



## Ethnomedicinal residences of *Azadirachta indica*. (Neem Tree)

DR. Anand Pal Singh Kushwah, Ph.D. scholar  
DR. Mrs. Manisha P. Gajendragadkar

### **ABSTRACT -**

*Neem (Azadirachta India) is cultivated almost anywhere in the world. And its miles used in treating diverse illnesses due to its many medicinal values. Neem is related to the symbols of the goddess in India this is traditionally being worshipped via manner of the use of several areas. Within the primary millennium bc, the neem tree was modified into known as the sanjivani yoga nivarini. (One that could treat all factors and contamination). Neem is a huge evergreen tree inside the mahogany's own family it's far a compound that is getting used for extended records. It is grown in India and it's far used as treatment. Neem (Azadirachta Indica) holds sizeable importance inside the conventional way of life of India.*

**KEYWORDS-** *Azadirachta India, Meliaceae, anti-fungal, anti-inflammatory, antiarthritic, antipyretic, antifungal.*

*Received 28 Mar, 2022; Revised 06 Apr, 2022; Accepted 08 Apr, 2022 © The author(s) 2022.*

*Published with open access at [www.questjournals.org](http://www.questjournals.org)*

### **I. INTRODUCTION**

India is one of the richest ethnobotanical lawns worldwide. It is rich range is, however, needed to document utilized and conserved first-rate medicinal flora species. Neem (*Azadirachta Indica*) has been a large constituent system of traditional healers and homeopathic, ayurvedic within the college of Indian medication devices. Neem (*Azadirachta Indica*) is an omnipotent tree and sacred gift of nature. More than 2 species of neem are distributed around the whole united states of America. For this, cause it genuinely manner the tree of India. The neem tree (*Azadirachta Indica*) is an awesome plant that has been declared the tree of the twenty-first century. By the united international places. The America of America national academy of technology has published the document in 1992 entitled "neem": a tree for fixing worldwide problems. The divine tree neem (*Azadirachta Indica*) is specifically cultivated inside the Indian subcontinent. Neem is a member of the mahogany's own family Meliaceae. It is botanical name (*Azadirachta Indica*). On the Indian subcontinent, the neem tree has been used for added more than four,500 years ago. The earliest documentation of the neem mentioned the quit result, seeds, leaves, roots, oils, and bark for his or her excessive top-notch medicinal houses. Neem has been used substantially throughout humankind to deal with numerous illnesses in advance than the delivery of written information which recorded the beginning of data. The zone health company estimates that eighty% of the population dwelling in developing international locations are based completely on conventional medicinal drugs or their number one fitness care. At the beginning of this century, the neem tree was tremendously expected with the resource of Indian emigrants who took it alongside the places in which they settled. The neem tree is also found in locations that embody Australia, Africa, Asia, the United States, and some small-scale plantations are also reportedly an achievement in Europe and the USA of America.

2. Botanical description:- A neem tree is a short growing tree that might attain a peak of 15-20m and without a doubt beneficial scenario up to about 35 to forty-five m. In popular is an evergreen tree but under severe situations, including prolonged dry periods, it may shed maximum of virtually all of its leaves. The branches spread broadly. The trunk is particularly brief right away, the bark is tough fissured or scaly, and whitish-gray to reddish-brown. The sap timber is grayish-white and the coronary coronary heart is wooden reddish. The fruit is easy, yellow, green, and drupe, and has sweet flavored pulp. The foundation system consists of a robust taproot and properly advanced lateral roots. In India, it is without problems to be had in all states. It is evergreen however in drought it may shed most of or nearly all of its leaves. *Azadirachta indica* is a scared tree. The neem tree is a concept for its drought resistance.

3. Cultivation of Neem: The cultivation of neem is feasible throughout India it is commonly located in the southern part of Kerala to the northern Himalayas hills within the tropical to subtropical areas. It's a protracted way extensively cultivated in India and African global places. In India, it happens within the path of the larger part of us in the America of the United States of Bihar, Uttar Pradesh, Maharashtra, West Bengal, Madhya Pradesh, Delhi, Punjab, Haryana, Andhra Pradesh, Tamilnadu, Gujarat, and so forth handiest end cease result on the yellow inexperienced coloration stage are picked from the branches. The accumulated cease results from soaking in water to doing away with pulp, storing seeds few months, and used to domesticate in moist season. The tree is usually evergreen besides in dry localities, in which it becomes leafless for a quick length february\_ march and the brand-new leaf appears proper away. In the southern part of the United States, the flowering period is February to march and later towards the north. It is generally accomplished nicely in regions with an annual rainfall of four hundred-1200mm. It is survived in the hottest temperatures i. E extra than 45°celcius but it cannot be withstand freezing or extended bloodless. Neem grows on nearly all sorts of soils but does well on black cotton soils.

