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## WHY NEEM AND TURMERIC ARE SO IMPORTANT? A REVIEW

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### ABSTRACT

Neem and turmeric are native to India but now it distributed to other continents of the world. Neem and turmeric is member of Meliaceae and zingiberaceae family. Both are wealthy source of antioxidant. Every part of the neem and turmeric has been used as traditional medicine for household against various diseases. The importance of traditional medicine and medicinal plant in most developing countries as a normative basis for maintenance of good health has been widely observed. Most of people commonly used neem and turmeric as an antibiotic. Moreover they are believed to be secure and have fewer side effects than synthetic drugs. Neem and turmeric constituent have been demonstrated to indicate anti-inflammatory, antifungal, antioxidant, antiviral, antibacterial anti-malarial, antiulcer properties. Current study is to review the importance of Neem and Haldi as a medicine.

**Keywords:** Herbal Medicine, Medicinal plant, Antibiotic properties, *Azadirachtaindica*,  
*Curcumalonga*

### INTRODUCTION

The oldest written evidence of medicinal plants' usage for preparation of drugs has been found on a Sumerian clay slab from Nagpur, approximately 5000 years old. It constitute 12 recipes for drug preparation

referring to over 250 various plants, some of them alkaloid such as poppy, henbane, and mandrake [1]. Majority of the plant parts such as fruits, seeds, leaves, bark and roots contain compounds with proven

antiseptic, antiviral, antipyretic, anti-inflammatory, antiulcer and antifungal doses. Neem and haldi is known for traditional medicinal plant. Neem and haldi is the most researched tree in the world and is said to be the most promising tree of 21<sup>st</sup> century.

#### ***Azadirachta Indica:***

Neem is a tree and it belongs to Meliaceae family. The botanical name of neem is *Azadirachta indica*. The other names of neem are known as arishta, holy tree, Indian Lilac, bead tree, Indian neem. Neem is native to India and Burma growing in tropical and semi-tropical regions. Neem tree requires little water and plenty of sunlight. Neem is a hardy, fast-growing evergreen tree. Neem is considered to be a part of genetic diversity [2]. Neem plants grow in almost all types of soil, including alkaline, clay, and saline soils [3]. The plant is distributed widely in the world providing a source of inspiration for novel drug compounds as plant derived medicine which has made large contribution to human health and well-being [4]. It is one of the most studied medicinal plants and is used for health. Neem is a natural source of eco-friendly insecticides, pesticides and agrochemicals [5]. Major chemical constituents of neem are terpene and limonoids. The various parts of neem tree have many uses so its name in Sanskrit-

“sarva roga nivarini”, meaning ‘the curer of all ailments.

#### **Taxonomy of *azadirachta indica:***

Kingdom: Plantae

Division: magnoliophyta

Class: dipsacales

Order: rutaes

Sub-order: retinae

Genus: azadirachta

Species: indica

#### **Description and uses of parts of neem:**

**Tree:** The neem tree is a fast growing that can reach a height of 15-20 meters. It is evergreen. The branches are wide and spreading. It is habitually grown in tropical and semi-tropical region. They are alive up to 200 year. All parts of tree are used for preparing a medicine for treatment. The neem tree wood is used to handcraft hair combs and it believed that regular use can control hair loss, dandruff, and other scalp problems. Neem tree has played important role in Ayurvedic medicines and agriculture since time immemorial.

**Leaves:** Neem leaves are pinnate, opposite, compound, rachis 15-25 cm long, 0.1 cm thick. Leaflets with oblique base, opposite, exstipule, lanceolate, acute, and serrate. The terminal leaflet is absent. The petioles are short. Leaves are slightly yellowish-green, taste-bitter. It's used for leprosy, eye disorders, blood nose, stomach upset, skin ulcer, intestinal worms, disease of the heart and blood vessels, fever, diabetes and liver

problems. The leaf is further used for birth control and to cause abortions.

**Stembark:** Bark is very thick according to age. The external surface rough, fissured and rusty-grey; laminated inner surface yellowish and foliaceous, fracture, fibrous. The bark is utilized for malaria, stomach and intestinal ulcers, skin diseases, pain and fever. It contains 14% tannins for making glue or gum.

