Content available at: https://www.ipinnovative.com/open-access-journals

Current Trends in Pharmacy and Pharmaceutical Chemistry

Journal homepage: https://www.ctppc.org/

Review Article

Review of azadirachta indica

A. G. Nerkar[1,2,3,*], G. S. Chakraborthy[1]

[1] *Dept. of Medicinal Chemistry and Pharmacology, Parul Institute of Pharmacy & Research, Parul University, Vadodara, Gujarat, India*
[2] *Founder and Director, Ateos Foundation of Science Education and Research, Pune, Maharashtra, India*
[3] *Founder and Director, Carolene Therapeutics, Pvt. Ltd., Aurangabad, Maharashtra, India*

A R T I C L E I N F O

Article history:
Received 26-05-2021
Accepted 21-07-2021
Available online 31-07-2021

Keywords:
Azadirachtaindica
Medicinal uses
Preparations Introduction:

A B S T R A C T

Neem (*Azadirachta indica*) belonging to Maliaceae family is very important medicinal plant. Neem is used different medicinal system; Ayurveda, Unani, Homeopathic medicines against various diseases. Each part of neem tree which has some medical property which act on various diseases.

1. Introduction

1.1. What is neem?

It is typically grown in tropical and semi-tropical regions. Neem trees also grow in islands located in the southern part of Iran. Its fruits and seeds are the source of neem oil.[1]

Fig. 1: The neem tree

1.2. Components

1.2.1. Leaves

Imparipinnate 20-37 cm in length. Leaf-lets are opposite or alternate, obliquely falcate-lanceolate, serrate, dark green to greenish yellow in colour.[2]

Fig. 2: The neem leaflet

* *Corresponding author*.
E-mail address: dragnerkar@gmail.com (A. G. Nerkar).

https://doi.org/10.18231/j.ctppc.2021.004

1.2.2. Flowers

White scented 5 mm long pentamerons, staminal tube, dentate, anthers inserted inside.[3]

Fig. 3: The neem flowers

1.2.3. Fruits

Drupe 1.2 to 1.8 cm long, oblong, 1 — seeded smooth greenish yellow in colour. Intensely bitter in Taste.[4]

Fig. 4: The neem drupe

1.2.4. Bark

Rough, greyish to brownish in colour, channelled in shape, about 10mm in thickness — with scaly to fissured surface. Internally yellowish in colour laminated and fibrous.[5]

1.3. Chemical constituents

The active ingredient areazadirachtin, salannin and meliantrol. The neem leaves contain meliacin, nimbin, nimbidin, nimbosterol and a bitter principle called margosasine.

Neem oil is expressed from seeds and it contains chiefly glycerides of oleic (50%) and stearic (20%) acids.[6]

Fig. 5: The neem bark

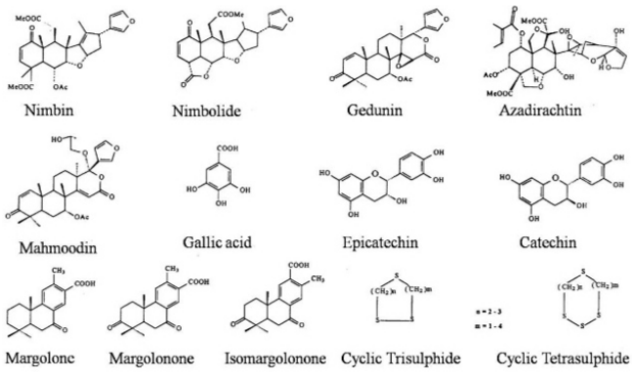

Fig. 6: Structure of active chemical constituents

1.4. Chemical structure

1.5. Preparation

1.5.1. Solid

1.5.1.1. Soap. Neem soap is one of the most widely used skin care products in India. The soap acts as an antibacterial, clearing up skin rashes, acne and eczema. It also soothes backaches and relieves tension and stress from the muscles

1.5.1.2. Ingredient. 1. 176 grams olive oil
2. 176 grams sunflower oil
3. 50 grams coconut oil
4. 40 grams palm oil
5. 18 grams castor oil
6. 15 grams neem oil
7. 66 grams caustic soda
8. 200 grams soda
9. 15grams essential oil

1.5.2. Neem capsule

Most capsules are ingested in pairs twice a day as treatment for acute or chronic ailments.[7]

1.6. Liquid

1.6.1. Neem oil

Neem oil is a vegetable oil pressed from the fruits and seeds of the neem (Azadirachtaindica).

1.6.2. Neem sanitizer

1. Azadirachtaindica (neem) Extract
2. Ethanol (grain alcohol)

1.6.3. Semisolid

1.6.3.1. Creams.

1. **Antifungal:** Concentration of neem oil and ketakonazole shows antifungal activity.
2. **Antiseptic :** Quercetin and ß-sitosterol, polyphenolic flavonoids, were purified from neem fresh leaves and were known to have antibacterial and antifungal properties and seeds hold valuable constituents including gedunin and azadirachtin.

