

## Review



### Exploring the role of *Shrikamya Rasayana* in enhancing skin health: A critical review

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#### ABSTRACT:

**Background:** Beauty is a divine gift that gives pleasure to the senses or the mind. It is the quality of being attractive. Ayurveda emphasize beauty in terms of physical, mental, social and spiritual elements. Skin health solely depends on various extrinsic and intrinsic factors which enables an everlasting adaptation and acclimatization. Various unrealistic concepts and images of beauty lead to a lower self-esteem, and lower self-confidence. *Shrikamya Rasayana* is a unique anti-aging therapy explained by Acharya Sushruta for improving skin complexion and prevents various skin disorders. The study aimed to review the importance and utility of *Shrikamya Rasayana* in the present era in order to attain a healthy skin.

**Objective:** To evaluate the role of *Shrikamya Rasayana* in enhancing skin health

**Methods:** Screening of the available published literature related to *Rasayana*, cosmetology and pharmacological actions was conducted through an online search using Boolean operators such as AND, OR, NOT. A manual search was also done in Ayurveda classical texts and college libraries to collect unpublished information. Identification of scope of *Shrikamya Rasayana* is done initially followed by compilation and critical interpretation with respect to different assessment criteria for skin type. **Conclusion:** *Shrikamya Rasayana* mentioned in Ayurveda classical textbooks have potential role in improving the skin complexion and prevent various skin related disorders. Scales such as Fitzpatrick Skin Photo type, Luschan's chromatic and CLBT scale can be used for standardized Ayurvedic assessment of *Chaya*, *Varna* and *Prabha*. This article highlights the utility, importance, and scope of *Shrikamya Rasayana*.

**KEYWORDS:** *Shrikamya Rasayana*, Skin health, Ayurveda, cosmetology

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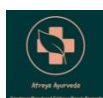
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## 1. INTRODUCTION

Beauty is a manifestation of one's outer and inner self. Majority of people consider that the definition of beauty is only surrounded by the external complexion and skin shades. Human body is referred to as the most visible expression of one's self and bodily behavior and to maintain that is a means of interpersonal presentation in social activities. [1] *Ayurveda* also mentioned the context of giving prior importance for the protection of one's body. Time has approached where the definition of beauty should be reconstructed in terms of health, inner peace, and self-confidence. The overall well-being of the body is intricately linked to skin health. It is one of the body's visual credentials of well-being. [2] Skin health depends on various extrinsic and intrinsic factors, which enable everlasting adaptation and acclimatization. [3] Exposure to radiation, unbalanced diet, stress, micronutrient deficiencies etc., accelerates the process of ageing. [4] Pharmacological and surgical interventions in the field of cosmetology are growing day by day. Ageing of face is corrected by popular cosmetic surgical procedures like Botox, facelift, face fillers, blepharoplasty, and brow-lift, etc. [5]

In the current era a new version of conscious consumerism arises where higher standards were given for skin health. Various unrealistic concepts and images of beauty lead to a lower self-esteem, and lower self-confidence. Cosmetic products were often a part and parcel of life. India's Cosmetic market is growing annually and is estimated to be worth USD 8 billion. Ayurvedic, natural, and eco-friendly are the main keywords for marketer's attraction and sales driving

force. Even though the cosmetic market is growing annually the genuineness of these products are still doubtful. Ayurvedic cosmetology refers to the application of traditional Ayurvedic principles and practices in the field of skincare and beauty treatments to promote skin health, enhance beauty, and prevent aging. These still remains as a type of home remedy to some section of the people. *Rasayana Prayoga* (Rejuvenation therapy) explained in ayurvedic classics have a potent immunomodulatory and antioxidant capacity. It helps in providing excellent *Rasa Dhatu* (nutrient fluid). *Kamya Rasayanas* (Rasayana aimed to attain desirable benefit) are the unique contribution as per *Acharya Sushruta* they are sub classified as *Prana Kamya* (promotes longevity and lifespan), *Medha Kamya* (improves mental faculties), and *Shrikamya Rasayana* (improves beauty and luster). [6] This article mainly focuses on the concept of a healthy skin through *shrikamya rasayana prayoga* and also the supportive role of a healthy mind in improving the *shri* without any discrimination based on skin colour.

