

## SIDDHA IN LEUCODERMA- A REVIEW

Dr. Rajini Srikajan<sup>1\*</sup> and Dr. Essakky Pandian<sup>2</sup><sup>1</sup>\*PG Scholar, <sup>2</sup>Reader.Article Received on  
22 March 2023,Revised on 12 April 2023,  
Accepted on 02 May 2023

DOI: 10.20959/wjpr20239-28086

\*Corresponding Author

Dr. Rajini Srikajan

PG Scholar.

## ABSTRACT

Leucoderma is a condition in which the skin pigment melanin is lost from areas of otherwise normal skin. The cause of the acquired hypomelanosis is unknown but it is often familial. The histology of the vitiliginous skin is normal except that there are no functional melanocytes. Absence of pigment in the epidermis results in pure white patches of skin that are susceptible to sunburn. Because there are no other symptoms the condition could be considered harmless, except for the psychological effects resulting from

disfigurement. The triggers, which range from sunburn to mechanical trauma and chemical exposures, ultimately cause an autoimmune response that targets melanocytes, driving progressive skin depigmentation. Hence it is high time to unearth the hidden treasures of traditional medicaments by subjecting them to rigorous stipulated scientific tests, in order to prove their efficacy and excellency in eliminating the illness of human beings. Several great civilizations have thought to conquer disease and death and diverse systems of medicine have evolved in different countries at different times.<sup>[1][2][3]</sup> One among such system is Siddha presently practised predominantly in South India. In Siddha the terminology of Leucoderma is as Venkuttam.

**KEYWORDS:** *Leukoderma, acquired hypomelanosis, melanin, Venkuttam, vitiliginous, Siddha.*

## INTRODUCTION

Vitiligo is an acquired depigmentary disorder of the skin that results from the selective destruction of melanocytes, generally during the second decade of life and affecting approximately 1% of the population worldwide.<sup>[1]</sup> Loss of cutaneous pigment appears to render the skin susceptible to premature aging and cancer. In addition this disease can be socially devastating for afflicted individuals. Generally, vitiligo initially develops on hands,

wrists, body folds, and orifices such as eyes, mouth and nose. The onset of vitiligo usually occurs from age 15 to 25, however it can present as early as infancy and as late as the sixth decade of life.<sup>[2][40,41]</sup>

#### Literature Evidence in Siddha

“Thadipagathavalaniram pol veluthu

Sarvangamum veluthaarandri uirumbum

Madipaga mayirveluthu asathiyamakum

Vari uthadu ullangai kutham kuyyam thaam

Nedipaga neruppu pattathupol punnai

Niramirunthal asathiyam endru uraikalagum

Vedipaga meniyellam velluthu veengill

Vensuvethakuttam endrevilampalamye”

-Yugi sinthamani-800.(pg:No:198)

#### Etiology

Pigment synthesized by the cutaneous melanocyte protects the individual from various environmental assaults and potential cellular injury that can cause cancer and aging of the skin.<sup>[34,35,36]</sup> Within the keratinocyte, melanin/melanosomes are preferentially localized over the nucleus.<sup>[37]</sup> In this position, melanin effectively absorbs ultraviolet light (UV) penetrating the skin and prevents consequential DNA damage. In addition, melanin is an effective scavenger of free radicals.<sup>[38,39]</sup> further protecting the metabolically active keratinocyte that is also under extensive environmental assaults. Lack of epidermal melanin increases susceptibility to skin cancers<sup>[34,35]</sup>, and is an indicator of aging skin.<sup>[38]</sup> In addition, loss of skin pigmentation can result in compromised cutaneous immunity.<sup>[41,42]</sup> as well as psychological and social problems of self-esteem and personal interactions.<sup>[2]</sup> The most significant progress in our understanding of disease etiology has been made on three fronts: (i) identifying cellular responses to stress, including antioxidant pathways and the unfolded protein response (UPR), as key players in disease onset, (ii) characterizing immune responses that target melanocytes and drive disease progression, and (iii) identifying major susceptibility genes.<sup>[1]</sup>