4. Flavor: -The neem tree is incredibly sour because of its limonoids content material material. Lumpsum all part of the tree is bitter in flavor, the leaves, seeds, twigs, bark, roots, fruits, and plants, is implemented in traditional ayurvedic remedy for more than one trouble. The neem leaves tea may be very useful for maintaining blood sugar levels but it is very sour. Pulp of the neem is used to eat for fending off, wounds problems.

5. Used factors of the neem tree: - The whole plant is used for medicinal talents due to the reality neem has anti microorganism, 1 anti-fungal, anti-inflammatory, antiarthritic, antipyretic, antifungal, houses. It enables to remedy of various ailments because of microorganisms and fungi. The neem tree can be a very extensively diagnosed tree in India its plays a very crucial role in Ayurveda and clinical technological know-how moreover. Neem tree leaves plant life give up result seeds twigs is used with a mixture of different fantastic medicinal plant lifelike; neem leaves and turmeric powder is used to treatment vintage wounds and boils. In this record, we referred to every part of the neem tree, its form, medicinal values, and so forth. Almost all additives of the neem tree are useful, and plenty of its medicinal and cosmetics uses are based totally on its antibacterial and antifungal houses. Neem is typically utilized in cleansing cleaning soap and cream for pores and pores and pores and skincare, and shampoos for treating dandruff it's also a factor in some toothpaste and mouth fresheners. Especially within the Indian subcontinent, the more youthful twigs are used right now as crude toothbrushes in rural areas. Neem leaves have been used as a conventional remedy for diabetics and there are a few medical proofs suggesting that it may assist blood sugar tiers. Neem leaves help to protect against ailments inflicting microorganisms and viruses. It is leaves have numerous fitness and pores and pores and pores and skin benefits. Eating leaves is beneficial for hair nourishment, right eyes, boosting immune device, decorating digestive device, and oral fitness. The timber of the neem tree is used to make furnishings.

Uses of neem: -

Pulp: - -the pulp of the stop result is beneficial for tablets and the production of methane gas.

Wood: - its timber is used to make furnishings; it is very long-lasting. The coronary heartwood is robust and sturdy that's why it's far used to making buildings, cartwheels, and so on.

Bark: -the bark of the neem tree is used to cope with malaria, intestinal ulcers, pores and pores and pores and skin illnesses, aches, and fever. It's also used for wholesome hair detoxifying the blood and balancing blood sugar levels.

Seeds: - the seeds are used to deal with leprosy, and kill intestinal worms. It's substantially applied to starting management. Neem seeds powder enables to reduce of sugar levels in seeds, lively components are not determined, by the truth. The neem seeds extract ranges in every batch in terms of balance and interest. Two new tetranotriters were isolated from neem seeds.

Seeds oil: - Neem oil is a vegetable oil pressed from the culmination and seeds of the neem. The neem oil is an extract from the neem tree. Neem oil is used as a facial oil, its miles are used to deal with zits. It has anti-fungal houses and may be used to treat hair and skin issues it is also used as an insecticide. Neem oil may also be used to deal with the symptoms of eczema, and leprosy and is considered one of a type of pores and skin di in Ayurveda practitioners usually suggest neem oil for fungal infections. Neem oil is rich in fatty acids, which include palmitic linoleic and oleic acid which, help to glowing and healthy skin.

Leaves: - the neem leaves have antibacterial homes that allow them to put off burn zits recuperation wounds infections, and any kind of pores and skin. Problems. It allows for the destruction of bacteria that purpose infections and stimulates the immune device. Cross

Neem (*Azadirachta indica*) is cultivated nearly all around the globe. And its miles used in treating numerous diseases due to its many medicinal values. Neem is attached with the symbols of the goddess in India that is traditionally being worshipped by using numerous regions. In the primary millennium BC, the neem tree ends up known as the Sanjivani Roga Nivarini. (One that might remedy all factors and contamination). Neem is a big evergreen tree inside the mahogany's own family it's far a compound that is getting used for prolonged records. It is naturally grown in India and its miles are used as a remedy. Neem (*Azadirachta indica*) holds large

importance in the traditional way of life of India. All additives of the neem tree, leaves, roots, plant life, culmination, seeds, and bark, were used historically for the remedy of infection, infections, pores and skin sicknesses, fever, and dental problems. The present evaluation paper is to accumulate an entire file on the reputation, distribution, cultivation, and uses of neem from exceptional localities of India.