1. Face care products:
2. Face wash
3. Himalaya Ingredients
4. Water (aqua)
5. Ammonium lauryl sulphate
6. Meliaazadirachtaindica leaf extract
7. Cocamidopropylbetaine
8. Glycerine
9. Curcuma longa (turmeric) root extract
10. Sodium hydroxide
11. Phenoxyethanol
12. Fragrance

1.6.4. Patanjali Ingredients

1. Aloebarbadensis
2. Citrus reticulate
3. Azadirachtaindica
4. Ocimum sanctum
5. Aqua. Soft soap base
6. Vitamin E
7. Honey

1.6.5. Dental care cream himalaya ingredients

1. Pomegranate fruit rind
2. Indian Gum Arabic Tree's fresh twigs
3. Triphala

1.7. Azadirachta indica

1.7.1. Patanjali ingredients

1. Anacycluspyretheum 20 mg
2. Azadirachtaindica 10 mg
3. Acacia Arabica 20 mg
4. Xanthoxylumalatum 20 mg
5. Menthaspicata 10 mg

1.7.2. Pharmacological activities

1. Larvicidal activity
2. Antibacterial activity
3. Antidiabetic evaluation
4. Antioxidant
5. Skin disorders
6. Anti-Hiv /AIDS
7. Antiulcer
8. Antimalerial activity
9. Anti-tumour effect
10. Antifertility effect
11. Anti-dental caries
12. Antihypertensive and antipercholestermic effect

1.7.3. Antioxidant

It is a extract of yong flowers and leaves have strong antioxidant potential. It is a indicator of oxidative stress ,neem is a vegetable bitter tonic to promote good health.

1.7.4. Skin disorders

Neem can treat the many diseases and disorders like scabies and lice ; it is used in combination with curcuma longa (turmeric). It cured in 3 to 15 days of applictation and no allergic and adverse effect is observed.

1.7.5. Antiulcer

The bark of the neem extract reduced human gastric acid hypersecretion and gastroduodenal and gastro esophageal also.

1.7.6. Home- remedies

1. It is useful for the athletes' foot and other foot problems.
2. For various infections like acne, pimples, and pure neem powder mixrd with water affected area.
3. For the purpose of cleaning the teeth and bright and shiny.
4. Prevent the breeding of mosquitoes by adding crushed neem seeds and pueneem oil to all breeding areas.
5. Add the neem leaves for the preservation and storage of wheat, jawar, bajra, corn etc.

2. Conclusion

The collected information regarding the use of Azadirachta indica traditional uses of their efficacy and generally believed to be safe for human use natural compounds, especially of plant origin.

3. Source of Funding

None.

4. Conflict of Interest

None.

References

1. Maithani A, Parcha V, Pant G, Dhulia I, Kumar D. (NEEM) Leaf: A Review. *J Pharm Res*. 2011;4(6):1824–7.
2. Subapriya R, Nagini S. Medicinal Properties of Neem Leaves: A Review. *Curr Med Chem - Anti-Cancer Agent*;5(2):149–56. doi:10.2174/1568011053174828.
3. Medicinal properties of fractionated acetone/water neem (Azadirachta indica) leaf extract from Nigeria: a review. *Niger J Physiol Sci*. 2009;24(2):157–9. doi:10.4314/njps.v24i2.52926.
4. Dai J, Varoujan A. Extraction and Colorimetric Determination of Azadirachtin-Related Limonoids in Neem Seed Kernel. *J Agric Food Chem*. 1999;47(9):3738–42. doi:10.1021/jf990227h.
5. Verma M, Sharma S, Prasad A. Biological alternatives for termite control: a review. *Int Biodeterioration Biodegradation* . 2009;63(8):959–72. doi:10.1016/j.ibiod.2009.05.009.
6. Boeke SJ, Boersma MG, Alink GM. Safety evaluation of neem (Azadirachta indica) derived pesticides. *J Ethnopharmacol*. 2004;94(1):25–41. doi:10.1016/j.jep.2004.05.011.
7. Pandey G, Verma KK. Evaluation Of Phytochemical, Antibacterial And Free Radical Scavenging Properties Of Azadirachta Indica (Neem) Leaves. *Int J Pharm Pharm Sci*. 2014;6(2):1–4.

Author biography

A. G. Nerkar, Professor,
Editor in Chief, Current Trends in Pharmacy and Pharmaceutical Chemistry

G. S. Chakraborthy, Professor and Principal

Cite this article: Nerkar AG, Chakraborthy GS. Review of azadirachta indica. *Curr Trends Pharm Pharm Chem* 2021;3(3):11-14.