Some forms of vitiligo vulgaris are in fact chemical leucoderma caused by unidentified melanocytotoxic chemicals in the environment. Some persons with ‘idiopathic vitiligo’ may actually have an environmentally or occupationally induced leucoderma. Some cases of

idiopathic vitiligo may be due to unsuspected inhalation or ingestion of chemicals that produce contact leucoderma. Depigmentation in chemical leucoderma and contact vitiligo occurs from loss of melanocytes in the epidermis. The reported contributory chemicals in household objects are lip stick, mehendi (herbal hair color), amulet string color, eye liner, lip liner, deodorant, detergent, cleanser, perfume, perfumed oil, herbal oil, insecticide, pesticides, rubber sandal, black socks/shoe, hair dye, alta, adhesive bindi, wrist watch leather belt, tooth paste (gel, colored), rubber condom. Acquired vitiligo like depigmentation due to repetitive insults by chemicals. Apart from aromatic and aliphatic compounds of phenols and catechols, there are other culprits, such as *p*-phenylenediamine, cinnamic aldehyde, etc., which may induce leucoderma.<sup>[40]</sup> These chemicals are toxic to melanocyte in genetically susceptible individuals. The leucoderma is limited to the site of contact with these chemicals. In India, household objects are more prevalent than industrial chemicals to cause chemical leucoderma. The neem [*Azadirachta indica*] may uncommonly cause depigmentation.<sup>[31,32,33]</sup>

#### **In Siddha aspect:- “Vaathamalaathumenikedathu”-Theraiyar**

A. The intake of odd foods results in derangement in vaadha kutram which intern affects rasam and kuruthi (among seven constituents of the body) causes changes in the skin colour and other constituents of the body. eg: intake of non vegetarian food (fish), greens, radish with milk.

B. This is followed by derangement in piththa and kabha kutram, in which the kabha kutram increases from its normalcy and worsens the condition. Due to intake of junk foods and certain unfavourable environmental conditions, the metabolism of the body is affected. It results in accumulation of toxic fluids which causes *venkuttam*.<sup>[12]</sup>

#### **Therapeutic Effect**

Therapeutic options available for stabilizing and repigmenting vitiligo have been modestly expanded in recent years, although only depigmentation therapy using monobenzone is approved by the FDA. Depigmentation therapy is reserved for the treatment of remaining normal skin in those with extensive vitiligo affecting the majority of one's body. Traditional therapies for repigmentation, including topical agents and phototherapy, remain mainstays of current treatment. Topical treatments include corticosteroids, calcineurin inhibitors, and vitamin D analogues.<sup>[26]</sup>

Siddha, translated as the science of life in Tamil, is deep rooted in South Asian history and culture. In India, detailed reports on different dermatologic treatments are outlined in Siddha

Literatures. Causes of various dermatoses include dietary practice, daily activities, climatic conditions, or sexual activity. Siddha medicine has referred to the explanation of skin diseases with pathogenesis, etiology, clinical features, and effective treatment. Some skin diseases, including leucoderma, maybe triggered by inconsistency within several doshas. Hence some advisory measures are mentioned in the Siddha literatures such as a) Non-veg food should not be taken with milk ever. b) Timely breakfast, lunch and dinner is a good habit and also good for immunity. c) Taking sour food items with milk is a bad idea and should be avoided. d) Proper washing of vegetables. e) Lifestyle changes like practicing yoga. f) Prolonged hours of sun exposure should be avoided. Etc.

Some of the herbal drugs against the leucoderma in Siddha.

