

Separation and Identification of Bioactive Compounds of Herbal Topical Cream Formulation of *Azadirachta indica*

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Abstract: *The well known tree neem (Azadirachta indica) is a part of the Meliaceae family. The Conventional Restorative Framework employments bark, clears out, blossoms, seeds, oil, and other parts for a assortment of purposes. Neem's pharmacological applications have been the subject of various obvious applications. A exhaustive diagram of pharmacognosy, phytochemistry, and pharmacological activity as depicted in this way distant is given in this article. Catchphrases: phytochemistry, pharmacognosy, neem, Azadirachta indica, pharmacological action, survey Dermatophytosis is a contagious fungal disease among animal communities. The major concerns of dermatophytosis are cost of treatment, difficulty of control, and the public health consequences. The objective of the present study was to compare the cliniclefficacy of Sumaq and Neem extract cream with that of traditional treatments, enilconazole and glycerine iodine, ondermatophytosis in Arabian horses.*

Keywords: Arabian horses, Dermatophytosis, Egypt, Herbal extracts

I. INTRODUCTION

Azadirachta indica A. Juss, traditionally named Neem (Meliaceae), has been widely known for centuries as a source of active ingredients to develop products for health providers in remote areas. Thus, primary healthcare in developing countries has included treatments with this tree or its parts [1]. For instance, Indian traditional medicine reported cases of success that were not always scientifically tested [2]. *A. indica* is considered a multipurpose medicinal tree. Outstanding for its wide distribution in nature, as well as its low toxicity, Neem can be considered a natural source of cosmetic raw material for large-scale production

A. indica also known as Margosa tree, as 'arista' or 'nimba' and 'nimbatishwasthyamdadati' in Sanskrit meaning 'to give good health'. The biological benefits of neem are enlisted in 'Charak-Samhita' and 'Susruta-Samhita', which forms the basis of Ayurvedic system of treatment. 'Azad- Darakth- E- Hind' means 'Free tree of India' in Persian. Neem is considered a genetically diverse plant. In India, Neem was used for chicken pox and small pox from antiquity. It has been used for environmental protection such as soil erosion, soil fertility, insecticide, pesticide etc [2].

Habitat

Although the exact native region of Neem tree is not known, it is thought to be originating naturally in south Asia and it grows in natural forests with drier- climatic condition of southern India and Burma. For many millennia, neem has been cultivated in India, Pakistan, Sri Lanka, Bangladesh, Myanmar, Thailand, Southern Malaysia, and the drier Indonesian islands from Java eastward. Neem was introduced to Fiji and Mauritius during early 19th century [3].

Climate

It is a resistant tree as well as the annual temperature ranges from 20 to 35°C for the natural growth. In India country, neem grows at temperatures between 1 to 50°C and final rainfall of less than 700 mm. The plant is also used in the afforestation program in arid and semi-arid regions [4].

Propagation and Cultivation

It is a hard tree, grows well in saline soils and drought conditions. Growth is slow in water-logged conditions. Propagated from seeds, which should be sown immediately after ripening, as their viability is very short. Seeds germinate within three weeks time. Root suckers and stem cuttings are also used for planting. It can be grown in all types of soil, but black-loam soil is more suitable. Within one year, the seedlings grow up to a height of 120 cm. Rapid multiplication through leaf culture has been found successful. Tissue culture techniques have been reported for the production of azadirachtin from cultures of leaves and flowers. 22 weeks old callus of leaves is reported to yield maximum concentration of azadirachtin upto 3.68 % and the 15 weeks old flower callus 2.46 % of azadirachtin on dry weight basis [5,6].

Advantages of neem leaf powder-

- Acts as a shield against dandruff
- It can be used for both face and hair
- Treat dry scalp making it smooth and shiny
- Increase radiance and produce ageing effect
- Increase blood circulation.

Benefits of neem in health :

- Antimicrobial and Antifungal: Neem's leaves, seeds, and oil have been shown to exhibit antimicrobial and antifungal properties, effective against various pathogens. [7].
- Anti-Inflammatory: Neem's anti-inflammatory properties may help reduce pain, swelling, and redness in the body.
- Antioxidant: Neem's antioxidant properties help protect the body from free radicals, which can damage cells and lead to chronic diseases.
- Skin and Hair Care: Neem's oil and their extracts are used to treatment skin conditions like acne, eczema, and psoriasis as well as promote healthy hair growth. [8,9].
- Oral Health: Neem's twigs have been traditionally used as a natural toothbrush to clean teeth and gums.

Cosmetic and Pharmaceutical Applications:

- Skin care Products: Neem's oil and extracts are used in skincare products to treat acne, reduce inflammation, and promote healthy skin.
- Hair care Products: Neem's oil and extracts are used in haircare products to promote healthy hair growth, reduce the dandruff and smooth scalp irritations. [10].
- Oral Care Products: Neem's twigs and extracts are used in oral care products to clean teeth and gums, reduce plaque, and prevent bad breath.
- Pharmaceuticals: Neem's extracts have been shown to exhibit antimalarial, antibacterial, and antifungal properties, making them a potential ingredient in pharmaceuticals. [11].

