

# A Review on “Formulation and Evaluation of Herbal Ointment by using Marking Nut”

Vaibhav Tapkir<sup>1</sup>, Pradnesh Pendbhaje<sup>2</sup>, Apksha Dalvi<sup>3</sup>

Samarth Institute of Pharmacy, Belhe Maharashtra<sup>1</sup>

Department of B Pharmacy, Samarth Institute of Pharmacy, Belhe, Maharashtra India<sup>2,3</sup>

**Abstract:** *Semecarpus anacardium* Linn. (Family: Anacardiaceous), commonly known ‘Ballataka’ or ‘Bhilwa’, has been used in various traditional system of medicines for various oilments since ancient times. Its nuts contain a variety of biologically active compounds such as bioflavonoids, phenolic compounds, bharalwanols, minerals, vitamins and amino acids, which show various medicinal properties. The fruit and nut extract shows various activities like antiatherogenic, anti-inflammatory, antioxidant, antimicrobial, anti-reproductive, CNS stimulant, hypoglycemic, anticarcinogenic and hair growth promoter. The article reviews the various activities of the plant. Ointment of *Semecarpus anacardium* Linn are used as antibacterial, anti-microbial. Evaluation parameter of ointment is appearance, odor, color, homogeneity, pH, Spreadable, hardness and viscosity etc..

**Keywords:** ointments, anti-inflammatory, anti – oxidant, semi solid, nut extract

## I. INTRODUCTION

The Indian knowledge of herbal medicines is gaining widespread acceptance globally. In Ayurveda, almost all medicinal preparations are derived from plants, whether in the simple form of raw plant materials or in the refined form of crude extracts, mixtures and so on. In other parts of the world, the term Complementary and Alternative Medicine (CAM) is used for various forms of traditional drugs. Complementary and Alternative Medicine (CAM) can be defined as any treatment used in conjunction (complementary) or in place of (alternative) standard medical treatment. In alternative medicine, medicinal plant preparations have found widespread use particularly in the case of diseases not amenable to treatment by modern method.

An oil-based topical formulation with a semi-solid texture and a greasy appearance that can be applied to the skin is called an ointment. As per the ointment meaning, the therapeutic substances are dispersed in the medium. The medium generally has 80% oil and 20% water. As you can easily understand that the water medium is mixed evenly with the oil medium to prepare a thick suspension.

*Semecarpus anacardium* Linn. (Family: Anacardiaceae) is distributed in sub-Himalayan region, tropical and central parts of India. The nut is commonly known as ‘marking nut’ and in the vernacular as ‘Ballataka’ or ‘Bhilwa’. It has high priority and applicability in indigenous system of medicine.

*Semecarpus anacardium* Linn. (Family: Anacardiaceae) is a plant well-known for its medicinal value in Ayurvedic and Siddha system of medicine. Chemical and phytochemical analyses of its nut reveal the presence of biflavonoids, phenolic compounds, bharalwanols, minerals, vitamins and amino acids. A variety of nut extract preparations from this source are effective against many diseases, viz., arthritis, tumors, infections and so on. However, the mechanism of the pharmacological action of its nut can be greatly aided by the isolation of its active principle and determination of structure–function relationship.

### Advantages

- Probability of side effect can be reduced.
- It is used externally.
- First pass gut and hepatic metabolism is avoided.
- Convenient for comatose patients or patient having difficulty on oral administration
- Convenient dosage form for bitter drugs.

- More stable than liquid dosage form.

**Disadvantages -**

- May cause staining
- They are bulky to handle
- May cause irritation or allergy to some patient.

**Toxonomy(Introduction of the Plant)-**

***Semecarpus anacardium-***



**Common Name-** Bhilawa Seed

**Scientific Name-** *Semecarpus anacardium*.

**Synonyms-** marking nut tree, Malacca bean tree, marany nut, oriental cashew, phobi nut tree and varnish tree.

**Uses-** washermen to mark cloth and clothing before washing, as it imparted a water insoluble mark to the cloth.

**Traditional Use-** Bhallataka is used for hair care in traditional system of medicines. It is used for dyeing, and promoting hair growth in folk medicine.

**Obtained Sources-** Plant is distributed at the outer Himalayas from Sutlej to Sikkim and fairly at hotter parts of India as far as east of Assam.

The tree is not found under cultivation but is common in forests often found occurring with Sal

**Biological Source-** It is Obtained From the Fruits of the *Semecarpus anacardium*.

**Kingdom-** Plantae

**Clade-**Tracheophytes

**Clade-**Angiosperms

**Clade-**Eudicots

**Clade-**Rosids

**Order-**Sapindales

**Family-**Anacardiaceae

**Genus-***Semecarpus*

**Species-** *S. anacardium*

**Plant Description-**

It is a deciduous tree. Like the closely related cashew, the fruit is composed of two parts, a reddish-orange accessory fruit and a black drupe that grows at the end. The nut is about 25 millimetres (1 in) long, ovoid and smooth lustrous black. The accessory fruit is edible and sweet when ripe, but the black fruit is toxic and produces a severe allergic reaction if it is consumed or its resin comes in contact with the skin.<sup>[7]</sup> The seed inside the black fruit, known as godambi (गोडंबी), is edible when properly prepared.

**Chemical Constituents :**

Nut-shells contain biflavonoids – biflavones A, C, A1 & A2. Oil from nuts called Bhilavinol contains a mixture of phenolic compounds. Crystal of Calcium oxalate and oil is present in the mesocarp parenchyma.

