

Review on Sushrutokta Eladi Gana and Its Role in Varnya Karma

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Abstract: In Ayurveda, the appearance of clear and healthy skin is considered an external manifestation of internal well-being. Classical texts describe good complexion as the result of balanced Tridosha—specifically Bhrajaka pitta and proper nourishment of Rakta Dhatu. To simplify the therapeutic application of medicinal plants, Acharya Sushruta organized drugs with similar pharmacological actions into distinct groups known as Ganas in the *Dravya Sangrahaniya Adhyaya (Sutrasthana, Chapter 38)*.^[1] Among these, Eladi Gana has ability to alleviate Vata and Kapha, neutralize toxic factors (Vishaghna), and enhance the natural clarity and brightness of the skin through Varnaprasadana. The present review aims to revisit the classical concepts of Eladi Gana by systematically evaluating the Rasapanchaka of its constituent drugs, including Rasa, Guna, Virya, Vipaka, and Prabhava, wherever described in the Ayurvedic literature. In addition, the review examines the common Doshaghnata of the group and interprets how these shared pharmacodynamic characteristics contribute to its therapeutic actions. Special emphasis has been placed on understanding the Karmukatwa of Eladi Gana in relation to Varnya Karma, with an attempt to correlate the classical concepts with their possible role in contemporary skin care.

Keywords: Eladi Gana, Sushruta Samhita, Varnya Karma, Doshaghnata, Karmukatwa, Varnaprasadana

1. Introduction

In Ayurvedic literature, A naturally clear, radiant, and uniform complexion reflects the proper functioning of Bhrajaka Pitta, adequate nourishment of Rakta Dhatu, and the balanced state of the Tridosha at the level of Twak (skin). Recognizing the importance of skin health, the classical Ayurvedic texts describe Varnya Karma as a specialized therapeutic approach aimed at preserving, restoring, and enhancing the natural complexion. Among the various classifications described in the Brihatrayi, the thirty-seven Ganas presented by Acharya Sushruta in the *Dravya Sangrahaniya Adhyaya* of *Sutrasthana* are particularly significant because the grouping is based on common pharmacological actions rather than botanical relationships. Eladi Gana, named after its first constituent, Ela (*Elettaria cardamomum*), is one such pharmacologically important group. The classical texts describe this Gana as possessing Vata-Kapha Shamaka, Vishaghna, and Varnaprasadana properties, indicating its role in correcting dosha imbalance, neutralizing harmful factors, and promoting Varnya Karma. Thus, studying this Gana provides valuable insight into the practical application of Varnya Karma and its potential relevance in contemporary dermatological and cosmeceutical research.

2. Literature Survey

Sushruta's Eladi Gana, one of thirty-seven classically defined drug groups in *Sutrasthana Chapter 38*, brings together twenty-four botanically diverse substances united by shared action rather than plant family. Traditionally credited with pacifying Vata-Kapha, neutralizing toxins, and refining complexion (Varnaprasadana), the group shows a fairly consistent Rasapanchaka pattern—Tikta-Katu rasa, Laghu-Tikshna guna—split between Ushna-virya members clearing channel obstruction and Shita-virya members cooling Pitta-

Rakta. Modern studies on individual constituents (cinnamon, vetiver, saffron, kushtha) offer partial support through tyrosinase inhibition and antioxidant activity. Some articles and research papers are defining idea about related studies.

3. Methodology

The present work is a conceptual narrative review based on a systematic analysis of classical Ayurvedic literature and relevant contemporary publications. No experimental, laboratory, or clinical investigations were conducted as part of this study. The review primarily focuses on the description of Eladi Gana as presented in the *Dravya Sangrahaniya Adhyaya (Sutrasthana, Chapter 38)* of the *Sushruta Samhita*. To understand the pharmacological basis of this Gana, information regarding the Rasapanchaka (Rasa, Guna, Virya, Vipaka, and Prabhava wherever available) of its constituent drugs was collected from authoritative *Dravyaguna Vigyana* textbooks and classical *Nighantus*. In addition, published literature from peer-reviewed Ayurvedic journals was reviewed to gather supporting evidence related to the concept of Gana, Varnya Karma, and the pharmacodynamic attributes of the individual drugs. Relevant articles were identified through open-access academic databases and other credible scientific sources.

