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A AYURVEDIC REVIEW ON BHALLATAK - AN IRRITANT ORGANIC VEGETABLE POISON

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Abstract: Bhallataka is one of the Ayurvedic herbs. It is most powerful and fast acting. Its botanical name is Semecarpus anacardium. It belongs to Anacardaceae family. Since it is very hot in potency, it is a Irritant organic vegetable poison it is used only after purification procedures. Marking nuts (bhilwa) are black, heart-shaped with rough projection at the base. They have a thick, cellular pericarp, which contains an irritant juice which is brownish, oily and acrid but turns black exposure to air. Juice from seeds mixed with lime is used by Dhobi to mark clothes, so it is called as marking nut. The article highlights about classification, properties, purification, toxic effects, use and treatment etc. Bhallataka (Semecarpus anacardium) is widely used therapeutically in diseases like Arsha, skin disease, ascites, Jwara, worm infestation etc. Bhallataka is mentioned in Upavisha varga by Rasatarangini and Dhanvantari Nighantu. But before using internally Shodhana sanskara (purification process) of Bhallataka should be carried out to avoid its toxic effect on the body.

Keywords: Marking Nut , Classification , Vegetable Poison, Properties , Treatment

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Introduction:

The tree belonging to family Anacardiaceae grows all in many parts of the country, *Semecarpus anacardium* is medium size deciduous tree with a rough bark, yielding acrid juice. The juice of the nut is oily and black. (Seed is almost black, heart shaped, 2-4 gm and 2.5 x 1.5 cm). It is used extensively in piles, skin diseases, etc.⁽¹⁾ within which is a thick fleshy pericarp which yields brown oily sinuous fluid. This turns black on exposure to air. This fluid is often used as marking ink on linen and cotton clothes by the washer men (Dhobis).⁽²⁾

Leaves : They are large, crowded towards the extremities of the branches, oblong or obovate-oblong, rounded at the apex rounded, cuneate at the base, coriaceous, hispidly pubescent.⁽³⁾

Pedicels : Equally or shorter than the leaves.

Flowers : small, greenish white, sub-sessile, fascicles in pubescent pedicels, the female pedicels shorter than the male; pedicel short, bracts lanceolate, pilose.

Calyx: About 1 mm. long, pilose outside, 5-6 fid segments deciduous. Corolla : Petals 4-5 mm. long, ovate, acute, 5-6 imbricate.

Stamens : 5-6 inserted at the base of the disk which is broad and annular. Filaments subulate.

Ovary : Subglobose densely pilose, crowned with 3 styles. 1-celled with ovules pendulous from a basal funicle.

Drupe : 2.35-5.88 cm. long kidney-shaped, obliquely ovoid. smooth shining black when ripe, seated on a fleshy orange-red receptacle formed of the thickened disk and calyx base.

Seed : Pendulous; testa coriaceous, innercoat somewhat fleshy. The tree becomes leafless between February and April, the leaves and flowers appearing in May.

Classification: - Irritant organic vegetable poison

Natural order Taxonomical Classification ⁽⁴⁾

:

Kingdom : Plantae – Plants

Subkingdom : Tracheobionta – Vascular plants

Super division : Spermatophyta – Seed plants

Division : Magnoliophyta – Flowering plants

Class : Magnoliopsida – Dicotyledons

Subclass : Rosidae

Order : Sapindales

Family : Anacardiaceae – Sumac family

Genus : *Semecarpus* L. f. – *semecarpus*

Species : *Semecarpus anacardium* L. f. – marking nut tree

Synonyms:- Agnika Agnimukhi , Arushkara, Vatari, Sphotabeejaka, Veeravriksha, Sophahetu ⁽⁵⁾

