



Therapeutic Role Of *Azadirachta Indica* In Vitiligo

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Abstract

Neem (*Azadirachta indica*) is a tree native to the Indian subcontinent. Various parts of this tree have long been utilized in traditional Asian medicine. Historically, it has been used to treat pain, fever, skin disorders and infection, while its twigs have been used to clean teeth. Neem plays a great role in the treatment of skin disorder like vitiligo which is also known as leucoderma. It is an autoimmune disorder where the immune system of the body attacks the healthy cells and in turn starts affecting the body. The condition is characterized by white patches on the skin that developed as a result of melanocyte with in the skin.

Keywords : Vitiligo, Leucoderma, Neem, Melanin

1. Introduction

Vitiligo is a long-term skin disorder in which pale white patches appear. It's caused by a lack of melanin, the pigment that gives skin its colour. Vitiligo can affect any part of the body, although it is more frequent on the face, neck, and hands, as well as in skin folds. Because pale skin is more susceptible to sunburn, it's essential to take additional precautions in the sun and wear a sunscreen with a high SPF. Vitiligo is a disorder that causes areas of skin to lose their colour. With time, the discoloured spots normally get larger. The illness can affect any portion of the body's skin. Hair and the interior of the mouth might also be affected. Melanin determines the colour of hair and skin in most cases. When cells that create melanin die or cease working, vitiligo develops. Vitiligo affects people of all skin kinds, however it is more visible in those who have dark or black skin. It is not a life-threatening or communicable disorder. It might be stressful and make you feel self-conscious. Vitiligo treatment may help to restore colour to the damaged skin. However, it does not prevent further skin colour loss or a recurrence.



(Figure:- Hand affected by vitiligo)

Vitiligo is a long-term skin disorder marked by the loss of pigment in regions of the skin. Affected skin areas become white with sharp edges. [1] Skin hair can become white as well. It's also possible that the insides of the mouth and nose are affected. The condition usually affects both sides of the body. The patches usually start on sun-exposed parts of skin. People with dark complexion are more susceptible. Vitiligo can cause mental distress, and persons who have it are frequently ostracised. Vitiligo's actual aetiology is unknown. It is thought to be linked to a hereditary vulnerability to autoimmune illness that is activated by an environmental stimulus. Skin pigment cells are destroyed as a result of this. A family history of the illness or other autoimmune conditions including hyperthyroidism, alopecia areata, and pernicious anaemia are also risk factors. It is not spreadable. The two basic kinds of vitiligo are segmental and non-segmental. The majority of instances are non-segmental, meaning they affect both sides, and the afflicted skin area often extends over time. About 10% of instances are segmental, meaning they predominantly affect one side of the body, and the afflicted region of the skin does not normally grow with time. Diagnosis might be difficult.

2. The taxonomic classification of neem is-

Kingdom - Plantae

Division - Magnoliophyta

Class – Magnoliopsida

Order- Sapindales

Family - Meliaceae

Genus - Azadirachta

Species- A. indica

Neem (*Azadirachta indica*), commonly known as nim or margosa, is a fast-growing tree of the mahogany family (Meliaceae) that is prized for its medical properties, organic insecticides, and lumber. Neem is said to be indigenous to the Indian subcontinent and drier parts of South Asia. It has spread to areas of Africa, the Caribbean, and a number of South and Central American countries. The plant has a long history of usage in Ayurvedic and traditional medicine, as well as cosmetics and organic farming.

3. Overview

Neem trees are lovely broad-leaved evergreens that may reach a height of 30 metres and a diameter of 2.5 metres. Their spreading branches generate 20-meter-wide circular crowns. Except in extreme dryness, when the leaves may fall off, they stay in leaf. The bark on the short, typically straight trunk is somewhat thick and furrowed. The roots enter the earth deeply, at least where the site allowed, and develop suckers, especially when wounded. Suckering is particularly common in arid areas. Neem can withstand a lot of damage. It can endure pollarding (repeated lopping at heights above 1.5 m), for example, and its topmost trunk fiercely resprouts. It also coppices readily (repeated lopping at near-ground level). Because it is fed by a root system large enough to nourish a full-grown tree, regrowth following pollarding and coppicing can be extremely quick. Axillary clusters of little white bisexual flowers are produced. They smell like honey and attract a lot of bees. Neem honey is popular, and it is said to be free of azadirachtin.