The collected information was critically reviewed, compiled, and analyzed under the following themes:

- 1) **Classical description of Eladi Gana**, including its constituent drugs and therapeutic properties as described in the *Sushruta Samhita*.
- 2) **Rasapanchaka and Doshaghnata** of the representative drugs, with emphasis on identifying their common pharmacological characteristics.
- 3) **Karmukatwa (mode of action)** of Eladi Gana in relation to **Varnya Karma**, interpreted on the basis of classical Ayurvedic principles.

- 4) **Botanical identity of the constituent drugs**, acknowledging that the botanical correlation of certain classical names remains variable across different Nighantus and commentaries. Therefore, the botanical identifications presented in this review should be considered indicative rather than definitive, particularly for comparatively less commonly described drugs such as **Vyaghranakha**, **Shukti**, and **Sthauneyaka**.

4. Results and Discussion

4.1 Composition of Eladi Gana

According to the Sushruta Samhita, Eladi Gana comprises twenty-four medicinal substances, with Ela (*Elettaria cardamomum*) designated as the principal drug of the group.

The complete list of these drugs, along with their commonly accepted botanical identities, is presented in Table 1. The composition of Eladi Gana reflects considerable botanical diversity, encompassing aromatic rhizomes and roots such as Tagara, Kushtha, and Jatamansi; bark and leaf drugs including Tvak and Patra; resinous substances such as Shriveshtaka and Aguru; the mineral-derived substance Shukti; and the stigma-derived drug Kumkuma. Despite their varied botanical origins, these drugs are grouped together because they exhibit similar therapeutic and pharmacological properties rather than taxonomic similarity. This functional mode of classification illustrates the Ayurvedic principle of grouping drugs based on their therapeutic utility, thereby allowing physicians to select suitable alternatives with comparable actions whenever a particular ingredient is unavailable.

Table 1: Constituent drugs of Eladi Gana as enumerated in Sushruta Samhita, Sutrasthana Chapter 38 (botanical equivalents are indicative and vary slightly across commentators and regional Nighantus)

S. No.	Ayurvedic Name	Probable Botanical Identity
1	Ela	<i>Elettaria cardamomum</i>
2	Tagara	<i>Valeriana wallichii</i>
3	Kushtha	<i>Saussurea lappa</i>
4	Mamsi (Jatamansi)	<i>Nardostachys jatamansi</i>
5	Dhyamaka	<i>Cymbopogon</i> species
6	Tvak	<i>Cinnamomum zeylanicum</i> (bark)
7	Patra (Tejapatra)	<i>Cinnamomum tamala</i>
8	Nagapushpa	<i>Mesua ferrea</i> [flower]
9	Priyangu	<i>Callicarpa macrophylla</i>
10	Harenuka	<i>Vitex negundo</i> seed / <i>Piper</i> species
11	Vyaghranakha	<i>Capparis</i> species (claw-shaped nail-like drug)
12	Valuka	<i>Lawsonia inermis</i> / <i>Prunus</i> species (varies by Nighantu)
13	Shukti	Processed pearl-oyster shell (mineral origin)
14	Sthauneyaka	<i>Taxus baccata</i> (resinous product)
15	Shriveshtaka	<i>Liquidambar orientalis</i> (resin)
16	Choca	<i>Angelica glauca</i>
17	Choraka	Allied aromatic <i>Angelica</i> species
18	Aguru	<i>Aquilaria agallocha</i>
19	Sphrikka	<i>Anethum sowa</i> / allied aromatic herb
20	Ushira	<i>Vetiveria zizanioides</i>
21	Bhadrararu (Devadaru)	<i>Cedrus deodara</i>
22	Kumkuma	<i>Crocus sativus</i>
23	Punnaga	<i>Calophyllum inophyllum</i>
24	Kesara (Nagakesara)	<i>Mesua ferrea</i> (stamen)

Modern Review:^{[2][3]}

This review frames among 24-drugs; about 14 drugs shows Varnya action compilation by pairing each classical Ayurvedic description with a targeted modern pharmacological, phytochemical and dermatological

literature (tyrosinase inhibition, anti-melanogenesis, antioxidant capacity, anti-inflammatory and wound-healing studies, and some of available clinical/cosmetic trials as below:

Table 2: Modern review frames among 24-drugs; about 14 drugs shows Varnya action compilation according to chemical constituents and pharmacological actions

S. No.	Drugs	Modern Review
1	Ela ^{[11][12]} [<i>Elettaria cardamomum</i>]	A study on cardamom essential oil in human dermal fibroblasts found that it significantly inhibited pro-inflammatory and tissue-remodelling markers such as VCAM-1 and M-CSF , indicating an anti-inflammatory and immunomodulatory action relevant to calming reactive, blotchy skin.
2	Tagara ^{[13][14]} [<i>Valeriana wallichii</i>]	Ethanolic and methanolic root/rhizome extracts consistently show dose-dependent antioxidant activity in DPPH[2,2-Diphenyl-1-picrylhydrazyl] and total-reducing-power assays, providing indirect support for its traditional 'blood-purifying' role. A more recent investigation found that a hydroalcoholic extract rich in chlorogenic acid showed antiproliferative activity against melanoma cells in vitro , a finding relevant to skin-cell biology though not directly to complexion improvement.
3	Kushtha ^{[15][16][17]} [<i>Saussurea lappa</i>]	Nine sesquiterpene lactones isolated from <i>Saussurea lappa</i> root were screened in B16 melanoma cells for their effect on melanin synthesis; alpha-cyclocostunolide showed clear inhibition of extracellular melanin content. This gives Kushtha comparatively strong mechanistic support for a Varnya action among