Ayurvedic Classical categorization

Table no.1 Properties and Actions ⁽¹¹⁾

Nighantu Characte	Bhavaprakash Nighantu	Dhanvantari Nighantu	Raj Nighant	Kaideva Nighant	Madanpal
1.Guna	Laghu	---	---	Laghu	Laghu
2.Rasa	Kashaya, Madhura	<i>Katu, Tikta, Madhura</i>	<i>Katu, Tikta, Kashaya</i>	<i>Tikta, Kashaya, Madhura</i>	<i>Kashaya, Madhura</i>
3.Vipaka	---	---	---	Katu	---
4.Veerya	Ushna	Ushna	Ushna	Sheeta	Ushna
5.Karma	Shukrala	---	---	Grahi, Deenana	<i>Shukrala</i>
6.Doshaghnat	Vata, Kapha	Vata, Kapha	Vata, Kapha	Pitta, Kaph	Vata ,Kapha
7.Rogaghnata	Udara, Aanaaha, Kushtha, Arsha, Grahani, Gulma, Jwara, Kshwitra, Agnimandya, krimi, Vrana	Krimi, Gulma, Arsha, Grahini, Kushtha	Prameha	Raktavikar	Udara, Aanaaha, Kushtha, Arsha, Grahani, Gulma, Jwara, Kshwitra, Agnimandya

ACTIVE PRINCIPLES ⁽¹²⁾

Two active principles are isolated in extracted from the pericarp

- Semicarpol (monohydroxy phenol compound). (0.1%)

Gana/Varga: Deepaniya , mahakashaya, Kushthaghna, mahakashaya Mutrasangrahaniya mahakashaya Katukaskandha ^(6,7), Nyagrodhadi gana, Mustadi gana, Kashaya varga ⁽⁸⁾, Mustadi gana ⁽⁹⁾, Chandanadi varga ⁽¹⁰⁾

- Bhilawwnol (alkaloid) (15 to 17%)
- Besides phenolic constituents flavanones and Biflavanones have been reported, these are tetrahydromentoflavone, tetrahydrorobustaflavone and galluflavone.

Kernels of fruit yield reddish brown oil, which is composed of palmitic stearic, linoleic arachidic oleic and myristic acid. Bhilwanol found to be a mixture of 1,2 dihydroxy-3-(pentadecenyl-8- benzene. Studies on methylated Bhilwanol showed that it contained more than 7 components identified as dimethylethers of 1-pentadeca 8-enyl 2,3-di- hydroxybenzene (I) and 1-pentadeca 7,10-diethyl 1,3-dihydroxybenzene (II).

KARMA (ACTIONS) MENTIONED IN DIFFERENT SAMHITAS

Yakrittejaka, Krimighna,
Hridayauttejaka, Shothahara,
Kaphanissaraka, Vrishya, Kamottejaka,
Pittavardhaka, Vishaghna, Sphotajanaka,
Sheetaprashamana, Medhya, Nadibalya,
Deepana, Pachana, Bhedana,
Shukrasaravridhikara, Vajikarana,
Garbhashayauttejaka, Swedajanana,
Kushthghna, Jwaraghna. Rasayana

ROGAGHNATA :

Arsha, Krimi, Hriddaurbalya,
Granthishotha, Kasa, Shwasa, Prameha,
Shukradaurbalya, Dhwajabhanga,
Urustambha, Plihodara, Grahani, Upadansha,
, Atisara, Bradhna, Ajirna Kushtha, shwitra,
Indralupta, Mastikya daurbalya, Nadi

daurbalya, Apasmara, Gridhrasi, Aamawata,
Vatavyadhi, pakshaghata, Agnimandya,
Vibandha, Aanaha, Gulma, Udara,
Kashtartava, Vatarakta, Vrana, jwara,
Daurbalya, plihavridhi

Signs and Symptoms: ⁽¹³⁾

Applied externally, the juice causes irritation and a painful blister which contains acrid serum, which produces eczematous eruptions of the neighbouring skin with which it comes into contact, and there is itching. The lesion resembles a bruise. Later an ulcer is produced, and there may be sloughing action. In large dose, it produces blisters on throat and severe gastrointestinal irritation, dyspnoea, tachycardia, hypotension, cyanosis, absence of reflexes, delirium, coma and death.

FATAL DOSE ⁽¹⁴⁾: 10gms.

FATAL PERIOD ⁽¹⁵⁾: 12-24 hours.

Bhallataka shodhana: ⁽¹⁶⁾

The process in which specific substances are treated with advised matter by rubbing, steaming etc. , so as to remove its harmful or toxic effects is known as shodhana sanskara(purification process). Bhallataka shodhana is necessary because it is very hot in nature, its mere skin contact may cause boils. To reduce its hot potency and toxicity,

it is subjected to purification procedure. Ripe seeds of Bhallataka are taken, and put into water. Only those which sinks are used for purification and the rest are discarded. The seed is cut into two and kept immersed in dry brick powder for some time. During this time, the dry brick powder absorbs all the strong pungent oil of Bhallatak, reducing its pungency and making it usable for medicinal purposes.