**Flower:** The tree has delicate flowers in the early summer. The (white and fragrant) flowers are arranged in more or less drooping axillary panicles which are up to 25 cm long. Protandrous, bisexual flowers and male flowers exist on the like individual tree. The flower is applied for shrink bile, controlling phlegm and treating intestinal worms. Neem flowers mature from May and August [6] in India.

**Fruit:** The fruit is a smooth and olive like drupe. The fruit epidermis (exocarp) is thin and the bitter-sweet pulp (mesocarp) is yellowish-white and very fibrous. The white, rigid inner shell (endocarp) of the fruit. The fruit is used for haemorrhoids, intestinal worms, urinary tract disorders, bloody nose, eye disorder, diabetes, wounds and leprosy. Neem leaves can be used for animal feed. Neem leaf boiled in water can be used as a very cost potent bird repellent, especially for sparrows.

**Seed:** seeds are elongated and having a brown seed coat. The seed inside is rich in

oil. The seed and seed oil are work for leprosy and intestinal worms. Purified neem oil is used in nail polish and other cosmetics. Neem oil is used for soap manufacturers. Neem oil and de-oiled neem seed cake are utilized as animal feed. Neem seed pulp is used as a rich source of carbohydrate in fermentation industry and for methane gas production.

#### **Medical properties of neem:**

All parts of neem tree including leaves, bark, roots, fruit, seed and twigs contain active ingredients and used as medicine. Each parts of the neem tree have been used as traditional medicine for household remedy against various disease [7]. These active compounds have potential application in animal care, public health, agriculture and for even regulating human fertility [8]. Neem has an extensive uses in the control of crop and household pests, for medicinal purpose. The active ingredients include alkaloids, flavonoids, phenolic compounds, carotenoids, steroids and ketone, which have antimicrobial, antidiabetic, antiulcer, antifertility, anti-inflammatory and antitumor properties and the plant is used in combination with oil for more effectiveness to reduce toxicity [9]. Antibacterial properties are control bacteria and spoilage organism in foodborne pathogen [10]. Enhancement of antibody production and cellular mediated response

by neem components help in the treatment of AIDS.

Neem oil is generally applied to the scalp or skin to cure conditions like dandruff and acne, the extract of the neem leaf is typically taken orally. Neem oil is used to prevent aflatoxin which is produced due to contamination of the poultry feed by fungus and used as a cure for many fungal diseases [11]. Neem oil contains active ingredients that directly deal with wound healing process. Injection of neem leaf preparation to tumour in mice reduced tumour growth, exhibiting anti-carcinogenic activity [12]. Neem plays role in the activation of anti-oxidative enzyme that plays role in the control of complication caused by free radicals or reactive oxygen species [13]. Neem is medicated to malarial fever in Ayurvedic medicine system.

#### **Side effects of neem:**

Neem seeds or oil taking by mouth is likely unsafe for children. These major side effects including vomiting, diarrhea, coma, brain disorders and death [14]. Neem oil or neem bark is taking during pregnancy it cause a spontaneous abortion. Neem might origin the immune system to become more active. It could increase the indicating of auto immune disease. Neem is reduce fertility and can harm sperm. Neem can under blood sugar levels and might cause blood sugar to go too low. Do not use neem if you have had an organ transplant. Stop

using neem at least 2 weeks before a scheduled surgery. Water extracts of neem leaf have been shown to decrease blood levels of chloroquine in rabbit but this has not been consider with acetone water extracts of neem. Neem may have a negative interaction with lithium, altering the body's ability to metabolize the drug and could lead to dangerous interaction. There is also some concern that neem may cause damage to kidney and liver and may lower sperm counts.

#### ***Curcuma longa***

Turmeric is a herb and belongs to the Zingiberaceae. The botanical name of turmeric is *Curcuma longa*. Turmeric is native to Asia, Africa and Australia and growing in tropical region. Turmeric is a perennial, rhizomatous, herbaceous plant that reaches up to 1m tall.