## 2. AIMS AND OBJECTIVES

Aims

To critically explore and evaluate the role of *Shrikamya Rasayana* in enhancing skin health

Objectives

To identify the mode of action of *Shrikamya Rasayana* in enhancing complexion and preventing skin disorders

To understand the therapeutic potential of the drugs mentioned under *Shrikamya Rasayana*

## 3. MATERIALS AND METHODS

Available published literature related to Rasayana, Cosmetology, Pathology of skin ageing, Pharmacological action of anti-aging drugs, etc., was screened through online search. A manual search was also done in Ayurveda classical texts and other academic publications. Identification of scope of *Shrikamya Rasayana* is done initially followed by compilation and critical interpretation with respect to different assessment criteria for skin type.

### Literature review

#### Concept of *Chaya* and *Prabha* with respect to skin type

According to Ayurveda, beauty is determined by *Varna* (Colour), *Prabha* (Radiance) and *Chaya* (Complexion), and also depends on various other factors like *Prakriti* (basic constitution), *Sara* (essence), *Doshas* (three humors), etc. These factors are the innate entities of beauty and represent all the parameters for healthy and vibrant skin. Quality of the child's skin is even depending upon the mother's diet and regimen during pregnancy. Varnotpatti takes place during the 6<sup>th</sup> month, and it is afflicted by various *Garbhopaghatakara Bhava* (factors harmful to pregnancy) like intake of excessive *Amla* (sour), *Lavana* (salt) *Rasa*, and *Matsya* (fish). *Varna* represents a state of *Dosha*, *Dhatu Samyata* (equilibrium of bodily elements). [7] *Chaya* is a nearer expression of complexion while the *prabha* is an entity which illuminates even if it's far. Acharya Charaka has explained that the *Subha* (good) and *Asubha* (bad) things depend on *Varna*. *Prakruta Varna* (Normal colours) are classified into four major categories such as *Krishna* (black), *Syama* (bluish), *Shyamavadata* (bluish white), and *Avadata* (white). [8] This phenotypic

categorization also accommodates variability by allowing inclusion of intermediate or mixed recognition of gradations beyond the primary types. *Vaikruta Varna* (abnormal colour) indicates the underlying pathological condition, for example, *Haridra Varna* (yellowish discolouration) of *twak* in *Kamala* (jaundice), *Ketaki dhuli varna* (pale white and yellowish) in *Pandu* (anemia), etc. Thus, healthy skin clearly indicates a healthy state of body. Hemoglobin concentration, melanin pigment, blood oxygen levels and chromophores are the multiple contributing factors that affect skin colour. [9] Multiple treatment approaches have been adopted to overcome skin related disorders. The effect of various therapies can be identified by skin color evaluation. [10] Skin types are classified using scales such as The Fitzpatrick Skin Photo type, Luschan's chromatic scale, C.L.B.T (colour, luminance, brightness and transparency), and optical methods. [11] The Fitzpatrick skin type scale classifies skin type according to the amount of pigmentation present in skin and its reactions to sunlight exposure [12] Von Luschan's chromatic scale (VLCS) is another precise applied scale similar to reflectance spectrophotometry, for the assessment of skin color. [13] These scales can assess the *Chaya* of an individual. Radiance component of skin can be measured by the coloring, luminosity, brightness, and transparency (C.L.B.T) scale. [14] The C.L.B.T technique enables the assessment of various components of the complexion such as skin colour, luminescence, skin brightness, and transparency. Colors such as red, pink, olive and beige are defined in this scale. Facial luminosity is mentioned as the amount of

the light areas reflected on the noticeable areas of the face. Brightness relates to the homogeneity of the skin in terms of colour and texture. Transparency is the visibility of vessels beneath the skin reflecting the level of the skin thickness and vascularization. According to Ayurveda *Chaya* is evaluated based on the *Panchamahabhoota* (five basic elements) involvement. Complexion is an attribute of *Agneya Chaya* where coloring descriptions like bright red, brilliant and those which are pleasing to the eyes are kept as set points. Luster, cleanliness and unctuousness of skin is a contribution of *Nabhasi Chaya*. It is explained as *Nirmala* (clear), *Sasneha* (unctuous) and *Saprabha* (lustrous). *Ambhasi Chaya* plays a major role in skin transparency as it is compared to as the clarity of a *vaidurya* (cat's eye). Dry, brown, and reddish appearance is considered as *Vayavi Chaya*. It is considered inferior as it indicates miseries. A stable, unctuous, compact, smooth, black and white complexion is described as *Parthivi Chaya*. In order to have an enhanced complexion *Prabha* plays a major role. The one that illuminates the complexion is *Prabha*. It can be appreciated even from a distance. Certain distinctive features of the shadow and the luster denote the occurrence of inauspicious or auspicious things to human beings. Von Luschan's chromatic scale and Fitzpatrick skin type scale measurements can be compared to those of *Prabha's* assessment in Ayurveda. *Tejo mahabhuta* is the major attribute in the proper functioning of *Prabha*.