		the drugs surveyed here.
4	Mamsi (Jatamamsi) [<i>Nardostachys jatamansi</i>]	An ethanolic extract of <i>N. jatamansi</i> formulated into a herbal face cream showed antioxidant activity (DPPH IC₅₀ ~58 µg/mL) close to that of ascorbic acid, and the finished cream formulations were non-irritant on patch testing, supporting its cosmeceutical use, cyclooolivil, a compound isolated from <i>N. jatamansi</i> , was shown to reduce TNF-α/IFN-γ-induced inflammatory chemokines (IL-6, IL-8, RANTES) in human HaCaT keratinocytes by blocking NF-κB and JAK/STAT signalling, providing a mechanistic basis for its traditional use in calming inflammatory, blemished skin.
5	Dhyamaka ^{[18][19]} [<i>Cymbopogon species</i>]	A separate study on an ethyl-acetate; Palmarosa grass extract found measurable whitening activity against mono- and di-phenolase (tyrosinase-related) enzymes alongside antimicrobial action against Cutibacterium acnes .
6	Tvak ^{[20][21]} [<i>Cinnamomum zeylanicum</i>] (bark)	Cinnamon bark's main active constituent, cinnamaldehyde, directly identified as a tyrosinase inhibitor capable of reducing melanin production . In a controlled cell study, Cinnamomum cassia essential oil and cinnamaldehyde reduced melanin content and tyrosinase activity/expression in alpha-MSH-stimulated B16 melanoma cells while also restoring glutathione and catalase activity , demonstrating combined anti-melanogenic and antioxidant action . Cinnamon bark extract is additionally documented in cosmetic-ingredient literature for antimicrobial and antioxidant activity relevant to acne-related pigmentation and blemish.
7	Patra (Tejapatra) ^{[22][23]} [<i>Cinnamomum tamala</i>]	Cinnamomum tamala leaf extracts show consistent DPPH free-radical scavenging activity attributed to their tannin, phenolic and flavonoid content., human clinical data: a split-face, placebo-controlled study evaluated a dermocosmetic emulgel loaded with Cinnamomum tamala extract; the plant's phenolic/flavonoid content to action of photo-damaged skin and skin rejuvenation.
8	Nagapushpa ^{[24][25]} [<i>Mesua ferrea</i> [flower]]	Mesua ferrea flower and bark extracts are reported to contain flavonoids, xanthenes, coumarins and terpenoids that underline broad antimicrobial, anti-inflammatory and antioxidant activity . A phytochemical/anti-inflammatory study of the ethyl-acetate bark extract found high phenolic and flavonoid content responsible for anti-inflammatory and antioxidant action. Cosmetic-ingredient sources describe the flower extract's traditional use for reducing acne-related pigmentation and evening skin tone .
9	Priyangu ^{[26][27]} [<i>Callicarpa macrophylla</i>]	Pharmacological studies confirms validated anti-bacterial, anti-inflammatory, antifungal and antioxidant actions, attributing much of this to flavonoid (quercetin-derivative) and phenolic-acid (caffeic, ferulic acid) content described as contributing to skin-protective and photoprotective effects . its Varnya evidence therefore rests on antioxidant/anti-inflammatory mechanisms rather than a demonstrated direct depigmenting action.
10	Sthauneyaka ^{[28][29]} [<i>Taxus baccata</i>] (resinous product)	Taxus baccata bark extract (95% ethanol) showed potent anti-inflammatory activity comparable to aspirin in a carrageenan-induced rat paw-oedema model, and leaf/bark extracts more broadly show strong free-radical scavenging attributed to phenolic and flavonoid content. This supports the classical framing of Sthauneyaka as acting indirectly on complexion via reduction of inflammatory/oxidative burden rather than through any direct pigment-modulating action
11	Agaru ^{[30][31]} [<i>Aquilaria agallocha</i>]	Agarwood (Aquilaria) extracts show broad antioxidant, anti-inflammatory and antibacterial activity, and topical. Most notably, a comprehensive essential-oil study explicitly concluded that agarwood essential oil could be used in future antioxidant, anti-diabetic, skin-whitening and anti-inflammatory drug formulations, based on confirmed antioxidant capacity and tyrosinase-inhibitory activity (IC₅₀ ~38 µg/mL)
12	Ushira ^{[32][33][34]} [<i>Vetiveria zizanioides</i>]	Vetiver essential oil was shown to markedly decrease melanin production and tyrosinase activity in alpha-MSH-stimulated B16 melanoma cells , with the effect linked to downregulation of cellular tyrosinase expression and suppression of oxidative stress (restoration of superoxide dismutase, glutathione peroxidase and catalase activity)- a study explicitly framed around estimating the plant's 'hypopigmentation function'. Root extracts show strong, dose-dependent free-radical scavenging in multiple in vitro assays.
13	Kumkuma ^{[35][36][37]} [<i>Crocus sativus</i>]	A study on saffron extract's bioactivities relevant to tyrosinase-inhibitory activity alongside collagenase inhibition and stimulation of collagen and hyaluronic-acid synthesis in human dermal fibroblasts. In human use, a widely cited clinical study (Akhtar et al., 2014) applying a 3% saffron-extract cream to participants with hyperpigmentation reported an approximate 24-unit reduction in Melanin Index after 8 weeks of daily use; a further randomized, double-blind, placebo-controlled trial of oral standardized saffron extract capsules is registered to evaluate effects on hyperpigmentation and dark spots. Crocin, saffron's principal carotenoid, is proposed to interfere with tyrosinase and downregulate MITF, the transcription factor driving melanocyte pigment production.
14	Nagakesara [Stamen] ^{[38][39]} [<i>Mesua ferrea</i> (stamen)]	As the stamen of the same plant covered under Nagapushpa; Kesara draws on the same evidence base of Mesua ferrea phytochemistry- flavonoids, xanthenes, coumarins and terpenoids underlying antioxidant, anti-inflammatory and antimicrobial activity . Ayurvedic pharmacognosy sources note the Sanskrit synonym 'Hemakesara', linked to cosmetic-use sources describe application of the flower/stamen extract for treating acne scars, dark spots and blemishes.

4.2 Rasapanchaka of Representative Constituents^{[4][5][6][7]}

In Ayurvedic pharmacology, the therapeutic action (Karma) of a drug is primarily determined by its Rasapanchaka, which includes Rasa (taste), Guna (qualities), Virya (potency), and Vipaka (post-digestive effect), while in certain instances Prabhava (specific or unique action) also contributes to its overall effect. Therefore, understanding the pharmacological

basis of Eladi Gana requires a detailed evaluation of these fundamental attributes before interpreting its collective therapeutic actions.

