



## A Review on Anti Vitiligo Activity of Herbal Drugs

Kokane Kalyani<sup>1</sup>, Shaikh Muskan<sup>2</sup>, Jambhulkar Samiksha<sup>3</sup>, Dr. Gurav Mayuri<sup>4\*</sup>

Indrayani Institute of Pharmaceutical Education and Research, Talegoan Dabhade, Pune - 410507.

[kalyanikokane2018@gmail.com](mailto:kalyanikokane2018@gmail.com)

### Abstract

Vitiligo is an ailment with complicated reasons and is a form of autoimmune ailment wherein the immune gadget objectives the frames own pigment cells and tissues. Our intention is to give an overall view of the current remedies widely followed for the remedy of Vitiligo. Medical treatments target the immune gadget, and try to opposite the destruction. The aim is to repair the skin's color by using restoring healthful melanocytes to the affected vicinity. Aside from melanocytes, Vitiligo autoantigens seem additionally on different cells. Even though antibodies to pigment cells aren't an agent of Vitiligo, the most treasured contribution is that anti-melanocytes antibody reactivity can assist in figuring out relevant antigens. T cells from Vitiligo pores and skin are exceptionally reactive towards cancer cells and function a powerful supply to treat cancer and stay as an answer for Vitiligo. There were many remedies to remedy Vitiligo consisting of use of steroid lotions, PUVA (psoralen and ultraviolet A mild), slender band UVB (ultraviolet B), diverse surgical strategies, vitamin D analogues and pseudocatalase. Those remedies are subjected for undesired aspect outcomes while a few herbal and natural treatments act in opposition to the immune system without a side outcome.

**Key words:** Vitiligo, melanocytes, autoantigens, PUVA

### Introduction

Vitiligo occurs with a prevalence of 2% worldwide. The estimated incidence in the United States is 1%. The disease usually begins in childhood or adolescence and peaks between the ages of 10 and 30 years. All races are affected, and both men and women are affected equally. However, female predominance has been reported. This discrepancy could potentially be skewed by the increasing reports of cosmetic problems in female patients. Vitiligo can be psychologically devastating

to those affected. This is especially true in dark-skinned patients due to the great contrast between the Vitiligo skin color and the surrounding normal skin. Vitiligo can affect quality of life, self esteem, marriage, employment, especially in blacks and in some cultures due to confusion with leprosy and other contagious skin diseases. Pigment loss can be seen by patients as a threat to racial identity.<sup>1</sup> Vitiligo is an acquired skin pigmentation disorder with an incidence of 0.5% to 2% worldwide. There are three main hypotheses for the

pathogenesis of Vitiligo, which are not mutually exclusive: biochemical/cytotoxic, neurological and autoimmune. Recent data provide strong evidence supporting an autoimmune etiology of Vitiligo. Because Vitiligo can seriously affect quality of life, treatment starting early when the disease is active may be considered. Modern treatment methods aim to stop the progression of the disease and re-pigment. Treatment includes corticosteroids, topical Immunomodulator, light (chemo) therapy, surgery, combination therapy, and depigmentation of normally pigmented skin. Oriental medicine appears to be more effective than current treatments for Vitiligo.

### **Symptoms**

The main symptom of Vitiligo is loss of natural color or pigment, called depigmentation. Depigmentation spots can appear anywhere on the body and can affect: Skin that often develops milky white patches on the hands, feet, forearms, and face. However, spots can appear anywhere. Hair may turn white where the skin has lost pigment. It can occur on the scalp, eyebrows, eyelashes, beard, and body hair. Mucous membranes, such as the inside of the mouth or nose.

### **Prevention**

There may be no primary prevention for Vitiligo. Heritability explains a minor part of ailment improvement and environmental triggers are not sufficiently recognized to warrant or enable number one prevention. Secondary prevention, for example thru avoidance of pores and skin stress to restriction the Koebner phenomenon is often advocated. However, amassing proof suggests that slight infection on the border of depigmented patches is associated with sickness

progression or displays more desirable melanocytes loss because of mechanical stress and friction at some stage in the inflammatory modern or acceleration phase of the disease. The concurrent interventions are regularly used, which includes oral mini-pulses of corticosteroids, picture treatment options or combined strategies, which can be geared toward halting inflammation and disorder development.