#### **Pathology of skin aging**

Aging of skin is a synergistic process due to involvement of factors like chronological aging, photo-aging, hormonal deficiency, and environmental causes leading to loss of structural integrity and normal physiological function. [15] Increased laxity and wrinkle formation in the dermis layer is formed due to decrease in the amount of fibroblasts that synthesize collagen and elastin which ultimately leads to skin ageing. [16] Yearly decrease by 1% in skin collagen and elastin synthesis leads to the disorganization of connective tissue. [17] Physiological inevitable factors like age, genetics are reasons for intrinsic aging of the skin. [18] Extrinsic factors such as sunlight exposure, pollution, nicotine usage, and repetitive muscle movements like squinting or frowning, lifestyle components mainly diet, sleep, are controllable and are usually the main reasons for skin aging. Only 3% of aging factors are contributed by intrinsic factors. [19] *Tridosha* plays a major role in proper functioning of skin. Sensory functions and tactile perception are carried out by *vyana vata*, *Pitta Dosha* does the function of thermoregulation, *Bhrajaka Pitta* regulates the process of pigmentation [20], and *Tarpaka Kapha* maintains the skin moisture.

#### **Knowledge of *Shrikamya Rasayana***

*Rasayana Chikitsa* is described as an anti-aging therapy in Ayurveda. It helps in enhancing longevity, memory, intellect, health, and prevents aging due to extrinsic factors. Skin health deteriorates as age progresses. According to *Sharangadhara Samhitha*, *Chavi Kshaya* (loss of beauty) happens between 21 to 30 years and *Twak Kshaya* (decrease in skin quality) happens between 41 to 50 years. *Kamya Rasayana* is a unique

concept explained in Sushruta Samhita for the promotion of health. This includes mainly three types *Pranakamya*, *Medhakamya*, and *Shrikamya*. *Shrikamya Rasayana* is a relevant area that is less explored and practiced. A good complexion is an end product of proper *Bhrajaka Pitta*, well-formed *Rasa*, *Rakta Dhatu* (blood tissue), and *Ojas* (essence of vitality). *Rasayana Prayoga* is explained as the best method for obtaining a good *Prabha* and *Varna*. *Rasayana* therapy is indicated after *Shodhana* (bio purification), and it nourishes *Rasa*, *Raktadi dhatu* in turn enhances *ojas*, as a result improving both luster and complexion. [21]

Dalhana explains *Shriman* [22] as one with a good complexion of skin (*Shareera Shobhayukta*), and *Shri* is termed as *Kamaneeyata*, i.e., the quality that attracts. *Vaikruta Varna* is also mentioned as one of the *Arista Lakshana* (bad omen) explained by Acharya Charaka. [23] Hence, this *Shrikamya Rasayana* helps in the nourishment of *Rakta Dhatu*, and enhances the *Smriti* (memory), *Prabha*, and *Ojas*. *Rasayanas* which acts on various aspects of skin complexion, are mentioned (Table 1).

**Table 1: Rasayanas and its action on complexion**

<i>Rasayana yogas</i>	Action on complexion
<i>Chyavana Prasha</i> [24] & <i>Aindra Rasayana</i> [25]	<i>Varna prasadam</i> (enhances colour)
<i>Amalaka Ghrita</i> [26]	<i>Mahat varna visuddhi</i> (excellent complexion)
<i>Indrokta Rasayana</i> [27]	<i>Varna prasadanam</i> (enhances colour)
<i>Brahmasauvarchala Rasayana</i> [28]	<i>Devatanukari varna, prabha</i> (colour and radiance like god)
<i>Brahma Rasayana</i> [29]	<i>Chandra aditya sama dyuti</i> (splendor like that of moon and sun)
<i>Medhya Rasayana</i> [30]	<i>Varna vardhanani</i> (enhances colour)
<i>Brahmi Ghrita</i> [31]	<i>Pushkara varna</i> (Lotus colour)