To facilitate this analysis, Table 2 summarizes the Rasapanchaka of twelve representative and well-documented drugs belonging to Eladi Gana. Examination of these data reveals a consistent pharmacodynamic profile across the

group. Most of the constituent drugs predominantly exhibit Tikta and Katu Rasa, along with Laghu and Tikshna Guna, reflecting their ability to eliminate pathological factors and restore physiological balance. Although both Ushna Virya and Shita Virya are represented within the group, their distribution appears to correspond with distinct therapeutic

roles. Drugs possessing Ushna Virya, such as Tvak, Kushtha, Tagara, Aguru, and Devadaru, are primarily associated with the alleviation of Vata and Kapha disorders. In contrast, Shita Virya drugs, including Jatamamsi, Ushira, Priyangu, and Nagakesara, are more closely related to the pacification of Pitta and maintenance of Rakta homeostasis.

Table 3: Rasapanchaka (Rasa, Guna, Virya, Vipaka) and associated Doshaghnata of twelve representative Eladi Gana constituents, compiled from standard Dravyaguna Vijnana and Nighantu sources. The remaining minor and mineral-origin members of the group (e.g., Shukti, Vyaghranakra, Sthauneyaka) are traditionally handled by Prabhava-based reasoning rather than by a settled Rasapanchaka.

Drug	Rasa	Guna	Virya	Vipaka	Doshaghnata / Notable Karma
Ela	Katu, Tikta	Laghu, Ruksha, Tikshna	Shita	Katu	Kapha-Vata-hara; Hridya
Tvak	Katu, Tikta	Laghu, Ruksha, Tikshna	Ushna	Katu	Kapha-Vata-hara
Patra (Tejapatra)	Madhura, Katu	Laghu, Pichchhila, Tikshna	Ushna	Katu	Vata-Kapha-hara
Mamsi (Jatamamsi)	Tikta, Kashaya	Laghu, Snigdha	Shita	Katu	Kapha-Pitta-hara; Varnya
Kushtha	Tikta, Katu	Laghu, Snigdha, Tikshna	Ushna	Katu	Kapha-Vata-hara
Tagara	Tikta, Katu, Kashaya	Laghu, Snigdha, Tikshna	Ushna	Katu	Vata-Kapha-hara
Ushira	Tikta, Madhura	Laghu, Snigdha	Shita	Madhura	Pitta-Kapha-hara; Raktaprasadana
Priyangu	Kashaya, Tikta	Laghu, Ruksha	Shita	Katu	Kapha-Pitta-hara; Varnya
Nagakesara	Kashaya, Tikta	Laghu, Ruksha	Shita	Katu	Kapha-Pitta-hara; Raktaprasadana
Kumkuma	Tikta, Katu	Laghu, Snigdha	Ushna	Katu	Tridosha-shamaka; Varnya
Aguru	Tikta, Katu	Laghu, Snigdha, Tikshna	Ushna	Katu	Kapha-Vata-hara
Bhadradaru (Devadaru)	Tikta, Katu	Laghu, Ruksha, Tikshna	Ushna	Katu	Kapha-Vata-hara

4.3 Doshaghnata of Eladi Gana^{[4][5][6][7]}

The Rasapanchaka of Eladi Gana explains its broad therapeutic actions. Most constituents possess Ushna Virya, Tikshna Guna, and Katu Vipaka, which help pacify Kapha and Vata, supporting their use in conditions such as Kandu and Kushtha. In contrast, drugs like Jatamamsi, Ushira, Priyangu, and Nagakesara exhibit Shita Virya with Tikta-Kashaya Rasa, contributing to Pitta-Rakta pacification. This balanced pharmacodynamic profile enables Eladi Gana to address multiple doshic factors involved in skin disorders, thereby supporting its classical role in Varnaprasadana and promoting healthy skin complexion.