Chemical components:

Neem leaves have extracted lively chemical substances which include isomeldenin, Nimbin, nimbinene, 6-desacetyl-nimbinaene, nimbandiol, nimocinol, quercetin, and beta-sitosterol, nimbolide, nimbadin tetracycline, triterpenoid acids, zafaral, anorapotricalla, (apoeupha)-6-alpha-methoxy, -7alpha, -acetoxoxy -1-14 dione -3,16, dione 21-all, (1) and meliacin anhydride, 24,25,26,27, tetra anorapotirucalla- (apoeupha)-6 alpha-hydroxy, train, 3, one has been removed from the methanolic extract of neem leaves. Nimbin molecular additives C<sub>30</sub>H<sub>36</sub>O<sub>9</sub> molecular weight 540.6 g/mol Nimbin is limonoid decided in Azadirachta Indica. It has a position as a plant metabolite and a pesticide. (Shape of azadirachtin) azadirachtin molecular formulation C<sub>34</sub>H<sub>44</sub>O<sub>16</sub> molecular weight 720.7 g/mol. Azadirachtin is a family member of azadirachtins this is isolated from the neem tree (Azadirachta Indica) it has a position of hepatoprotective agent.

(Structure of Azadirachtin) :-

Molecular additives C<sub>34</sub>H<sub>44</sub>O<sub>16</sub> molecular weight 720.7 g/mol.

Azadirachtin is a member of the family of Azadirachtins that is removed from the neem tree (Azadirachta indica) it has the function of a hepatoprotective agent.

**Table 1.**

COMPOUND NAME	SOURCES	BIOLOGICAL ACTIVITY
Azadirachtin	Seed oil	Antimalarial
Nimbolide	Seed oil	Antimalarial, Antibacterial
Gedunin	Seed oil	Antimalarial, Antifungal
Mahmood in	Seed oil	Antibacterial
Nimbin	Seed oil	Anti-inflammatory Antiarthritic Antipyretic Antifungal Antigastric Spermicidal Direutic Antibacterial
Nimbin	Seed oil	Spermicidal
Gallic acid	Bark	Anti-inflammatory
Margolone	Bark	Antibacterial
Cyclic trisulphide	Leaf	Antifungal
Polysaccharides	Bark	Anti-inflammatory
NB2 peptidoglycan	Bark	Immunomodulatory

**Actions: -**

Antioxidants, Anti-inflammatory Anticarcinogenic, Anti-snake venom sports, Antibacterial. Antiarthritic Antipyretic Antifungal anti gastric spermicidal direction. Makes use of in remedy: -

the recuperation homes of neem are in particular due to a few sour substances called triterpenoid acids, (limonoids) with Azadirachta as one of the most important lively factors. The tree is likewise appeared in India as a "village pharmacy" referring, to its making use to deal with an expansion of illnesses and illnesses. It is very useful for treating pores and pores and pores and skin-associated illnesses.

6. Precautions: -

Neem oil, neem bark, and neem leaves are risky for intake via manner of way of pregnant women and might reason miscarriage, in case of pregnancy it acts as a contraceptive. The principal root of the neem tree can broaden two times as long as their height, consequently, it may be risky to shape buildings of the tree due to the truth the strong roots can motive damage them. Subsequently, it's far important to hold a big distance between the various tree and the buildings.

## II. CONCLUSION: -

The Neem tree has been tested to have miraculous powers the humans using its merchandise to remedy their illnesses shape ancient and now even clinical medical doctors from all over the globe are accepting this truth. Neem tree is commonly used to treat severe ailments and illnesses. Inside the world of chemicals, this herbal remedy is a boon to the character. Neem is the delivery of herbal cleaning soap, shampoo, and medicinal merchandise. It is materials nimbandiol, nimocinol, quercetin isomeldenin and so on. It is permitted to treat

illnesses, (chickenpox, pores and pores, skin problems wounds, blisters, and boils,) and numerous illnesses as a consequence of viruses and micro-organisms. Neem and its far components have a very important function in sickness prevention and medicinal charge. These days this development of medical technology determined possible drug treatments- based totally remedy is profitable fitness exercise. The position of neem because of the presence of biochemical compounds. The gift paper in reality suggests that neem has been used by humankind to address numerous ailments and diseases from ancient to trendy each day lifestyles.

