacognosy Journal, vol. 16, no. 1, 2024, pp. 1–8.*
5. *Gadge, Sonali S., et al. "Formulation and Evaluation of Herbal Lipstick from the Beetroot-A Natural Coloring Matter." Research Journal of Topical and Cosmetic Sciences, vol. 14, no. 1, 2023, pp. 1–4.*
6. *Hafsa, Samreen, et al. "Formulation and Evaluation of Herbal Lipsticks." Research Journal of Pharmacy and Technology, vol. 13, no. 4, 2020, pp. 1693–1700.*

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7. *Kaur, G., et al. "Phytochemical and Pharmacological Profile of Alkanna tinctoria: A Review." Pharmacognosy Reviews, vol. 16, no. 31, 2022, pp. 1–10.*
8. *Papageorgiou, V.P., et al. "Alkanna tinctoria (L.) Tausch: A Review of Its Phytochemistry and Pharmacology." Journal of Ethnopharmacology, vol. 66, no. 3, 1999, pp. 221–231.*
9. *Pavithra, T.K., et al. "Formulation and Evaluation of Herbal Lipstick Containing Alkanet Root as a Natural Colorant." Semantics Scholar, 2025.*
10. *Raut, Y.B., et al. "Formulation and Evaluation of a Herbal Lipstick: A New Approach." International Journal of Pharmaceutical Sciences and Research, vol. 4, no. 5, 2013, pp. 1791–1796.*
11. *Rasheed, Nuha, et al. "Formulation and Evaluation of Herbal Lipsticks." Research Journal of Pharmacy and Technology, vol. 13, no. 4, 2020, pp. 1693–1700.*
12. *Rautela, Sunil, et al. "Formulation and Evaluation of a Herbal Lipstick: A New Approach." International Journal of Pharmaceutical Sciences and Research, vol. 4, no. 5, 2013, pp. 1791–1796.*
13. *Sadhu, Piyushkumar, et al. "A Comprehensive Review on Potential of Natural Ingredients in Formulation of Herbal Lipsticks." ResearchGate, 2024.*
14. *Shahidulla, S.M., et al. "Formulation and Evaluation of Beta Vulgaris Herbal Lipstick." ResearchGate, 2022.*
15. *Sunil, K.P. "A Review: Herbal Lipstick by Using Natural Colouring Agent." International Journal of Pharmaceutical Research and Development, vol. 6, no. 3, 2018, pp. 174–179.*
16. *Verma, Shashi, et al. "Formulation and Evaluation of Natural Lipsticks Prepared from Bixa Orellana Seeds and Daucus Carota Root Extract and Their Comparative Study." ResearchGate, 2017.*
17. *Vigneshwaran, L.V., et al. "A Review on Natural Colourants Used in Cosmetics." Cosmetic Science Journal, vol. 9, no. 1, 2023, pp. 25–32.*
18. *Yadav, P., et al. "Formulation and Evaluation of Herbal Lipstick Containing Alkanet Root as a Natural Colorant." Research Journal of Pharmacy and Technology, vol. 13, no. 4, 2020, pp. 1693–1700.*
19. *Alshamar, Hayfaa A. "Using Extract from Alkanet (Alkanna tinctoria) as a Source of Both a Red Lipid Stain and a Blue Counterstain for Histology." Journal of Histotechnology, vol. 46, no. 4, 2023, pp. 230–236.*
20. *Arve, Sonali Y., et al. "Review on Design and Evaluation of Herbal Lipstick." International Journal of Pharmaceutical Research & Development, vol. 6, no. 2, 2024, pp. 86–1488.*
21. *Chaudhari, N.P., et al. "A Review on Herbal Lipstick from Different Natural Colouring Pigment." Indian Journal of Drugs, vol. 6, no. 3, 2018, pp. 174–179.*
22. *Das, A., et al. "Ratanjot (Alkanna tinctoria L.) Root Extract, Rich in Alkannin/Shikonin: A Review." Pharmacognosy Journal, vol. 16, no. 1, 2024, pp. 1–8.*
23. *Gadge, Sonali S., et al. "Formulation and Evaluation of Herbal Lipstick from the Beetroot-A Natural Coloring Matter." Research Journal of Topical and Cosmetic Sciences, vol. 14, no. 1, 2023, pp. 1–4.*
24. *Hafsa, Samreen, et al. "Formulation and Evaluation of Herbal Lipsticks." Research Journal of Pharmacy and Technology, vol. 13, no. 4, 2020, pp. 1693–1700.*
25. *Kaur, G., et al. "Phytochemical and Pharmacological Profile of Alkanna tinctoria: A Review." Pharmacognosy Reviews, vol. 16, no. 31, 2022, pp. 1–10.*
26. *Papageorgiou, V.P., et al. "Alkanna tinctoria (L.) Tausch: A Review of Its Phytochemistry and Pharmacology." Journal of Ethnopharmacology, vol. 66, no. 3, 1999, pp. 221–231.*
27. *Pavithra, T.K., et al. "Formulation and Evaluation of Herbal Lipstick Containing Alkanet Root as a Natural Colorant." Semantics Scholar, 2025.*
28. *Raut, Y.B., et al. "Formulation and Evaluation of a Herbal Lipstick: A New Approach." International Journal of Pharmaceutical Sciences and Research, vol. 4, no. 5, 2013, pp. 1791–1796.*
29. *Rasheed, Nuha, et al. "Formulation and Evaluation of Herbal Lipsticks." Research Journal of Pharmacy and Technology, vol. 13, no. 4, 2020, pp. 1693–1700.*
30. *Rautela, Sunil, et al. "Formulation and Evaluation of a Herbal Lipstick: A New Approach." International Journal of Pharmaceutical Sciences and Research, vol. 4, no. 5, 2013, pp. 1791–1796.*
31. *Sadhu, Piyushkumar, et al. "A Comprehensive Review on Potential of Natural Ingredients in Formulation of Herbal Lipsticks." ResearchGate, 2024.*
32. *Shahidulla, S.M., et al. "Formulation and Evaluation of Beta Vulgaris Herbal Lipstick." ResearchGate, 2022.*
33. *Sunil, K.P. "A Review: Herbal Lipstick by Using Natural Colouring Agent." International Journal of Pharmaceutical Research and Development, vol. 6, no. 3, 2018, pp. 174–179.*
34. *Verma, Shashi, et al. "Formulation and Evaluation of Natural Lipsticks Prepared from Bixa Orellana Seeds and Daucus Carota Root Extract and Their Comparative Study." ResearchGate, 2017.*
35. *Vigneshwaran, L.V., et al. "A Review on Natural Colourants Used in Cosmetics." Cosmetic Science Journal, vol. 9, no. 1, 2023, pp. 25–32.*