#### 4. DISCUSSION

The term *Rasayana* denotes the path for obtaining good quality of *Rasa Dhatu*. Sushruta Acharya has described seven layers of skin out of which the outermost *Avabhasini* that reflects the complexion and quality of the *Rasa Dhatu*. *Rasayana* helps in attaining good *Prabha* and *Varna*. [32] Extrinsic factors which cause skin damage induce the process of free radical generation and oxidative stress. These damage the cellular components leading to various skin pathologies. Skin aging occurs due to an imbalance between free

radical generation and antioxidant production. Antioxidant enzymes such as, vitamin C, superoxide dismutase, catalase, and glutathione peroxidase, vitamin E, carotenes, flavonoids, uric acid, taurine and, glutathione carry out the process of neutralization of free radical production. [33] Uneven pigmentation, reduced skin tone various dark patches, wrinkles, altered connective tissue organization, increased skin width and laxity are the specific symptoms of photo aging.

Methods by which skin-lightening agents generally act include inhibition of tyrosinase and Mitf (microphthalmia-associated transcription factor), downregulation of MC1R (Melanocortin receptor 1, which is a Gs-protein-coupled receptor) activity, interference with maturation and loss of melanocyte (exfoliation). [34] Multiple vitamins such as A, B, C, E and antioxidants also play a chief role in skin brightening. [35] Vitamin A is helpful in the management of melasma. [36] Vitamin B3 is a well-known antioxidant that helps in skin lightening by interfering with melanosomal transfer from melanocytes to keratinocytes. Depigmentation is provided by Vitamin B5 by interfering with the glycosylation of tyrosinase. [37] Vitamin C is a skin-lightening tyrosinase inhibitor that deactivates UV-induced free radicals. Vitamin E provides a guarding effect against UV-induced hyperpigmentation. A thorough literary search revealed that most of the *Rasayana*, which helps in improving *Shri* (complexion), contains *Shatavari*, *Amalaki*, *Pippali*, *Aswagandha*, *Bala*, *Brahmi*, *Vacha*, *Chandana*, *Shankhpushpi*, *Yashtimadhu*, and *Guduchi*.

*Shatavari* (*Asparagus racemosus*) consists of a group of steroidal saponins, vitamins A, B<sub>1</sub>, B<sub>2</sub>, C, E, and essential elements like Mg, P, Ca, Fe, and folic acid. This plant extract has an antioxidant property by attenuating free radical-induced oxidative damage. [38] The skin protective ability of *Amalaki* (*E. officinalis*) is evident by its property of enhancing the fibroblast proliferation and photo-protective effect against cytotoxicity produced by UVB. [39] Compounds like methyl gallate, ellagic acid,

gallic acid, tannins, corilagin, furosin, and geraniin isolated from ethyl acetate extract of *Amalaki* have nitric oxide scavenging potency. [40] Increased hyaluronic acid content in *Amalaki* is highly beneficial for prevention of premature skin aging, i.e., wrinkle formation. [41] Studies have shown that this drug inhibits mRNA expressions of tyrosinase and its associated proteins, thereby acting as a skin brightening agent. [42] *Pippali* (*Piper longum*) exhibits stronger depigmenting effects by inhibiting melanin production in melanoma B16 cells stimulated with alpha-melanocyte-stimulating hormone, 3-isobutyl-1-methylxanthine. [43] Considering the role of *Ashwagandha* (*Withania somnifera*), Withaferin A and 3-b-hydroxy-2,3-dihydrowithanolide have promising immunomodulating and anti-inflammatory properties. [44] Latest studies have shown that  $\alpha$ -santalol, the major component of the *Chandana* (*Santalum album*) and Glycyrrhizic acid presents in *Yashtimadhu* (*Glycyrrhiza glabra*) is also a potent inhibitor of tyrosinase. [45],[46]

Skin aging is attributed by its decrease in Type I collagen level. *Brahmi* contains triterpenoid and asiaticoside compounds that help the body naturally produce collagen proteins and have a potent anti-ageing effect. [47] This is mainly done by the activation of the TbetaRI kinase-independent Smad pathway. Stress is one of the major factors which accelerate the process of ageing. Drugs like *Vacha* contains  $\alpha$  and  $\beta$ -asarone are highly active in antioxidant [48] and the presence of phytoconstituents like convolamine and scopoletin in *shankhpushpi* (*Convolvulus pluricaulis*) act similarly to