The fruit is a smooth, ellipsoidal drupe that can reach about 2 cm in length. It is golden or greenish yellow when ripe, with a pleasant flesh surrounding a seed. A shell and a kernel (occasionally two or three kernels) make up around half of the weight of the seed. The kernel is the most commonly used pesticide. (Pesticidal chemicals are also present in the leaves, although they are often less powerful than those found in the seed.) A neem tree typically bears fruit after 3-5 years, becomes completely productive after 10 years, and may produce up to 50 kg of fruits each year after that. It has the potential to survive for over two centuries.

4. Origin and distribution-

Assam and Burma are regarded to be the origins of neem (where it is common throughout the central dry zone and the Siwalik hills). The actual origin of neem is unknown: some believe it is native to the whole Indian subcontinent, while others say it is found in dry forest regions across South and Southeast Asia, including Pakistan, Sri Lanka, Thailand, Malaysia, and Indonesia. The tree is most frequently utilized in India. It grows from the southern point of Kerala to the Himalayan highlands, in tropical to subtropical climates, semiarid to wet tropical climates, and at elevations ranging from sea level to around 700 meters.

5. Chemical constituent and properties-

To put things in perspective, Indian medical practitioners conducted chemical studies on neem oil in 1919 and discovered an acidic component called "margosic acid" in the oil. Genuine chemical study on the isolation of three active ingredients, nimbin, nimbi din, and nimbi Nene, began in 1942. In 1919, scientists discovered "margosic acid," an acidic component in neem oil. Genuine chemical study on the isolation of three active ingredients, nimbin, nimbi din, and nimbi Nene, began in 1942. Protein (7.1%), carbs (22.9%), minerals, calcium, phosphorus, vitamin C, carotene, and other compounds are found in neem leaves. They also include glutamic acid, tyrosine, aspartic acid, alanine, praline, glutamine, and cystine, as well as a variety of fatty acids (dodecanoic, tetra decanoic, and oleic acid).decanoic, elcosanic, etc.).