#### REFERENCES: -

- [1]. Jones, I., Ley, S. V., Denholm, A. A., Lovell, H., Wood, A. and Sinden, R. E., Sexual development of malaria parasites is inhibited in vitro by the neem extract azadirachtin and its semi-synthetic analogs, *FEMS Microbiol. Lett.*, 15 July 1994, 120(3), 267–273
- [2]. P. Dwarakanadha Reddy, T.Satyanarayana, SwarnaLatha, M.Purushothaman, Local Drug Delivery of Herbs for Treatment of Periodontitis, *JITPS 2010*, Vol.1 (5), pp 245- 251.
- [3]. Fujiwara, T., Sugishita, E., Takeda, T., Ogihara, Y., Shimizu, M., Nomura, T. and Tomita, Y.,) Further studies on the structure of polysaccharides from the bark of *Melia Azadirachta*. *Chem. Pharm. Bull. ibid*, 1984, 32, 1385–1391.
- [4]. Rochanakij, S., Thebtaranonth, Y., Yenjal, C. H. and Yuthavong, Y., Nimbolide, a constitute of *Azadirachta indica* inhibits *Plasmodium falciparum* in culture, *Southeast Asian J. Trop. Med. Public Health*, 1985, 16, 66–72.
- [5]. Debjit Bhowmik, Chiranjib, Jitender Yadav, K. K. Tripathi, K. P. Sampath Kumar, Herbal Remedies of *Azadirachta indica* and its Medicinal Application, *J. Chem. Pharm. Res.*, 2010, 2(1): 62-72.
- [6]. N.B. Dhayanithi, T.T. Ajith Kumar and K. Kathiresan, Effect of neem extract against the bacteria isolated from marine fish, *Journal of Environmental Biology*, July 2010, 31, 409-412.
- [7]. Kabeh. J.D, Jalingo. M.G.D.S.S., Exploiting Neem (*Azadirachta Indica*) Resources for Improving the Quality of Life in Taraba State, Nigeria, *International Journal of Agriculture and Biology*, 1560–8530/2007/09–3–530–532.
- [8]. Hassan Amer, Wafaa A. Helmy, Hanan A.A. Taie, in vitro antitumor and antiviral activities of seeds and leaves from neem (*Azadirachta indica*) extracts, *International Journal of Academic Research*, Vol. 2. No. 2. March 2010.
- [9]. Pillai, N. R., and Santhakumari, G., Anti-arthritis and antiinflammatory actions of nimbidin, *Planta Medica*, 1981, 43,
- [10]. David, S. N., Mediscope, Anti-pyretic of Neem oil and its constituents, 1969, 12, 25–27.
- [11]. Pillai, N. R., and Santhakumari, G., Hypoglycemic activity of *Melia Azadirachta* Linn (Neem), *Indian Journal of Medical Research*, 1981, 74, 931–933.
- [12]. Pillai, N. R., and Santhakumari, G., Effects of Nimbin on acute and chronic gastro-duodenal ulcer models in experimental animals, *Planta Medica*, 1984, 50, 143– 146.
- [13]. P. Dharmani, G. Palit, Exploring Indian medicinal plants for antiulcer activity, *Indian J Pharmacol*, April 2006, Vol 38, issue 2, P.N. 95-99.
- [14]. Sharma VN, Saxena KP., Spermicidal action of Sodium Nimbinatate, *Indian Journal of Medical Research*, 1959, 47, 322-324.
- [15]. Murthy, S.P. and Sirsi, m. 1958. Pharmacological studies on *Melia Azadirachta indica*. *Indian Journal of Physiology and Pharmacology* 2, 387-396.
- [16]. Bhide, N.K., Mehta, D.J. and Lewis, R.A. 1958. Diuretic action of sodium nimbidinate. *Indian Journal of Medical Sciences* 12, 141-145.
- [17]. Pingale Shirish S, Hepatoprotection study of leaves powder of *Azadirachta indica* A. Juss, *International Journal of Pharmaceutical Sciences Review and Research*, Volume 3, Issue 2, July – August 2010, page no-37-42.
- [18]. Sharma, V. N., and Saksena, K. P., 'sodium dimidiate-in vitro study of its spermicidal action, *Indian Journal of Medical Research*, 13 Dec 1959, 1038-1042
- [19]. Rojanapo, W., Suwanno, S., Somaree, R., Glinsukon, T. and Thebtaranonth, Y., Screening of Antioxidants from some Thia vegetables and herbs, *J. Sci. Thailand*, 1985, 11, 177–188.