GABA-A agonists [49] brings down the effects of stress induced ageing. *Convolvulus pluricaulis* herb also nourishes all the layers of skin and helps in enhancing beauty. [50] Studies have also proved the radioprotective action of *Guduchi (Tinospora cordifolia)* degradation by inhibiting the formation of (Fe<sup>2+</sup>)-bipyridyl complex. [51] This helps in preventing the extrinsic factor induced skin damage. Clinical trials have even evaluated the acne control ability of drugs such as *Shatavari* [52] *Amalaki* [53] and *Chandana* [54] *Varnya mahakashaya* explained by *Acharya Charka* also have beneficial role in enhancing skin complexion when used externally or internally. Majority of dravyas in *Varnya Mahakashaya* are *madhura tikta rasatmaka, kapha pitta shamaka*. Therefore, shows *varnya* effect. All these multimodal action of ayurvedic drugs explain the role of *Shrikamya Rasayana* in enhancing skin health.

## 5. CONCLUSION

The potential role of *Shrikamya Rasayana* in improving the skin complexion and its ability to prevent various skin related disorders are highlighted in this article. Capacity of free radical scavenging, collagen synthesis, tyrosinase inhibition and melanin inhibition are present in most of the drugs mentioned in *Shrikamya Rasayana*. Scales such as Fitzpatrick Skin Photo type, Luschan's chromatic and CLBT scale can be used for standardized Ayurvedic assessment of *Chaya, Varna* and *Prabha*. *Shrikamya rasayana* is a prime area in ayurvedic cosmetology which should be explored more and can be the best option for all skin-related disorders.

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### REFERENCES:

1. Domzal T J, Kernan J B. Variations on the pursuit of beauty: Toward a corporal theory of the body. Psychology and Marketing. 1993 Nov;10(6): 495-511. Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1002/mar.4220100604>
2. Humphrey S, Manson Brown S, Cross S. J, Mehta R. Defining Skin Quality: Clinical Relevance, Terminology, and Assessment. Dermatologic surgery. 2021 Jun;47(7): 974–981. Available from: [https://journals.lww.com/dermatologicsurgery/fulltext/2021/07000/defining\\_skin\\_quality\\_clinical\\_relevance.20.aspx](https://journals.lww.com/dermatologicsurgery/fulltext/2021/07000/defining_skin_quality_clinical_relevance.20.aspx)
3. Bolke L, Schlippe G, Ger J, Voss W. A Collagen Supplement Improves Skin Hydration, Elasticity, Roughness, and Density: Results of a Randomized, Placebo-Controlled, Blind Study.