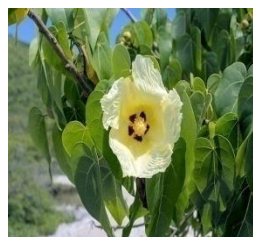
<b>Tamil Name of the Drug</b>	<b>Botanical Name of the Drug</b>	<b>Method of usage mentioned in Siddha literatures</b>
Kaattu Jeeragam	Vernonia Anthelmintica	Add this seed powder with pepper powder or sesame powder and intake 4gm with hot water at morning.
Kaattumalli	Jasminum augustifolium	Paste of the leaves can apply externally.
Poovarasu	Thespesia populnea	The oil prepared from the thick paste of the leaves of this plant and sesame oil namely can apply externally. And the dregs after preparing the oil can take internally.
Aayil	Chukrasia Tabularis	Swallow the juice extracted from the crushed bark can by followed by gargling for the condition of Leucoderma affected in the lips.
Aal	Ficus Benghalensis	Preparation with latex of this plant with Arukampattai can take 48 days treatments
Kandakathiri	Solanum surattense	Oil made by the fruit of this plant can apply externally on the affected area.
Karkadaka singi	Rhus succidanea	Grinded paste with rice water can apply externally on the affected area.
Kiiti kizhangu	Acalypha Fruticosa	On of the type of Kitti kizhangu namely Namely Kiiti kizhangu can take as food regimen. It can also take as Karppa medicine (Rejuvenation therapy).
Kurattai	Trichosanthes tricuspedata	Oil prepared by the leaf of this plant can use on the Leucoderma condition. - Agasthyar Paripooranam
Serankottai	Semicarpus Anacardium	Oil prepared by the seed of this plant by the process of kuzhithylam can used externally
Tharaa	Fumaria parviflora	Take the decoction made by the dried leafs of this plant and Rose petals
Senkondrai	Cassia marginata	Paste of the bark of this plant can apply externally, and the decoction made by the bark with water can intake as medicine.
Nilappanai	Curculigo orchoides	Mixture of the dried powder of this tuberous fruit of this plant and jiggery can take internally with milk.



Vernonia Anthelmintica



Jasminum augustifolium



Thespesia populnea



Chukrasia Tabularis



Ficus Benghalensis



Solanum surattense



Rhus succidanea



Acalypha Fruticosa



Trichosanthes tricuspedata



Semicarpus Anacardium



Fumaria parviflora



Cassia marginata



Curculigo orchioides

Jasminum augustifolium - The preliminary phytochemical analysis of the aqueous extract of Jasminum officinale leaves indicated the presence of alkaloids, coumarins, flavonoids, tannins, terpenoids, glycosides, emodine, leucoanthcyanins, steroids, anthocyanins, phlobatinins, essential oil and saponins.<sup>[15, 22-25]</sup>

Vernonia Anthelmintica - Phytochemical studies have revealed that *V. anthelmintica* contains fatty acids, steroids, flavonoids, sesquiterpene lactones, carbohydrates, and terpenes. *V. anthelmintica* have revealed the presence of 193 chemical constituents, including phenolic acids



11, chalcones 6, flavonoids 33, terpenes 42, fatty acids 33, steroids 48 and miscellaneous 20 compounds.<sup>[9]</sup>

*Thespesia populne* - The preliminary phytochemical analysis shows Alkaloids, Carbohydrates, Glycosides, Phytosterols, Tannins, Phenols, Proteins, Amino Acids, Gums, Mucilage, Flavanoids, Terpenes, Volatile Oils.<sup>[19,20]</sup>

*Chukrasia Tabularis* - Successive petroleum ether, benzene, chloroform, ethyl acetate and methanol extracts of *Chukrasia tabularis* leaves were tested for their phytochemical constituents, antibacterial and antifungal activity. The ethyl acetate and methanol extracts were found to be most effective against most of the tested organisms.<sup>[18]</sup>

*Ficus Benghalensis* - *Ficus* species is one of the largest genera of the plant kingdom, with promising phytoconstituents from various classes of compounds, including phenols, flavonoids, sterols, alkaloids, tannins, saponin, terpenoids, etc.<sup>[30]</sup>