4.4 Stated Karma and Clinical Indications per Sushruta

Sushruta directly credits Eladi Gana with pacifying activity of Vata and Kapha, counteracting Visha (toxins), a favourable complexion, and relieving Kandu, Pidaka and skin eruptions. Clinically, these drugs were used singly or in combination, as Lepa (external paste), fine Churna dusted over the skin, or used into medicated oils, for conditions such as Kushtha, Kandu, Vyanga (facial hyperpigmentation), and more broadly within Visha Chikitsa. The complexion-specific benefit is captured in the classical texts by the precise term Varnaprasadana, distinct from the more foundational term Varnya, a distinction taken up in detail in the next section.

4.5 Karmukatwa of Eladi Gana in Varnya Karya^{[4][5][6][7]}

The Karmukatwa, or mode of action of Eladi Gana on Varnya Karma can be understood under three interlinked routes:

- 1) Ushna-Tikshna-Katu drugs of the group (Tvak, Kushtha, Tagara, Aguru, Devadaru) acts on Srotas at the level of Twak and Rakta, clearing Kapha-Vata driven obstruction (Srotorodha) that would otherwise present as dullness, congestion or eruptive lesions on the skin--this Srotoshodhana action permits a naturally improved

complexion to skin; once a local circulation and tissue nourishment are restored.

- 2) Tikta-Kashaya, Shita Virya drugs within the same group (Jatamamsi, Priyangu, Nagakesara, Ushira) act more directly on vitiated Pitta and Rakta, offering a mild Raktaprasadana (blood-clarifying) effect that complements the Kapha-Vata action of the Ushna drugs and extends the group's relevance specifically to pigment-related, Pitta-Rakta-dominant presentations of poor complexion.
- 3) Several constituents of Eladi Gana, particularly Ela, Tvak, Aguru and Kumkuma, are Sugandhi Dravyas whose aromatic principles are traditionally linked with Manoprasadana, a calming and mood-lifting effect. Since Ayurvedic aetiology repeatedly connects Varna with Manas (mind) through the shared involvement of Rakta and Sadhaka Pitta, this aromatic dimension of Eladi Gana is considered to make an indirect but real contribution to a person's outward glow, over and above its purely dermatological actions.

Taken together, **these three routes, Srotoshodhana with Kapha-Vata pacification, Pitta-Rakta clarification, and aromatic Manoprasadana, constitute the composite Karmukatwa through which Eladi Gana supports Varnya Karya.**

5. Summary

Table 3 draws together the discussion above into a single view of Eladi Gana with respect to Varnya Karma, highlighting how is their primary classical property while remaining complementary in classical practice.

Table 4: Overview of Eladi Gana with respect to Varnya Karma

Feature	Eladi Gana
Primary classical property	Varnaprasadana (complexion-clarifying, supportive/finishing action)
Representative drugs	Ela, Tvak, Patra, Kumkuma, Ushira, Aguru and allied aromatics
Dominant Rasa/Guna tendency	Tikta-Katu and aromatic (Sugandhi) predominant, Ushna Virya predominant
Chief indications	Kandu, Kushtha, Visha, skin eruptions with secondary complexion benefit

6. Conclusion

Eladi Gana exemplifies the Ayurvedic approach of classifying medicinal plants according to their Rasapanchaka and therapeutic actions rather than botanical characteristics. Traditionally described by Acharya Sushruta, this group is valued for its Varnaprasadana property, which supports healthy complexion by balancing Kapha and Vata, purifying Pitta and Rakta, and promoting overall skin health. Its collective pharmacodynamic profile highlights its significance in the management of skin disorders and as a supportive measure for maintaining natural skin radiance. Although its therapeutic value is well established in classical Ayurvedic literature, further phytochemical, pharmacological, and controlled clinical studies are required to correlate these traditional concepts with modern dermatological evidence.

7. Future Scope of Study

- 1) Standardized extracts could be tested for tyrosinase inhibition, melanin content, and antioxidant markers in controlled lab settings, followed by human trials assessing melanin index and skin tone in conditions like Vyanga.
- 2) Botanically uncertain members—Vyaghranakra, Shukti, Sthauneyaka—need clearer identification through pharmacognostic and DNA-barcoding studies before their pharmacology can be meaningfully explored.
- 3) Formulation research (creams, oils, Lepa) comparing efficacy and stability across delivery forms would also help bridge classical application methods with modern cosmeceutical practice, strengthening the evidence base for Eladi Gana's role in Varnya Karma.

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