### **Herbal treatment**

In Ayurveda Vitiligo is known as Switra and it's miles mainly triggered because of the Pitta Dosha as aggravated Pitta ends in accumulation of toxins (ama) in deep layers of the pores and skin which leads to the circumstance of Vitiligo. primary treatment of this sickness includes Calming imbalanced body energies, cleaning blood and administering the herbs which restore the pores and skin color. poor digestion reasons construct-up of pollution into the body for this reason it is a root purpose for the disease. consequently, restoring digestion is the vital part of the frame (Jiva Ayurveda). usually Ayurvedic treatment of Vitiligo involves 4 steps. First step is Purification therapies (Shodhana Karma), which incorporates use of natural decoction of Psoralea Corylifolia and Eurphorbianerifolia. Second step includes Oil rub down, wherein oil is selected on the basis of sickness nation (roga) and affected person examination (rogi Pariksha). 1/3 step is exposure of lesions to the solar rays depending on the tolerance of the patient (Sooryapadasanthapam). And fourth and last step is shipping of decoction (kwatha) product of Ficushispida (malayu), Pterocarpus Marsupium (asana), Callicarpa Macrophylla(priyangu),Peusedanumgraveole ns (satapuspa), Coleus vettiveroides (ambhasa), and alkaline extract of Butea Monosperma (palasaksara), in conjunction

with an alcoholic guidance of jaggery (the instruction is called phanitha in Ayurveda) to the patient. The diet ought to be salt-loose

and need to contain buttermilk for the duration of the treatment of decoction.<sup>3</sup>

### **Ginkgo biloba**



**Figure No. 1: Ginkgo Biloba**

Ginkgo biloba (also called “maidenhair tree”), is one of the oldest timber on earth and its leaves and seeds were in large part used in remedy for a very long term. Ginkgo extracts have been proven to be powerful for the remedy of various sicknesses, including hypersensitive reactions, varicose vein, premenstrual syndrome, headache, vertigo and others. In the previous few years, ginkgo extracts

have additionally been used for the treatment of vitiligo. The drug is formulated right into a pill of various dosage, which need to be taken orally once to a few instances day by day, for greater than 3 months. The precise mechanism of motion of Ginkgo biloba in vitiligo continues to be unknown, but it seems to be associated with the immunomodulatory and antioxidant residences of the drug.<sup>4</sup>

### **Cucumis melo**



**Figure No.2: Cucumis melo**

Cucumis melo (also called “Muskmelon”) is a species of Cucumis, vegetation of the Cucurbitaceae family. Cucumis melo extract is rich in antioxidants that certainly incorporate a excessive superoxide dismutase (SOD) activity, which has been proposed to be critical in stopping the melanocytes de formation via the oxidative stress within the first step of Vitiligo. These days, initial research had been performed to evaluate the efficacy of a topical instruction, containing Cucumis melo superoxide dismutase (SOD) and catalase, in the remedy of Vitiligo. In each observe, the gel education became applied to the

skin lesions followed by way of irradiation with herbal UV or artificial slender band UVB. even though the drug has been proven to be secure, there was no distinction in repigmentation rate recorded as compared to the sufferers handled best with the phototherapy. Greater interesting and promising is the use of a specific topical components, containing phenylalanine, Cucumis melo extract, and acetyl cysteine. The affiliation of the gel with nb - UVB goal phototherapy has been found to be safe and effective, leading to a better repigmentation of cutaneous lesions.<sup>5</sup>