Roots of *S. surattense* are reported to possess Alkaloids, Flavonoids, Triterpenoids, Tannins, Saponins, Glycosides, and steroids (Ghildiyal and Joshi, 2014; Sahle and Okbatinsae, 2017)  
Roots of *S. surattense* are reported to possess Alkaloids, Flavonoids, Triterpenoids, Tannins, Saponins, Glycosides, and steroids (Ghildiyal and Joshi, 2014; Sahle and Okbatinsae, 2017)

*Solanum surattense* – the bark, leaves, root and fruit extensively used in traditional medicine due to presence of several physical constituents like alkaloids, terpenoids, saponins, steroids and flavonoids.<sup>[28]</sup>

*Rhus succidanea* - *Rhus* species are rich in secondary metabolites such as flavonoids, urushiols, and terpenoids.<sup>[27]</sup>

*Acalypha Fruticosa* - *A. fruticosa* indicated the presence of triterpenoids, steroids, tannins, saponins, flavonoids, alkaloids, anthraquinones and sugars. 1, 2-Benzenedicarboxylic acid diisooctyl ester, *n*-Hexadecanoic acid, 9, 12-octadecadienoic acid [z, z],  $\alpha$ -d-glucopyranoside and eicosyltrichlorosilane were identified by Gas Chromatography-Mass spectrometry [GC–MS] analysis of the plant extracts.<sup>[8,17,29]</sup>

*Trichosanthes tricuspedata* - The leaf of *Trichosanthes tricuspidata* contains cyclotrichosantol and cycloeucalenol, cycloartane glycosides named cyclotricuspidosides A, B and C.<sup>[16]</sup>

*Semicarpus Anacardium* - The most significant components of the *S. anacardium* Linn. are bhillwanols, phenolic compounds, biflavonoids, sterols and glycosides.<sup>[7]</sup>

*Fumaria parviflora* - Phytochemical studies on *Fumaria* species have revealed their chemical components, including alkaloids, flavonoids, saponins, steroids, triterpenoids, anthraquinones, tannins, glycosides, and amino acids. As a member of the Papaveraceae family, which is famous for abundant and unique alkaloids, the genus *Fumaria* possesses a variety of alkaloids mainly consisting of benzyloquinolines.<sup>[6]</sup>

*Cassia marginata* - Phytochemical studies on *Fumaria* species have revealed their components, including Anthroquinones, flavonoids, flavon-3-ol derivatives.<sup>[15,5]</sup>

*Curculigo orchioides* - most significant components of *Curculigo orchioides* are Glycosides, polysaccharides, calciumoxalate, yuccagenin.<sup>[14]</sup>

## DISCUSSION

Traditionally, plant based terpenoids that have been used by humans in the food, pharmaceutical, and chemical industries are more recently have been exploited in the development of biofuel products. Several studies including in vitro, preclinical and clinical have confirmed that this class of compounds displays a wide array of very important pharmacological properties. In this paper, we have made a literature review on Venpadai (*Leucoderma*), role of terpenoids on Venpadai Phytochemical analysis of Siddha drugs especially for the presence of terpenoids.<sup>[21]</sup> The dietary terpenoids which activate PPARs, which may be valuable for the control of carbohydrate and lipid disorders. Medicinal properties of terpenoids need to be extensively evaluated for their Anti-Cancerous, Anti inflammatory, Anti-hyperglycemic, Anti- tumour and Neuropsychological disorders. The phytochemical composition of each drugs depends both on the geographical (geomorphologic, altitude, latitude, type of relief), climatic conditions (temperature, rainfall, humidity), the type of soil of the locality where the plants are collected The quantitative study of components may reveals more or less variable proportions from one sampling site to the other, with high levels of total polyphenols, total flavonoids and tannins. If the variation is

present in the determination of polyphenols, flavonoids and tannins, it can be explained by the fact that the content of phenolic compounds is influenced by different parameters such as geographical, and climatic conditions of the locality where the leaves are collected.<sup>[4][13]</sup>