MEDICO LEGAL IMPORTANCE ^(17,18)

Circumstances of Poisonings

- (1) Accidental poisoning may result from the administration of juice internally by quacks.
- (2) Homicidal and suicidal poisoning is rare.
- (3) Sometimes, the juice is introduced into the vagina as a punishment for infidelity.
- (4) To support a false charge of assault the juice is applied to skin which produces lesions simulating bruises.
- (5) The juice may be thrown on the body to cause injury.
- (6) For criminal abortion, the bruised nut is applied to the cervical
- (7) Malingers use the juice to produce ophthalmic.

Contraindications for Bhallataka:-

- a. Pitta prakriti
- b. Gastritis

- c. Small Children
- d. Summer season
- e. Pregnancy
- f. Hemorrhagic condition
- g. Pregnancy
- h. Dysentery

Post-mortem Appearances: ⁽¹⁸⁾

Blisters are seen in the mouth, throat and stomach which are congested and inflamed. Inflammation of gastrointestinal tract and congestion of viscera and skin showing black vesicles with acrid serum.

Treatment ^(19,20)

1. Gastric lavage.
2. Demulcent drinks
3. Wash contaminated skin with soap and water, and treat lesions with help of a dermatologist
4. Decontamination (if taken orally) activated charcoal
5. Milk may be beneficial in ameliorating the GI distress
6. Supportive and symptomatic measures

If consumed orally run with warm water .drink milk, let the ice suck inject morphine to reduce pain. Clean the affected area with hot water and apply mild alcohol – oil resin, or lead lotion or ointment. Following treatment can done if it is locally affected⁽²¹⁾

1. Apply turmeric leaves on the ulcer caused by cat smoke or touch.
2. Apply mango turmeric powder, milk powder in water.
3. Powder of black sesame seeds apply with butter or vinegar.
4. Coconut husk with clean turmeric water .
5. Apply white or red sandal wood powder.
6. Apply sesame powder with black soil
7. Chinchokya powder give it with chironji and sesame seeds with buffalo milk or walnut kernel.
8. Give plenty of milk curd coconut water to drink.

Precaution while consuming Formulation of Bhallataka.

Pathya- Person should consume milk & rice and ghee in large quantity.

Varjya(Avoid)- Walking in sun, excess sexual intercourse, meat consumption, salt, exercise, and oil massage. Contraindication of Bhallataka formulations in- Pitta diseases, Haemorrhagic tendency, Pregnancy, Child, old age, Diarrhoea, Nephritis & summer(hot)season.

Discussion :

Bhallataka has action on heart, blood pressure and respiration in intact animal and toxicity have been studied. The oil of

Bhallatak is highly effective against earthworms. Cotyledon & pericarp (10 gm / person) of water extract given orally to adult human (both sexes) did show antileprotic activity. Complete physical examination of subjects including laboratory tests showed no significant toxic effects. ⁽²²⁾ Control clinical trial was conducted with the milk decoction of semecarpus anacardium (Bhallatak nuts) in 20 patients of rheumatoid arthritis, 15 patient of ankylosing spondalitis, 25 cases of sciatica and 6 cases of arthritis of the knee joint. Among the 25 cases of sciatica of variable aetiology treated with the drug, cases due to primary idiopathic sciatic neuritis responded well to the therapy while those due to osteoarthritis of the lumber spine showed mild to moderate degree of improvement. Response to cases of peri-arthritis and in case of osteoarthritis of the knee-joint was rather inconsistent. 20% of the total cases treated with the drug presented manifestations in the form of itching maculo popular rashes, urethrities and stomatitis which could be controlled by withdrawal of the drug and administration of anti-histamines.

Conclusion:

Bhallatak is fast acting hot irritant vegetable poison . The fruit and nut extract shows various activities like antiatherogenic, anti-inflammatory, antioxidant, antimicrobial, anti-reproductive, CNS stimulant, hypoglycaemic, anticarcinogenic and hair growth promoter. it should be used with caution. Individuals showing allergic reactions to it should stop and avoid the usage of Bhallataka.

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