### **Khellin**



**Figure No.3: Khella plant**

Khellin is a certainly occurring furanochromone, derived from the plant Ammi visnaga. The plant has been used as an herbal medicinal drug for one-of-a-kind functions (e.g. kidney illnesses, bronchial asthma and others), on account that historic Egyptian times. due to khellin aspect outcomes, which includes liver disorder and allergic reactions, analogues of khellin, with more secure profiles and better efficacy, were evolved and brought in medicinal drug in the ultimate decades for the remedy of Vitiligo, where they offer exact outcomes in combination with UVA phototherapy. Even though the precise mechanism of action is unclear, khellin acts via stimulating melanocytes

proliferation and melanogenesis. Khellin may be administered each systemically (oral management) or topically. The affiliation of oral Khellin to UVA is better known as KUVA remedy. The treatment consists in the oral intake of khellin gelatin pills and, after about<sup>2</sup>.five hours, within the affected person’s irradiation with UVA. The therapeutic session is repeated 2 - three times a week. The remedy is pretty safe and gives clinical results similar to PUVA remedy. in contrast to psoralens, Khellins have much less phototoxic, and DNA mutagenic consequences but the lengthy-term danger of carcinogenesis has to be determinate<sup>6</sup> Like topical - PUVA, khellin may be carried out topically and associated

with UVA radiation (topical KUVA remedy) or natural UVR (sol - KUVA therapy). Even in this case, the danger of carcinogenesis has yet to be decided. Greater recently, topical khellin 4% has been effectively used in association to

monochromatic excimer light 308 nm. The clinical results regarding repigmentation fee and safe profile advocate how this mixture may be beneficial for Vitiligo treatment.<sup>7</sup>

### **Picrorhiza kurroa**



**Figure no. 4: Picrorhiza kurroa**

Ayurvedic remedy has attempted to treat Vitiligo with natural merchandise, which includes Picrorhiza kurroa. Picrorhiza kurroa (additionally known as “Kutki ” or “Kutaki”) is some other khellin extract, with nicely - recognized hepatoprotective residences. Extra lately, researchers have proposed how the natural extract has antioxidant and immune-modulating sports too. Currently, a have a look at investigated Picrorhiza Kuroda’s potential use in association with phototherapy, inside the treatment of Vitiligo. The drug becomes administered twice an afternoon orally for **Polypodium leucotomos**

3 months. at the identical time, sufferers had been dealt with methoxsalen photo chemotherapy. The affiliation of the two treatments has seen to provide a higher end result concerning repigmentation. Another Ayurvedic natural product which had been used for the treatment of Vitiligo is the anarchic, topical focused pharmaceutical arrangements of flowers inside the Anacardiaceae own family. The drug seems to behave as a photosensitizing agent. Regrettably, greater information and research are needed.



### Figure No. 5: *Polypodium leucotomos*

*Polypodium leucotomos* (also called “Calaguala”) is a species of tropical fern inside the own family Polypodiaceae. Its extracts, famous for their antioxidant and photoprotective houses, are used for the treatment of numerous pores and skin illnesses, such psoriasis, atopic dermatitis and others . Within the last few years, *Polypodium leucotomos* has been used as adjuvant remedy for Vitiligo sufferers who had been being treated with phototherapy. An exciting study underlines d how PUVA remedy plus oral *Polypodium leucotomos* brought about a better repigmentation than the photo chemotherapy on my own. A distinct study showed similar consequences

with the mixture of nb - UVB/oral *Polypodium leucotomos* in contrast to the unmarried phototherapy.<sup>8</sup>

### **Nigella Sativa**

The plant Kalonji or *Nigella sativa* is an annual flowering plant, local to south west Asia and cultivated in international locations like the middle jap Mediterranean area, South Europe, Syria, Turkey, Saudi Arabia, Pakistan, India. The above plant is a small annual herb distributed all over India. in the faith of Islam, the plant has been given fantastic significance due to its quantity of uses. As per the religion it's far one of the finest recuperation flora.



