



Review on pharmacological activities of *Azadirachta indica*

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Abstract

Azadirachta indica, commonly known as neem, or Indian lilac, and is native to the Indian subcontinent. It has been used in ayurvedic medicine for more than 4000-5000 years due to its medicinal properties. It can grow in regions with an annual rainfall below 400 mm, growth reported best on well drained deep and sandy soils. It contains phytochemical compounds like Quercetin and kaempferol, nimbosterol, phenolic compounds, gallic acid, catechin. Nimbidin, nimbine, tannins and tannic acid etc. It shows many pharmacological activities like anti-oxidant, anti-cancer, anti-diabetic, anti-inflammatory activities etc.

Keywords: *Azadirachta indica*, pharmacological activity, phytochemicals, anti-oxidant

Introduction

Neem is called 'arista' in Sanskrit a word that means 'perfect, complete and imperishable'. and also consider as a 'reliver of sickness' and hence is considered as 'Sarbarogaribarani' *Azadirachta indica*, commonly known as neem or Indian lilac, and is native to India, Nepal, Bangladesh, Sri Lanka, and Maldives ^[1]. It is typically grown in tropical and semi-tropical region. It has been used in ayurvedic medicine for more than 5000 years due to its medicinal properties. Neem is the multifarious trees of tropics, with immense potential. It possesses maximum useful non-wood products than any other tree species ^[2]. It shows antiallergenic, antifungal, anti-inflammatory, antipyorrhoeic, antiscabic, diuretic, antiemetic, insecticidal, larvicidal, nematicidal, spermicidal and other biological activities ^[3, 4]. Neem generally grow in areas with sub-arid to sub-humid conditions, with an annual rainfall of 500–1,100 millimetres. It can grow in regions with an annual rainfall below 400 mm, growth reported best on well drained deep and sandy soils. This eco-friendly native tree of India is perhaps most researched tree in the world. *A. indica* is a typical tropical to subtropical tree and exists at annual mean temperatures of 20–30°C. India people have long revered the neem tree for centuries, millions have cleaned their teeth with neem twigs, smeared skin disorders with neem-leaf juice, taken neem tea as a tonic, and placed neem

leaves in their beds, grain bins, cupboards, and closets to keep away troublesome bugs ^[5].

Phytochemical constituents

Flavonoids like Quercetin and kaempferol, nimbosterol, phenolic compounds, gallic acid, catechin. Nimbidin, nimbine, tannins, tannic acid ^[6], fatty acids like -Linoleic acid, Oleic acid, Hexadecanoic acid, Octadecanoic acid. Coumarin and aliphatic compounds etc.

Medicinal Uses

Neem is known for its pesticidal and insecticidal properties, but people also use it in hair and dental products. Clinical trials exist to support therapeutic claims. Neem has been used as an insecticide, insect repellent, and oral dentifrice, and in traditional medicine to treat malaria, diabetes, worms, and cardiovascular and skin diseases ^[7]. It reportedly has contraceptive, antiulcer, and fungicidal properties, as well as applications relevant to cancer. Neem is a strong antioxidant, neutralizing free radicals that may influence the development of some conditions. It is also a strong anti-inflammatory agent ^[8]. Neem has antimicrobial effects and may be effective against several types of bacteria, viruses, and fungi. Neem shows wound healing, anti-dandruff, boost immunity and control problems of eye, skin and ear diseases.

Table 1: Pharmacological activities

S. No.	Type of extract	Activity	Reference
1.	Ethyl Alcohol	Anti -diabetic	Prabhakar patil et al. 2013 ^[1]
2.	Methanol	Anti-microbial	Maragathavalli, S et al. 2012 ^[2]
3.	Ethanol	Anti-inflammatory	K. Nikunz Naidu et al; 2016 ^[3]
4.	Ethanol	Anti -cancer	Suresh kumar et al, 2006 ^[4]
5.	Methanol	Anti-oxidant	Bharat Pokhrel et al, 2015 ^[5]
6.	Ethanol	Anti-ulcer	Bharat Bhusan Mohapatra et al ,2012 ^[6]
7.	Aqueous	Immuno modulator	Abhishek S. Shah et al, 2009 ^[7]
8.	Aqueous	Wound healing	Osunwoke Emeka et al, 2013 ^[8]

Conclusion

Azadirachta indica, commonly known as neem, or Indian lilac, and is native to the Indian subcontinent. It has been used in ayurvedic medicine for more than 4000-5000 years due to its medicinal properties. It can grow in regions with an annual rainfall below 400 mm, growth reported best on well drained deep and sandy soils. It contains phytochemical compounds like Quercetin and kaempferol, nimbosterol, phenolic compounds, gallic acid, catechin .Nimbidin, nimbine, tannins and tannic acid etc. It shows many pharmacological activities like anti-oxidant, anti-cancer, anti-diabetic, anti-inflammatory activities etc.

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