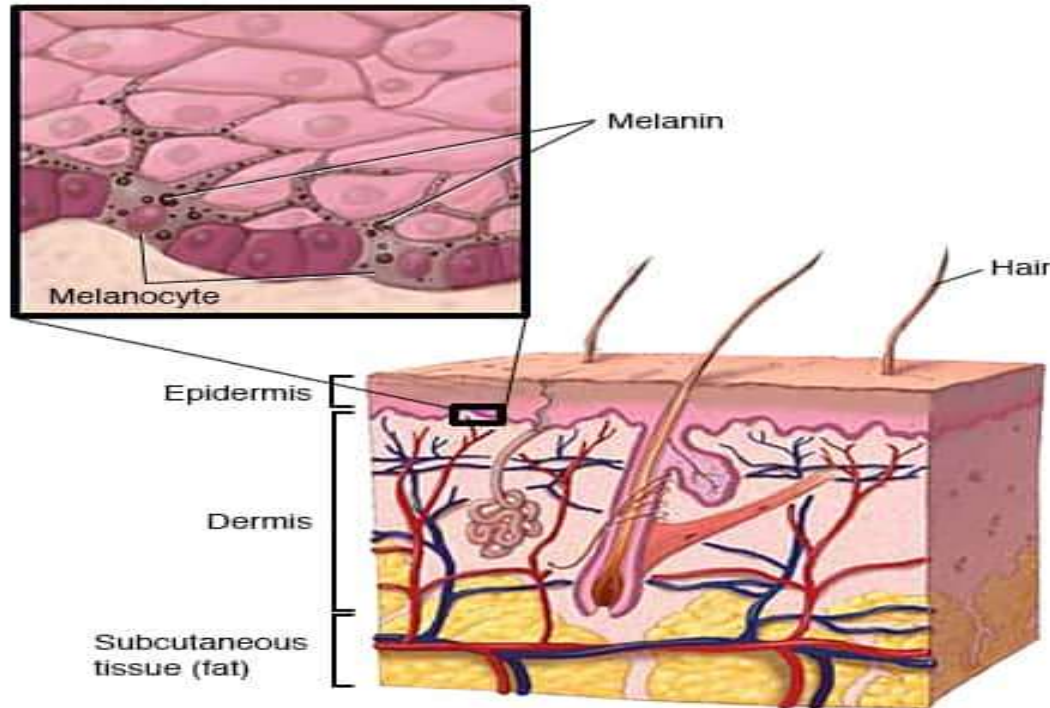
Bitter fixed oils found in neem include nimbin, nimbinin, and nimbidol, as well as tannin (nimbi din, sodium nimbi date, gallic acid, catechin, polysaccharides). It has anti-arthritic, hypoglycemic, antipyretic, diuretic, and ulcer-fighting properties (nimbi din) antimicrobial (nimbi din, gedunin, cyclic trisulfide) Antimicrobial (nimbi din, imboiled, mahmoodin, margolone, margolonone, isomargolonone) Spermicid-derived sperm (nimbin, nimbidin) Malaria-prevention drugs (nimbolidfe, gedunin, azadirachtin) Preventing cancer (polysaccharides) Anti-immunosuppressive drugs (NB-II Pepto glycan, gallic acid, epicatechin, catechin) Anti-hepatotoxic (aqueous extract of neem leaf) a powerful antioxidant (neem seed extract).

6. VITILIGO-

- Vitiligo(leukoderma) is a disease that cause the loss of skin colours in blotches.
- Vitiligo occurs when pigment producing cells die or stop functioning.
- Caused by the lack of a pigment called melanin in the skin.
- Melanin produced by Melanocyte cells(skin cells) and gives skin it's colour.

7. Causes-

- In Vitiligo there are not enough working Melanocytes to produce enough melanin in skin.
- This caused white patches to developed on skin or hair.



8. Sign and symptoms

- Hair turning prematurely grey or white.
- Eyelashes or eyebrows losing colour and turning white.
- Change of colour in the retina of eye.
- Colourless in the nose and mouth.
- Inflammation of ear and eyes leading to hearing loss and vision problems.

9. Types of vitiligo

- **Generalized:-**
 - which is the most common type, when macules appear in various places on the body.
- **Segmental :-**
 - which is restricted to one side of the body or one area, such as the hands or face.
- **Mucosal:-**
 - which affects mucous membranes of the mouth and/or the genitals.
- **Focal, :-**
 - which is a rare type in which the macules are in a small area and do not spread in a certain pattern within one to two years.

Trichome,-

- Which means that there is a white or colourless centre, then an area of lighter pigmentation, and then an area of normally coloured skin.
- **Universal:-**
- It is another rare type of vitiligo, and one in which more than 80% of the skin of the body lacks pigment.

10. Complications associated with vitiligo

Although vitiligo is mainly a cosmetic condition, people with vitiligo may experience a variety of problems:

- Because they lack melanocytes, macules are more sensitive to sunlight than the rest of the skin, so they will burn rather than tan.
- People with vitiligo may have some abnormalities in their retinas (the inner layer of the eye that contains light-sensitive cells) and some variation of colour in their irises (the coloured part of the eye). In some cases, there is some inflammation of the retina or iris, but vision is usually not affected.
- People with vitiligo may be more likely to get other autoimmune diseases (in which the body's immune system causes it to attack itself), such as hypothyroidism, diabetes, pernicious anemia, Addison's disease, and alopecia areata. Also, people with autoimmune diseases are more at risk for developing vitiligo.
- People with vitiligo may feel embarrassed or anxious about their skin. Sometimes people are rude – they may stare or say unkind things. This could cause a person with vitiligo to develop low self-esteem. This in turn could create anxiety issues and make someone want to isolate. If this happens, you should talk to your healthcare provider or your family and friends to help you find a solution.