**Figure No. 6: *Nigella Sativa***

The Islamic prophet Muhammad as soon as said that the black seed can heal each disease except dying. Avicenna, maximum well-known for his volumes referred to as

The Canon of drugs, refers to *Nigella* as the seed that stimulates the frame's strength and allows healing from fatigue and dispiritedness. it's also covered in the list of

**Table No. 1: different Ayurvedic Formulations of Herbs <sup>11</sup>**

<b>Type of Ayurvedic Formulation</b>	<b>Probable herbs used</b>
Lepa (Topical preparation)	Ankollakadi, Avalgujadi, Bakucyadi, Baladi, Bhallatakadi, Bhringarajadi, Gandhakadi, Grhadhumadi, Gunjadi, Gunjaphaladi, Katukalabvadi, Manasiladi, Maricadi, PancaNimbava, Pathyadi, Patrakadi, Putikadi, Talakadi, Triphaladi, and Vayasyadi
Kashaya (Mixtures)	Bakucibeeja yoga, Bakuciprayoga, Bhadrodumbarikadi yoga, Dhatriyadikwata, Kakodum barikakasaya and Khadiradikashaya
Churna (Compound Powder)	Bakucyadya churna, Kakodum barikadi yoga, Khadirasaradi churna and Pancanimba churna
Ghrita (Paste)	Jatyadi Ghrita, Mahamarkaraghrita, Mahaneelaghrita, Mahatiktaka Ghrita, Maha Vajrakaya Ghrita, Neelakaghrita, Neelighrita, Neelyadi Ghrita, Somarajighrita and Tiktakaghrita
Avaleha (Oral Semisolid preparations)	Bhallatakavaleha and Vidangadileha
Thaila (Oil preparations)	Aragwadhayadyathaila, Citrakadyathaila, Jyotismatithaila, KustaKalanalathaila, Kustaraksasathaila, Laghumaricadyathaila, MahaVajrakathaila, Manasiladyathaila, Maricadyathaila and Vishathaila
Asava Arista (Fermented preparations)	Kanakabindvarista and Madhwasava
Vati/Gutika (tablets)	Swayambhuva Guggul, Thriphaladigutika and BrhatSwayambhuva Guggulu

Rasousadha(Formulations containing processed minerals and metallic salts)	Candraprabhavati, Galitakustari rasa, Khageswara rasa, Kustebhakesari rasa, Medanisara rasa, Pittala Rasayana, Talakeshwara rasaand Vijayeswara rasa
---	--

herbal capsules of 'Tibb- e-Nabawi', or "medication of the Prophet (Muhammad)", in keeping with the subculture "holds onto the usage of the black seeds for restoration all sicknesses. in the Unani Tibb system of drugs, *N. sativa* is seemed as a valuable remedy for some of illnesses. inside the Indian gadget of medicine, the seeds are used asastringent, sour, stimulant, diuretic, emmenagogue, anthelmintic, jaundice, intermittent fever, dyspepsia, paralysis, piles and skin sicknesses and plenty of extra 3-five. the present article is an effort to present the pharmacology, traditional makes use of and chemical elements of the *Nigella* plant.

#### **Comparing *Nigella Sativa* Oil and Fish Oil for the Treatment of Vitiligo**

After six months, a mean score of (Vitiligo Area Scoring Index) VASI decreased from 4.98 to 3.75 in patients applying topical *Nigella sativa* and from 4.98 to 4.62 in those using topical fish oil. *Nigella sativa* oil and fish oil were effective in reducing the size of patients' lesions; however, *Nigella sativa* was more effective in comparison to the fish oil. Hence, using *Nigella sativa* with the major drugs in the treatment of Vitiligo is recommended. <sup>9</sup>

#### **Green Tea Polyphenols**

Green Tea polyphenols are extracts of green tea leaves, which have been used in medicine since ancient times. They act as anti - inflammatory, antioxidant, and immunomodulatory agents, mainly because of their composition in Epigallocatechin –

3 - gallate (EGCG) . The drug can be administered both systemically and topically . Recent data suggest how Green Tea polyphenols may be useful for vitiligo treatment, in stopping the oxidative stress of the melanocyte-unit .