Phytochemical analysis: The alkaloids can highlighted by the reagents of Mayer, Dragendorff, and by the Reagent of Wagner, the catechic and gallic tannins by ferric chloride<sup>[42]</sup>, terpenes and sterols by the reaction of Liebermann, saponins were determined based on their foam-forming abilities, mucilage by the addition of absolute ethanol<sup>[42]</sup>, coumarins by the addition of a few ml of NaOH, polyphenolic substances by FeCl<sub>3</sub>, and the revelation of flavonoids by the reaction with cyanidine.<sup>[4]</sup>

Siddha Papers 2019 (14) (1) Prithiga et al, tumour and Neuropsychological disorders.

## CONCLUSION

Traditional knowledge is a particular form of practice or skill set that was developed in ancient times and was sustained through generations via the passing of knowledge, essentially confined within a specific tribe, local people, or family lineages. Ethnodermatological use of medicinal plants in India is still a subject to conduct more studies to see if there is chemical, microbiological, and/or clinical evidence, from a scientific perspective, of their effectiveness for those skin disorders. Various plant parts are used to treat leucoderma conditions in India: rhizomes, root, stem, flowers, fruit, bark, seed, seed oil, buds, latex, and whole plant parts. Preparation methods and administration differ significantly. This review presents an addition to the existing knowledge of home remedies that are in current practice for the treatment of leucoderma. Most traditional medicines were prepared using water as a medium. The method of administration was topical and confined to the affected body part but also orally. Analysis of how to use herbal preparations orally in disease like leucoderma, indicate that healers are perfectly familiar with the systemic course.<sup>[11]</sup>

The siddha system of medicine is very vibrant, scientific, time tested. The medicines of siddha system are holistic in means they could prevent the disease, promote health and cure diseases. Siddha drugs not just work at the symptoms but also with the root of the diseases Tridosha(Vadha, Pitha, Kabha), Aaruaadharas (Six chakras of the body), aanmaudal (Soul). Siddha is the most sacred science of life, beneficial to humans both in this world and the world beyond. If the world passionately and prudently follows Siddha, the people can not



only live “disease free life” but also can possibly attain eternity and salutation. “Disease free life” but also can possibly attain eternity and salutation.<sup>[10][21]</sup>

## REFERENCES

1. Recent advances in understanding vitiligo [PubMed]
2. On the etiology of contact/occupational vitiligo [PubMed]
3. Chemical Leucoderma of Oral and Labial Mucosal Surfaces from Neem [*Azadirachta indica*]. A Case Series [PubMed]
4. Phytochemical screening, polyphenols, flavonoids and tannin content, antioxidant activities and FTIR characterization of *Marrubium vulgare* L. from 2 different localities of Northeast of Morocco [PubMed]
5. The genus *Cassia* L.: Ethnopharmacological and phytochemical overview [PubMed]
6. Diverse alkaloids and biological activities of *Fumaria* (Papaveraceae): An ethnomedicinal group [PubMed]
7. *Semecarpus anacardium* Linn.: A review [PubMed]
8. Medicinal plants from the genus *Acalypha* (Euphorbiaceae)--a review of their ethnopharmacology and phytochemistry [PubMed]
9. *Vernonia anthelmintica* (L.) Willd.: An ethnomedicinal, phytochemical, pharmacological and toxicological review [PubMed]
10. A literature review on venkuttam (leucoderma) and reported herbs & minerals for its treatment in siddha medicine – [World Journal of Pharmacy and Pharmaceutical Sciences]
11. Ethnodermatological use of medicinal plants in India: From ayurvedic formulations to clinical perspectives – A review.
12. A Review of Biological Activities and Phytochemistry of *Rhus* Species.
13. Phytochemical Analysis of selected Anti-Leucoderma Siddha Formulations with special reference to terpenoids.
14. Phytochemical profile and bioactivity of traditional ayurvedic decoctions and hydro-alcoholic macerations of *Boerhaavia diffusa* L. and *Curculigo orchioides* Gaertn.
15. Chemical constituents from the seeds of *Cassia obtusifolia* and their in vitro  $\alpha$ -glucosidase inhibitory and antioxidant activities.
16. Ethnobotanical, phytochemical and pharmacological profile of *Trichosanthes tricuspidata*: An updated review.
17. Therapeutic potential of *Acalypha fruticosa*.