- [20]. Sergio Muñoz-Valenzuela, Alberto Arnoldo Ibarra-López, Luis Mariano Rubio-Silva, Humberto Valdez-Dávila, and Jesús Borboa-Flores, *Neem Tree Morphology and Oil Content, Issues in new crops and new uses*. 2007, 126-128.
- [21]. Khalid, S. A., Duddeck, H., and Gonzalez-Sierra, M., Isolation, and characterization of an antimalarial agent of the neem tree, *Azadirachta indica*, *Journal of Natural Product*, 1989, 52, 922–927.
- [22]. Rao, B. S., Nazma and Rao, M.J, Antifungal activity of gedunin, *Curr. Sci.*, 1977, 46, 714–716.
- [23]. Devakumar, C. and SukhDev, in *Neem* (eds Randhawa and Parmar, B. S.), 1996, 2nd edn, pp. 77–110.
- [24]. Van der Nat, J. M., Van der Sluis, W. G., 't Hart, L. A., Van Disk, H., de Silva, K. T. D. and Labadie, R. P., *Planta Med.*, 1991, 57, 65–68.
- [25]. Ara, I., Siddiqui, B. S., Faizi, S. and Siddiqui, S., Structurally novel diterpenoid constituents from the stem bark of *Azadirachta indica* (Meliaceae), *J. Chem. Soc., Perkin Trans.*, 1989, 2, 343–345.
- [26]. Pant, N., Garg, H. S., Madhusudanan, K. P. and Bhakuni, D. S., Fitoterapia, Sulfurous compounds from *Azadirachta indica* leaves, 1986, 57, 302–304.
- [27]. Kakai T., Koho, J. P., Anti-inflammatory Polysaccharides from *Melia Azadirachta*, *Chem. Abstr.*, 1984, 100, 91350.
- [28]. Biswas Kausik, Chattopadhyay Ishita, Banerjee K Ranajit. and Bandyopadhyay Uday, Biological activities and medicinal properties of neem (*Azadirachta indica*), *Current Science*, Vol-82, 10 June 2002, pp.1336-1345.
- [29]. Fujiwara, T., Sugishita, E., Takeda, T., Ogihara, Y., Shimizu, M., Nomura, T. and Tomita, Y., ) Further studies on the structure of polysaccharides from the bark of *Melia Azadirachta*. *Chem. Pharm. Bull. ibid*, 1984, 32, 1385–1391.
- [30]. Vander Nat, J. M., Kierx, J. P. A. M., Van Dijk, H., De Silva, K. T. D. and Labadie, R. P., *J. Ethnopharmacol.*, 1987, 19, 125–131.
- [31]. Vander Nat, J. M., Hart, L. A. T., Vander Sluis, W. G., Van Dijk, H., Vander Berg, A. J. J., De Silva, K. T. D. and Labadie, R. P., *ibid*, 1989, 27, 15–24.
- [32]. Moursi, S. A. H. and Al-Khatib, I. M., *Jpn J. Pharmacol.*, 1984, 36, 527–533.
- [33]. I.P. Ogbuewu, V.U. Odoemenam, H.O. Obikaonu, M.N. Opara, O.O. Emenalom, M.C. Uchegbu, I.C. Okoli, B.O. Esonu and M.U. Iloeje, The Growing Importance of Neem (*Azadirachta A. Juss Indica*) in Agriculture, Industry, Medicine, and Environment: A Review, *Research Journal of Medicinal Plant* 5(3):230-245,2011
- [34]. Ayssar Nahl'e, Ideisan Abu-Abdoun, Ibrahim AbdelRahman, andMaysoun Al-Khayat, UAE Neem Extract as a Corrosion Inhibitor for Carbon Steel in HCl Solution, *International Journal of Corrosion*, Volume 2010, 1-9.
- [35]. K. Anbumani and Ajit Pal Singh, Performance of Mustard and Neem oil blend with diesel fuel inc. I engine, *ARPN Journal of Engineering and Applied Sciences*, vol. 5, no. 4,

- [37]. April 2010, 14-20.
- [38]. Patil Prashant, RD Gaikwad, MV Sawane, VS Waghmare, Effect of Neem Oil on Sperm Mitochondrial Activity, Online Journal of Health and Allied Sciences, ISSN 0972-5997 Volume 8, Issue 4; Oct-Dec 2009, 1-2.
- [39]. K. Girish, Bhat S. Shankara, Neem – A Green Treasure, Electronic Journal of Biology, 2008, Vol. 4(3):102-111.
- [40]. Bhargava KP, Gupta MB, Gupta GP, Mitra CR. Antiinflammatory activity of saponins and ot-her natural products. Indian J Med Res. 1970 Jun;58(6):724–730
- [41]. Pillai, N. R., Seshadri, D. S. and Santhakumari, G., Indian Journal of Medical Research, 1978, 68, 169–175.