#### **Capsaicin**

Capsaicin is one of the energetic components of chilli peppers, plants of the genus *Capsicum*. due to its and antioxidant properties, the drug has been proposed as a healing device for vitiligo remedies. An experimental have a look at currently showed how the incubation of keratinocytes, taken by using the perilesional skin of a vitiliginous affected person, with capsaicin stopped the mobile harm through ROS .

#### **Curcumin**

Curcumin is a polyphenol derived from the golden spice turmeric (*Curcuma longa*). Due to its numerous homes (e.g. antioxidant, anti- proliferative, anti - inflammatory, antiviral, antibacterial and antifungal residences), curcumin has been used for the treatment of different diseases. 10 currently, a tetrahydro curcumide cream has been used in affiliation with UVB for Vitiligo remedies. The phototherapy became done twice every week for 12 weeks. on the stop of the therapeutic protocol, patients. Showed a barely better repigmentation as compared to those treated best with nb-UVB sooner or later, as with other antioxidants, curcumin may be orally administered as adjuvant therapy



in Vitiligo patients.

### Conclusion with Future Perspective

Many studies have been performed to determine which treatment is the best for vitiligo. Since there is no consensus on the pathogenesis of vitiligo, a treatment to completely cure vitiligo does not exist. More randomized control. With this I concluded that vitiligo is a depigmented disease that may occur due to hereditary or by sun burn or due to some medications. Till now there is no complete treatment and cure for vitiligo, but people can go with some precautions and herbal treatments to reduce the severity of the white colourless inflammatory patch condition. This review majorly explains about the herbal extracts.

### Reference

1. Halder RM, Chappell JL. Vitiligo update. In *Seminars in cutaneous medicine and surgery* 2009 June 30 (Vol. 28, No. 2, pp. 86-92). WB Saunders.
2. Dell'Anna ML et al., A review and a new hypothesis for non-immunological pathogenetic mechanisms in vitiligo. *Pigment Cell & Melanoma Research*, 2006 Oct 1; 19(5): 406-11.
3. A Review On Vitiligo With Its Herbal Treatments Kousar Begum , Dr. B. Chandrasekhara Rao1 , Sufia Khan1 , Konatham Monika2 and Nukala Umasri
4. Parsad D, Pandhi R, Juneja A. Effectiveness of oral Ginkgo biloba in treating limited, slowly spreading vitiligo. *Clin Exp Dermatol*. 2003;28(3):285–7.  
<https://doi.org/10.1046/j.1365-2230.2003.01207.x> PMID:12780716.
5. Buggiani G, Tsampa D, Hercogovà J, et al. Clinical efficacy of a novel topical formulation for vitiligo: compared evaluation of different treatment modalities in 149 patients. *Dermatol Ther*. 2012;25(5):472–6.
6. Ortel B, Tanew A, Hönigsmann H. Treatment of vitiligo with khellin and ultraviolet A. *J Am Acad Dermatol*. 1988;18(4 Pt 1):693–701.
7. Saraceno R, Nisticò SP, Capriotti E, et al. Monochromatic excimer light 308 nm in monotherapy and combined with topical khellin 4% in the treatment of vitiligo: a controlled study. *Dermatol Ther*. 2009;22(4):391–4.
8. Nestor M, Bucay V, Callender V, et al. *Polypodium leucotomos* as an Adjunct Treatment of Pigmentary Disorders. *J Clin Aesthet Dermatol*. 2014;7(3):13–7. PMID:24688621 PMCID:PMC3970827.
9. Ghorbani Birgani A et al., Comparing *Nigella sativa* oil and fish oil in treatment of vitiligo. *Iranian Red Crescent Medical Journal*, 2014; 16(6).
10. Aggarwal BB, Harikumar KB. Potential therapeutic effects of curcumin, the anti-inflammatory agent, against neurodegenerative, cardiovascular, pulmonary, metabolic, autoimmune and neoplastic diseases. *Int J Biochem Cell Biol*. 2009;41(1):40–59.
11. Lakhani DM, Deshpande AS. Various treatments for vitiligo: Problems associated and solutions. *Journal of Applied Pharmaceutical Science*. 2014 Nov 27;4(11):101