18. Phytochemical and antimicrobial study of *Chukrasia tabularis* leaves.
19. Phytochemical analysis in the root and leaf of *Thespesia populnea* (Linn) Soland ex correa.
20. Phytochemical, Pharmacological and Phytopharmaceutics Aspects of *Thespesia populnea* (linn.) Soland. : A Review.
21. Phytochemical Analysis of selected Anti-Leucoderma Siddha Formulations with special reference to terpenoids [Siddha papers].
22. PHARMACOLOGY AND MEDICINAL PROPERTIES OF JASMINUM OFFICINALE- A REVIEW- Indo American Journal of Pharmaceuticals Sciences.
23. Plants Used in the Treatement of Leucoderma by the Tribals of Yerramalai Forest of Kurnool District, Andhra Pradesh, India - The Journal of Ethnobiology and Traditional Medicine.
24. Effect of chemical exposure in induction and evolution of vitiligo: Correlation between duration of exposure and disease, site of exposure and onset, and impact upon avoidance.
25. Chemical Leucoderma of Oral and Labial Mucosal Surfaces from Neem [*Azadirachta indica*]. A Case Series.
26. Tribal treatment of Leucoderma by Kol tribes of Vindyan region of Uttar Pradesh.
27. A Review of Biological Activities and Phytochemistry of *Rhus* Species.
28. Phytochemical and pharmacological activities of *Solanum surattense* Burm. F- A Review
29. Bioactivity and chemical characterization of *Acalypha fruticosa* Forssk. growing in Saudi Arabia.
30. Phytochemistry, Pharmacological Properties and Recent Application of *Ficus Benghalensis* and *Ficus religiosa*.
31. Stoll HL Jr. Squamous cell carcinoma. In: TB Fitzpatrick, AZ Eisen, K Wolff, IM Freedberg, KF Austen, eds. *Dermatology in General Medicine*. New York: McGraw-Hill
32. Van Scott EJ. Basal cell carcinoma. In: TB Fitzpatrick, AZ Eisen, K Wolff, IM Freedberg, KF Austen, eds. *Dermatology in General Medicine*. New York: McGraw-Hill.
33. Gilchrest BA. Skin aging and photoaging: an overview. *J Am Acad Dermatol*.
34. Boissy RE. Melanosome transfer to and translocation in the keratinocyte. *Exp Derm*.
35. Mason HS, Ingram DJE, Allen B. The free radical property of melanin. *Arch Biochem Biophys*.
36. Sarna T. Properties and function of the ocular melanin – a photobiophysical view. *J Photochem Photobiol B*.

37. Gilchrest BA, Blog FB, Szabo G. Effects of aging and chronic sun exposure on melanocytes in human skin. *J Invest Dermatol*.
38. Uehara M, Miyauchi H, Tanaka S. Diminished contact sensitivity response in vitiliginous skin. *Arch Dermatol*.
39. Hatchome N, Aiba S, Kato T, Torinuki W, Tagami H. Possible functional impairment of Langerhans cells in vitiliginous skin: reduced ability to elicit dinitrochlorobenzene contact sensitivity reaction and decreased stimulatory effect in the allogeneic mixed skin cell lymphocyte culture reaction. *Arch Dermatol*.
40. Nath SK, Majumder PP, Nordlund JJ. Genetic epidemiology of vitiligo: multilocus recessivity cross validated. *Am J Hum Genet*.
41. Nordlund JJ, Majumder PP. Recent investigations on vitiligo vulgaris. *Dermatol Clin*.
42. Identification of active principles of *M.balasamina* (Balsam apple) leaf extract [Google scholar]