- Nutrients. 2019 Oct 17;11(10):2494. Available from: <https://pubmed.ncbi.nlm.nih.gov/31627309/>
4. Blume-Peytavi U, Kottner J, Sterry W, Hodin M.W, Griffiths T.W, Watson R.E,et al. Age-Associated Skin Conditions and Diseases: Current Perspectives and Future Options. *Gerontology* 2016;56: 230–242
  5. Bater KL, Ishii LE, Papel ID, Kontis TC, Byrne PJ, Boahene KDO et al. Association Between Facial Rejuvenation and Observer Ratings of Youth, Attractiveness, Success, and Health. *JAMA Facial Plast Surg* 2017;19: 360-367
  6. Yadavji Trikamji Acharya (editor). *Sushruta Samhita* by Sushruta, Chikitsasthana, chapter 27, verse no.3. 2nd edition Varanasi; Chowkhambha Sanskrit Sansthan;2010;460
  7. Tewari P V (editor). *Kashyapa -Samhita or Vrudhhajivika Tantra of Kashyapa, Sutra Sthana*, chapter 27, verse no.17. 1st edition, Varanasi; Chowkhambha Vishwabharati; 1996;67
  8. RK Sharma, Vaidya Bhagawan Dash (editor). *Charaka Samhita of Agnivesha ,Indriya Sthana*, chapter 1 , verse no.8. 1st edition, Varanasi: Choukhamabha Sanskrit Sansthan;2001;522
  9. Hajizadeh-Saffar M, Feather JW, Dawson JB. An investigation of factors affecting the accuracy of in vivo measurements of skin pigments by reflectance spectrophotometry. *Phys Med Biol.* 1990 Sep;35(9):1301-15. Available from: <https://pubmed.ncbi.nlm.nih.gov/2236210/>
  10. Treesirichod A, Chansakulporn S, Wattanapan P. Correlation between skin color evaluation by skin color scale chart and narrowband reflectance spectrophotometer. *Indian J Dermatol.* 2014 Jul;59(4):339-42. Available from: <https://pubmed.ncbi.nlm.nih.gov/25071249/>
  11. Musnier C, Piquemal P, Beau P, Pittet JC. Visual evaluation in vivo of 'complexion radiance' using the C.L.B.T. sensory methodology. *Skin Res Technol.* 2004 Feb;10(1):50-6 Available from: <https://pubmed.ncbi.nlm.nih.gov/14731249/>
  12. Fitzpatrick TB. The validity and practicality of sun-reactive skin types I through VI. *Arch Dermatol.* 1988 Jun;124(6):869-71. Available from: <https://pubmed.ncbi.nlm.nih.gov/3377516/>
  13. Swiatoniowski AK, Quillen EE, Shriver MD, Jablonski NG. Technical note: comparing von Luschan skin color tiles and modern spectrophotometry for measuring human skin pigmentation. *Am J Phys Anthropol.* 2013 Jun;151(2):325-30. Available from: <https://pubmed.ncbi.nlm.nih.gov/23633083/>
  14. Musnier C, Piquemal P, Beau P, Pittet JC. Visual evaluation in vivo of 'complexion radiance' using the C.L.B.T. sensory methodology. *Skin Res Technol.* 2004 Feb;10(1):50-6. Available from: <https://pubmed.ncbi.nlm.nih.gov/14731249/>
  15. Bolognia JL, Braverman IM, Rousseau ME, Sarrel PM. Skin changes in menopause. *Maturitas.* 1989 Dec;11(4):295-304. Available from: <https://pubmed.ncbi.nlm.nih.gov/2693917/>
  16. Castelo-Branco C, Duran M, Gonzalez-Merlo J. Skin collagen changes related to age and hormone replacement therapy. *Maturitas.* 1992 Oct;15(2):113-9. Available from: <https://pubmed.ncbi.nlm.nih.gov/1345134/>
  17. Lovell CR, Smolenski KA, Duance VC, Light ND, Young S, Dyson M. Type I and III collagen content and fibre distribution in normal human skin during ageing. *Br J Dermatol.* 1987 Oct;117(4):419-28. Available from: <https://pubmed.ncbi.nlm.nih.gov/3676091/>
  18. Bergfeld WF. The aging skin. *Int J Fertil Womens Med.* 1997 Mar-Apr;42(2):57-66. Available from: <https://pubmed.ncbi.nlm.nih.gov/9160214/>
  19. Zhang S, Duan E. Fighting against Skin Aging: The Way from Bench to Bedside. *Cell Transplant.* 2018 May;27(5):729-738. Available from: <https://pubmed.ncbi.nlm.nih.gov/29692196/>
  20. Kamath N. Doshic Physiology of Skin. *JAHM.* 2021 Feb;1(1):98. Available from: <https://jahm.co.in/index.php/jahm/article/view/98>
  21. Nagari N D. An outlook of varna and varnya (complexion promoters) in ayurveda. *JAHM.* 2021 Apr.11;3(5):85. Available from: <https://jahm.co.in/index.php/jahm/article/view/85>
  22. K.R. Srikantha Murthy (editor). *Sushruta Samhita* by Sushruta, Chikitsa sthana, chapter4, verse no.40. 2nd edition, Varanasi; Chowkhambha Sanskrit Sansthan;2005;65
  23. RK Sharma, Vaidya Bhagawan Dash (editor). *Charaka Samhita of Agnivesha, Indriya Sthana*, Chapter 8 , Verse no.12. 1st edition,Varanasi: Choukhamabha Sanskrit Samsthana;2001;37
  24. RK Sharma, Vaidya Bhagawan Dash (editor). *Charaka Samhita of Agnivesha, Chikitsa Sthana*, Chapter 1, Pradhama pada,