11. Prevention

Use sunscreen every day. You want to apply sunscreen to all skin that clothing will not cover.

- Wear clothing that protects your skin from the sun. Clothing also has an SPF.
- Seek shade.
- Do not use tanning beds and sun lamps.
- Add color to your skin safely.
- Do not get a tattoo.

12. Uses of neem in Vitiligo-

Vitiligo is believed to be an autoimmune disorder that causes patches of skin to lose their color. It occurs in about five percent of the human population regardless of race, but most commonly in dark-skinned people. The two most common treatments are exposure to sunlight (or PUVA) or corticosteroid old drugs, but these are not

always effective. Oral doses of neem were tested at least one year on fifteen patients who had the disease. They also applied a cream made up of several herbs to patches, which were then exposed to the sun. After ninety days, 25 percent of the patients showed complete relief. No adverse reactions were shown by any participants. Those who stayed on the treatment the longest showed the most improvement. The dosage was four grams of neem leaves three times a day, ideally taken before each meal.

Other studies showed that the internal use of neem leaves and bark were effective even without the cream. It may be possible that neem oil applied to the affected areas could aid in the reversal of discoloration. Because of its numerous health advantages, neem leaves have been utilised in medicine. In fact, the leaves have been employed throughout Ayurvedic and Unani treatment in India. Neem leaves can also be used to cure eye problems and bug poisoning. We'll discuss about neem leaves for vitiligo in this article. This leaf can be used to treat a condition that causes skin areas to lose their colour. Indeed, neem leaves can improve skin health by treating a range of skin ailments and diseases such as psoriasis, eczema, and other chronic conditions. As a result, if you're interested, you may learn more about the advantages of neem leaves for vitiligo below.

13. How to Treat Vitiligo?

You can utilise natural remedies like neem leaves to cure vitiligo. This skin condition can be treated with neem oil. Other therapies are also indicated after that. Papaya, for example, can be used to cure vitiligo. Additionally, basil leaves might be beneficial. Simply combine basil leaves with lime juice to encourage melanin development on your skin. Coconut oil for vitiligo is also a viable option! Because the oil has calming and therapeutic properties, it can aid in skin repigmentation. If you have vitiligo, don't forget to wear sunscreen. Also, sip water from a copper pot to keep your body hydrated. This method may aid in the removal of vitiligo.

In conclusion, utilising neem leaves for vitiligo might help to encourage repigmentation. Not only that, but it also has antimicrobial characteristics that are beneficial to skin health. As a result, you may rely on neem leaves for vitiligo therapy. There, stay healthy.

14. Conclusion

One of the most useful tree/plant on the planet with a wide range of use. In the vitiligo it's play a great role in healing patches of skin and improve the skin tone quality due to the presence of many phytochemicals. As there is no specific diagnosis of vitiligo disease but neem helps to improve the pigmentation of skin and also help in the production of melanin pigment.

Vitiligo is a skin disorder that has a moderate to severe impact on most patients' quality of life. Despite the fact that the majority of patients seek a cure or long-term treatment, only 12.5 percent of those who responded to our study had sought advice from a dermatologist. Vitiligo is a widespread disorder that affects more than just the

skin and has significant psychosocial consequences for those who are affected. It is critical to be aware of the problem and to have adequate knowledge of the various components of Vitiligo. Vitiligo is a skin disorder that has no impact on a person's physical or mental abilities.

Vitiligo is incurable. Treatment, on the other hand, may be able to halt or reduce the discoloration process and restore some colour to your skin.

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