Turmeric is also known as "Indian saffron". In north India, turmeric is commonly called "haldi", and in south it is called "manjal". The name turmeric derives from the Latin word terra merita, referring to the colour of ground turmeric, which resembles a mineral pigment. Turmeric is a main spice all over the world with a distinguished human use particularly among the eastern people. India is largest producer and consumer of turmeric powder. Turmeric contains protein, fat, minerals, carbohydrates, and moistures. On going the traditional medicine claims its powder

against gastrointestinal diseases, especially for biliary and hepatic disorder, diabetic wounds, rheumatism, inflammation, and cough [15]. These medicinal properties of turmeric caused it to be considered as a spice with multifunctional medicinal properties [16]. The importance of turmeric in medical treatment primarily stems from orange yellow coloured curcumin, the most active component [17].

#### **Taxonomy of *curcuma longa*:**

Kingdom: Plantae

Order : Zingiberales

Family : Zingiberaceae

Genus : Curcuma

Species : *C.longa*

#### **Description and uses of turmeric:**

**Rhizome:** Turmeric is perennial herbaceous plant that reaches up to 1m tall. Highly branched, yellow to orange, cylindrical, aromatic rhizome. It used as a colouring and flavouring agent in many Asian cuisines. Dried turmeric tuber hitch with string is used to create a thali necklace.

**Leaves:** The leaves are alternate and arranged in 2 rows. They have leaf sheath, petiole and leaf blade. A false stem is formed from leaf sheath. Turmeric leaves are oblong to elliptical, scanty at the tip. It is used in haldi ceremony during wedding celebration of people of Indian culture. In India turmeric leaf is used to prepare sweet dishes.

**Flower:** the hermaphrodite flowers are zygomorphic and 3 fold. The 3 sepals are long, fused and white and have fluffy hairs; the three calyx teeth are uneven. The 3 bright-yellow petals are merged into a corolla. The flowering time is usually in august. The bracts are light green and ovate to oblong with upper blunt. It is used in traditional raw vegetable salads known as ‘ulam’.

#### **Medicinal properties:**

Turmeric paste is used to treat typical eye infections and to dress wounds, treat bites, burns, acne and different skin diseases [18]. Turmeric powdered is taken with boiled milk is helpful for relieving cough and related respiratory ailment and roasted turmeric is an ingredient used as an anti dysenteric for children [19]. Turmeric is applied to the perennial surface of the body to aid in the healing of any lacerations in the birth canal. Turmeric group seemed to enjoy more relief from joint pain. It helps in balanced blood sugar [20]. It acts as powerful immunomodulator. Turmeric is also used in the treatment of dental diseases, digestive disorders, indigestion, ulcers, antioxidant, and antifertility [21]. Turmeric also helps in cholesterol optimization. *Curcuma longa* plays very vital role in reducing inflammatory swelling. Turmeric extract and the essential oil of *curcuma longa* inhibit the growth of a variety of bacteria, fungi, parasites and

pathogenic fungi. Curcumin is reducing speed of the production of reactive oxygen species such as superoxide anions, hydrogen peroxide, and nitrite radical production. Curcumin plays very important role in prevention of growth of fungus. The beneficial properties of turmeric are anti-inflammatory, antioxidant, antifungal, and chemotherapeutic activity.

#### **Side effects of turmeric:**

Turmeric is a best medicine for treatment. But sometime turmeric has a side effect. Usually turmeric does not cause serious side effect. Some people can experience while taking turmeric taken by mouth for long time or over amount of turmeric in a twice a day. They survive stomach upset, diarrhea, and nausea. During pregnancy or breast feeding, turmeric is unsafe when taken by mouth in medicinal amounts. It might further a menstrual cycle or stimulate the uterus, putting the pregnancy at risk [22]. The gallstones or bile duct obstruction, don't use turmeric because it's very risky. Turmeric has slow blood clotting. This might raise the risk of injury and bleeding in people with bleeding disorder. Turmeric might reduce fertility. This might lower testosterone level and decrease sperm activity when it taken by mouth by men.

#### **CONCLUSION**

The present review on neem and turmeric has essential parts that use in

pharmacological actions to treat a various types of disease. They have been recognized advantageous in treating anti-inflammatory, anti-allergic, antioxidant, antibacterial and anticancer properties. Popularity of natural products or their derivatives role in disease cure and prevention is increasing worldwide due to less side effect properties. Herbal medicines are gaining a huge demand day by day. Around the world countries are becoming concern about the usage of herbal medicines. It will find the problems regarding to the health impact and solve those worries in depth.

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