- Abhayamalakeeya rasayanapada, Verse no.62. 1st edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;20
25. RK Sharma, Vaidya Bhagawan Dash (editor). Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1, Tritheeya pada, Karaprachitheeyam rasayanapada, Verse no.24. 1st edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;45
26. RK Sharma, Vaidya Bhagawan Dash (editor).Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1,Dvitheeya pada ,Pranakameeyam rasayanapada,Verse no.5. 1st edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;29
27. RK Sharma, Vaidya Bhagawan Dash (editor).Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1,Chaturtha pada ,Ayurvedasamuthaneeyam, Verse no.6. 1st edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;57
28. RK Sharma, Vaidya Bhagawan Dash (editor).Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1,Chaturtha pada ,Ayurvedasamuthaneeyam, Verse no.7. 1st edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;58
29. RK Sharma, Vaidya Bhagawan Dash (editor).Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1,Pradhama pada ,Abhayamalakeeya rasayanapada,Verse no.59. 1s edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;18
30. RK Sharma, Vaidya Bhagawan Dash (editor).Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1,Tritheeya pada ,Karaprachitheeyam rasayanapada,Verse no.24. 1st edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;46
31. K.R.Srikantha Murthy (Editor); Sushruta Samhita by Sushruta, Chikitsa sthana,Chapter28,verse no.6. 2nd edition, Varanasi; Chowkhambha Sanskrit Sansthan;2005;264
32. RK Sharma, Vaidya Bhagawan Dash (editor).Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1,Pradhama pada ,Abhayamalakeeya rasayanapada,Verse no.62. 1st edition, Varanasi; Chowkhambha Sanskrit Sansthan;2001;7
33. Kuchewar VV, Borkar MA, Nisargandha MA. Evaluation of antioxidant potential of Rasayana drugs in healthy human volunteers. Ayu. 2014 Jan;35(1):46-9.Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC4213967/>
34. Kunchana K, Jarisarapurin W, Chularojmontri L, Wattanapitayakul SK. Potential Use of Amla (Phyllanthus emblica L.) Fruit Extract to Protect Skin Keratinocytes from Inflammation and Apoptosis after UVB Irradiation. Antioxidants (Basel) 2021;10:703
35. Parvez S, Kang M, Chung HS, Cho C, Hong MC, Shin MK, Bae H. Survey and mechanism of skin depigmenting and lightening agents. Phytother Res. 2006 Nov;20(11):921-34. Available from: <https://pubmed.ncbi.nlm.nih.gov/16841367/>
36. Kamakshi R. Fairness via formulations: a review of cosmetic skin-lightening ingredients. J Cosmet Sci. 2012 Jan-Feb;63(1):43-54. Available from: <https://pubmed.ncbi.nlm.nih.gov/22487451/>
37. Sharma K, Joshi N, Goyal C. Critical review of Ayurvedic Varnya herbs and their tyrosinase inhibition effect. Anc Sci Life. 2015 Jul-Sep;35(1):18-25. Available from: <https://pubmed.ncbi.nlm.nih.gov/26600663/>
38. Negi JS, Singh P, Joshi GP, Rawat MS, Bisht VK. Chemical constituents of Asparagus. Pharmacogn Rev. 2010 Jul;4(8):215-20. Available from: <https://pubmed.ncbi.nlm.nih.gov/22228964/>
39. Adil MD, Kaiser P, Satti NK, Zargar AM, Vishwakarma RA, Tasduq SA. Effect of Emblica officinalis (fruit) against UVB-induced photo-aging in human skin fibroblasts. J Ethnopharmacol. 2010 Oct 28;132(1):109-14. Available from: <https://pubmed.ncbi.nlm.nih.gov/20688142/>
40. Middha SK, Goyal AK, Lokesh P, Yardi V, Mojamdar L, Keni DS, et al.Toxicological Evaluation of Emblica officinalis Fruit Extract and its Anti-inflammatory and Free Radical Scavenging Properties. Pharmacogn Mag. 2015 Oct;11(3):27-33
41. Kumaran A, Karunakaran RJ. Nitric oxide radical scavenging active components from Phyllanthus emblica L. Plant Foods Hum Nutr. 2006 Mar;61(1):1-5. Available from: <https://pubmed.ncbi.nlm.nih.gov/16688481/>
42. Sripanidkulchai B, Junlatat J. Bioactivities of alcohol based extracts of Phyllanthus emblica branches: antioxidation, antimelanogenesis and anti-inflammation. J Nat Med. 2014 Jul;68(3):615-22. Available from: <https://pubmed.ncbi.nlm.nih.gov/24557876/>
43. KS Kim, JA Kim, SY Eom, SH Lee, KR Min, Y Kim. Inhibitory effect of piperlonguminine on melanin production in melanoma B16