Precautions and Side Effects:

- Pregnancy and Breastfeeding: Neem's seeds and oil may stimulate the uterus and affect fertility; consult a healthcare professional before using neem during pregnancy or breastfeeding.
- Allergic Reactions: Some individuals may be allergic to neem; monitor for signs of allergic reactions, such as skin irritation, itching, or difficulty breathing [12].
- Interactions with Medications: Neem may interact with certain medications, such as blood thinners, diabetes medications, and blood pressure medications; consult a healthcare professional before using neem with medications [13].

Make formulation by using neem extraction :

Extraction is the first step to separate the desired natural products from the raw materials. Extraction is an essential feature in natural product research. There is relentless stride going on to improve and discover better extractive techniques having better efficiency and cost-effectiveness [14]. This review comprehensively discusses a wide range of conventional and modern extraction techniques, their optimization conditions, and their comparative advantages and disadvantages [15]. A vast array of recent applications of these techniques have also been critically analyzed. This literature analysis will be beneficial for advancing the current and discovering novel extraction techniques [16].

Neem extraction process

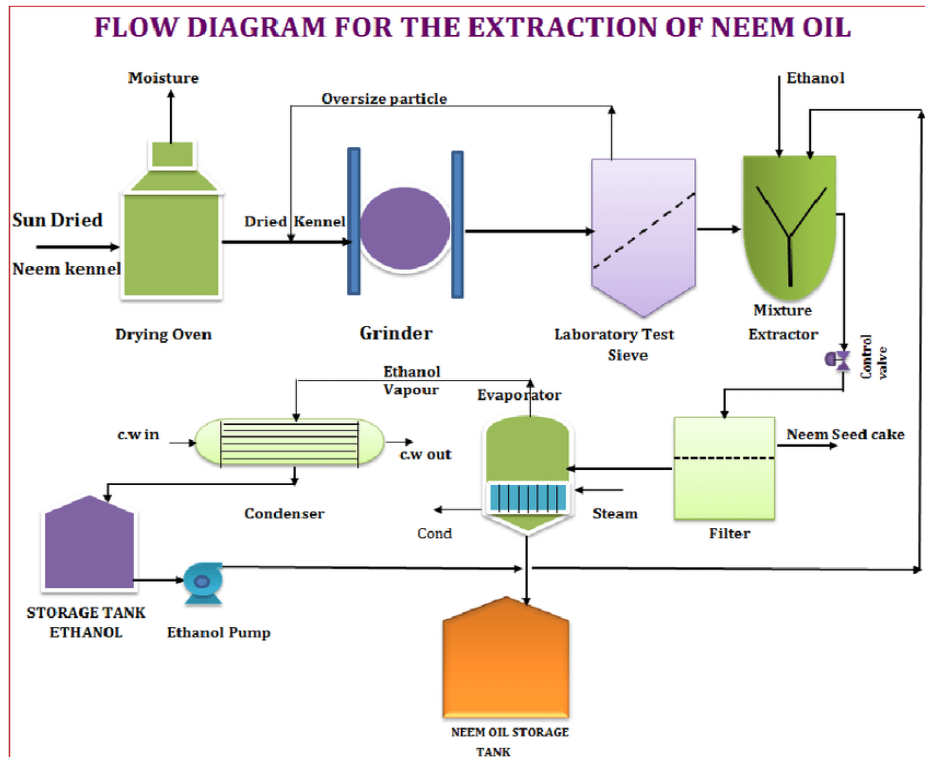


Fig:-1.1

Neem consist of following compounds-

Sr.No.	Compounds	Percentage
1	Moisture	59.4%
2	Carbohydrates	22.9%
3	Fat	1.0%
4	Calcium	5.10(mg/100gm)
5	Iron	17(mg/100gm)
6	Niacin	1.40(mg/100gm)
7	Caratine	1,998(mg/100gm)
8	Glutamic Acid	73.30(mg/100gm)
9	Aspartic Acid	15.50(mg/100gm)
10	Proline	4.00(mg/100gm)

11	Protein	7.1%
12	Fibers	6.2%
13	Minerals	3.4%
14	Phosporous	80(mg/100gm)
15	Vitamin -c	218(mg/100gm)
16	Calarific Value b	1290(Kcal/kg)
17	Tyrosine	31.50(mg/100gm)
18	Alanine	6.40(mg/100gm)
19	Glutamine	1.00(mg/100gm)
20	Thiamine	0.004(mg/100gm)

Neem :-



Fig:- 1.2

Scientific name :- Azadirachta indica

Family:- Mahogany

Synonyms :- margosa, nimtree or Indian lilac.

Biological source :- The biological source of neem is the Azadirachta indica tree, which is a member of the Meliaceae family.

Use:-

- 1.Help reduce blood sugar levels
- 2.heal ulcers in the digestive tract prevent pregnancy
- 3.kill bacteria
- 4.prevent plaque from forming in the mouth

II. CONCLUSION

In the future, further research can be conducted on other citrus fruits such as limes, lemons, tangerines, and grape-fruit. Additionally, exploration of NEO's efficacy against other fruits and microorganisms could expand the availability of organic alternative sanitizers in the global market [17].

The herbal medicines are used in the ancient time itself for the treatment of different types of diseases. The neem is one of the medicinal plant having antibacterial activity against the different bacteria and Fungi. Plant extracts with antibacterial activity have been formulated as topical creams [18]. It has been previously reported that formulation of Neem oil as topical cream may lead to enhancement of stability and acceptability of the active ingredient, while the antimicrobial activity remains considerable. Topical route of application has a great potential as an effective and safe way to administer drug for its Anti-Microbial in effect.

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