**Bases used in ointment**

Hydrocarbon bases (oleaginous bases)

ex - Paraffin, Lanolin

Absorption bases

ex-Cold cream, anhydrous lanolin

Water removal bases

ex-Oil in water.

Water soluble bases.

Polyethylene glycol.

**Antioxidants used in ointment**

Butylated hydroxyl anisole.

Butylated hydroxyl toluence.

**Emulsifying Agent used in ointment**

Sodium lauryl sulphate (o/w emulsion).

Sodium stearate and calcium stearate .

Glyceryl monostearate.

Humectant is used in ointment

eg-glycerin,hyaluronic acid.

**Ointment are prepared by Four General Methods**

Fusion Method.

Trituration Method.

Chemical Reaction Method.

Emulcification Method.

**Procedure-**

- 1)Accurately weigh all the ingredients.
- 2)Add hard paraffin and Stearyl Alcohol in evaporating dish.
- 3) Melt above mixture on water bath.
- 4)Then add wool fat and white soft paraffin into the previous mixture.
- 5)Stir until all the ingredients are melted and form homogeneous mixture.
- 6) Remove from the water bath and cool.
- 7) Transfer it into a suitable container and label.

**Category:** Ointment base, Vehicle.

**Storage:** It should be stored in tightly closed and completely filled containers.

**Pharmacological / Biological Parameters-**

**1.Anti-Inflammatory Activity-** Ramprasathet *et al.* investigated the antiinflammatory effects of SA nut extract on developing and developed adjuvant arthritis. *Semecarpus anacardium* significantly decreased the carrageenan-induced paw edema and cotton pellet granuloma. These results indicate the potent antiinflammatory effect and therapeutic efficacy of SA Linn. Nut extract against all phases of inflammation is comparable to that of indomethacin.

**2.Anti-Oxidant Activity-** *Semecarpus anacardium* has been reported in various studies to possess potent antioxidant activity. Verma et al. investigated antioxidant activity of the aqueous extract of nuts of medicinal plant SA in AKR

mouse liver during development of lymphoma. Administration of the aqueous extract of SA to lymphomatransplanted mouse leads to increase in the activities of antioxidant enzymes, whereas LDH activity is brought down significantly indicating a decrease in carcinogenesis.

**3. Anti-Microbial Activity-** Mohanta et al. prepared the aqueous and organic solvent extracts of the plant and screened for antimicrobial (disc diffusion method) and phytochemical properties. The petroleum ether (PEE) and aqueous extract fractions (AQE) showed inhibitory activity against *Staphylococcus aureus* (10 mm) and *Shigella flexneri* (16 mm) at 100 mg/ml, respectively. While chloroform extract showed inhibition against *Bacillus licheniformis*, *Vibrio cholerae* and *Pseudomonas aeruginosa*, the ethanol extract showed inhibition to *Pseudomonas aeruginosa* and *S. aureus*.

**4. CNS Stimulant Activity-** Farooq *et al.* evaluated the beneficial effect of nuts of SA, extracted with milk, on CNS, mainly for its locomotor and nootropic activities in different experimental animal models. The extract tested but a slight CNS depressant effect was noted with only 150 mg/kg of the extract and it was found to possess nootropic activity

**5. Anti-Atherogenic Activity-** The imbalance between the pro-oxidants and antioxidants is the main cause of development of atherosclerosis. To prevent such condition, antioxidant therapy is beneficial. *Semecarpus anacardium* (SA) shows such antioxidant property. It has capacity to scavenge the superoxide and hydroxyl radicals at low concentrations. The process of atherogenesis initiated by peroxidation of lipids in low-density lipoproteins was also found inhibited by SA

**6. Hypoglycemic Activity-** Arul et al. studied the effect of ethanolic extract of dried nuts of SA on blood glucose and investigated in both normal (hypoglycemic) and streptozotocin-induced diabetic (antihyperglycemic) rats. The ethanolic extract of SA (100 mg/kg) reduced the blood glucose of normal rats. The blood glucose levels were measured at 0, 1, 2 and 3 h after the treatment and antihyperglycemic activity of SA was compared with tolbutamide, a sulfonyl urea derivative used in diabetes mellitus. [36]

**7. Anti-Carcinogenic-** Mathivadhani *et al.* studied SA nut extract for inhibitory effect on human breast cancer cells (T47D). Cytotoxicity analyses suggested that these cells had become apoptotic. *Semecarpus anacardium* was discovered to induce rapid Ca(2+) mobilization from intracellular stores of T47D cell line, and its cytotoxicity against T47D was well correlated with altered mitochondrial transmembrane potential. At the molecular level, these changes are accompanied by decrease in Bcl(2) and increase in Bax, cytochrome c, caspases and PARP cleavage, and ultimately by internucleosomal DNA fragmentation. Taken together, our results provide unprecedented evidence that SA triggers apoptotic signals in T47D cells.

## II. CONCLUSION

*Semecarpus anacardium* is used for various medicinal properties. The fruit and nut extract shows various activities like antiatherogenic, anti-inflammatory, antioxidant, antimicrobial, anti-reproductive, CNS stimulant, hypoglycaemic, anticarcinogenic and hair growth promoter. More efforts are needed to study the traditional uses of the plant and the subsequent validation of activity and the mechanism of action.

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- [6]. Hugh F. Glen (2004). What's in a Name. Jacana. p. 3. ISBN 978-1-77009-0408 (Greek ana = upwards + kardia = heart); applied by 16th-century apothecaries to the fruit of the marking nut, *Semecarpus anacardium*, and later used by Linnaeus as a generic name for the cashew.
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