- cell line by downregulation of tyrosinase expression. Pigment Cell. Res 2006 Feb;19(1):90-98. Available online: <https://research.knu.ac.kr/en/publications/inhibitory-effect-of-piperlonguminine-on-melanin-production-in-me>
44. M. Rasool, P. Varalakshmi, Immunomodulatory role of *Withania somnifera* root powder on experimental induced inflammation: An in vivo and in vitro study, *Vascular Pharmacology*. 2006 Jun;44(6):406-410. Available online: <https://doi.org/10.1016/j.vph.2006.01.015>
45. Misra BB, Dey S. TLC-bioautographic evaluation of in vitro anti-tyrosinase and anti-cholinesterase potentials of sandalwood oil. *Nat Prod Commun*. 2013 Feb;8(2):253-6. Available online: <https://pubmed.ncbi.nlm.nih.gov/23513742/>
46. Sharma K, Joshi N, Goyal C. Critical review of Ayurvedic Varnya herbs and their tyrosinase inhibition effect. *Anc Sci Life*. 2015 Jul-Sep;35(1):18-25. Available from: <https://doi.org/10.4103/0257-7941.165627>
47. Lee J, Jung E, Kim Y, Park J, Hong S, Kim J et al. Asiaticoside induces human collagen I synthesis through TGF beta receptor I kinase (T beta RI kinase)- independent Smad signalling. *Planta Med* 2006; 72: 324-8
48. Sharma V, Sharma R, Gautam DS, Kuca K, Nepovimova E, Martins N. Role of *Vacha* (*Acorus calamus* Linn.) in Neurological and Metabolic Disorders: Evidence from Ethnopharmacology, Phytochemistry, Pharmacology and Clinical Study. *J Clin Med*. 2020 Apr 19;9(4):1176. Available from <https://doi.org/10.3390/jcm9041176>
49. Mittal M, Siddiqui MR, Tran K, Reddy SP, Malik AB. Reactive oxygen species in inflammation and tissue injury. *Antioxid Redox Signal*. 2014 Mar 1;20(7):1126-67. Available from: <https://doi.org/10.1089/ars.2012.5149>
50. Debjit Bhowmik, K.P.Sampath Kumar, Shravan Paswan, Shweta Srivatava, Akhilesh pd. Yadav et al.. Traditional Indian Herbs *Convolvulus Pluricaulis* and Its Medicinal Importance. *J Pharmacogn Phytochem* 2012;1:44-51
51. Goel, H. C., Prem Kumar, I., & Rana, S. V. (2002). Free radical scavenging and metal chelation by *Tinospora cordifolia*, a possible role in radioprotection. *Indian journal of experimental biology*, 40(6), 727–734. Available from: <https://pubmed.ncbi.nlm.nih.gov/12587720/>
52. Lalla JK, Nandedkar SY, Paranjape MH, Talreja NB. Clinical trials of ayurvedic formulations in the treatment of acne vulgaris. *J Ethnopharmacol*. 2001 Nov;78(1):99-102. Available from: [https://doi.org/10.1016/s0378-8741\(01\)00323-3](https://doi.org/10.1016/s0378-8741(01)00323-3)
53. G. Patel , R. Sorake , N. Pai. A Randomized Single Blind Placebo Controlled Clinical Study To Evaluate Efficacy Of *Amalaki* (*Emblica Officinalis*) Extract Capsule On Acne Vulgaris Along With Its Anti-Oxidant Property. *International Journal Of Pharmaceutical Sciences And Research* 2021 Jul;12(7): 3832-3838. Available online: [http://dx.doi.org/10.13040/IJPSR.0975-8232.12\(7\).3832-38](http://dx.doi.org/10.13040/IJPSR.0975-8232.12(7).3832-38)
54. Moy, R. L., & Levenson, C. (2017). Sandalwood Album Oil as a Botanical Therapeutic in Dermatology. *The Journal of clinical and aesthetic dermatology*, 10(10), 34–39. Available online: <https://pmc.ncbi.nlm.nih.gov/articles/PMC5749697/>