



VARUN (CRATAEVA NURVALA BUCH-HAM): A CRITICAL REVIEW W.S.R. TO URINARY TRACT DISORDER

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ABSTRACT

Human passion on herbal medicine dated back to times immemorial. Man is the clever living being that knows how to adapt to the changing environment of time and space. As we are all aware, the very survival of animal kingdom is depending on the plant kingdom. The plants or herbs played major part in the pharmacotherapy during the Vedic period in India. Vedic literatures indicate mainly about the utility of single herbs in management of common disease. Among all the single herbs one of the most valuable medicinal herb *Varun* (*Crataeva nurvala Buch-Ham*), which is used to treat the different disease and also maintain the healthy condition of the body system. It is a small tree having much branches belonging to family *Capparidaceae*. Each part of *Varun* tree including bark, root, leaf having certain medicinal properties. Chiefly, the bark of *Varun* mainly used in the treatment of urolithiasis (*Asmari bhedan*), the decoction of root bark mainly used in lymphadenitis (*Gandamala nasan*) and immature wound healing (*Apakwa vidradhi*) respectively. The leaf is mainly used to reduce the fattiness of the body (*Medohar*). Hence this paper work is prepared for the re-evolution of the therapeutic importance of the herbal plant *Varun* (*Crataeva nurvala Buch-Ham*).

KEYWORDS: *Varun, Crataeva nurvala Buch-Ham, Asmari bhedan, Gandamala nasan, Medohar.*

INTRODUCTION

Varun (*Crataeva nurvala Buch-Ham*), belonging to family; *Cappridaceae* is an evergreen tree indigenous to India. In *Ayurveda* this plant has been a special importance due to its effectiveness in a wide range of disease. All parts of the plant have been used in a wide range of medication. In honour of the Greek botanist *Crataevas* the genus name has given and it comprises about 70 species distributed mainly in the warmer (tropical) parts of the world. Among them *Crataeva nurvala* shows highest bio-diversity in India. It has contained a full of phytochemical constituent like saponins and tannins which are helpful in painful micturation, different urinary disorders, gout, wound healing and worm infestation.

Vernacular Names

The plant *Varun* is commonly named as "*Varana*". In *Sanskrit* it is called as *Ajapa, Asmaryaghna, Barhapushpa, Mahakapitha, Pasunadha, Sadhubriksha, Sikhimandal, Shvetadru, Tamal, Urumana, Vasaha, Tikta saka, Setu briksh, Kumarak, Saka drumma, Tamalaka, Sweta puspa*; Three leaved caper in English; *Varane* in Gujrat; *Hadverna* in Marathi; *Boryno* in Odiya; *Maralingam, Adicharanam, Adimalam, Anjali, Inaivilai, Kattumavilangai, Kuvilam, Maluram, Maralingam, Mavilangai, Miguttiyal, Narvala, Nilluvam, Nirumaliyam, Periamavilangai, Shuppigam, Shurvedan, Sinnamavilingam, Tiriburamerittan, Varanam, Villuvam* in Tamil; *Bilvaram, Chinnavulimidi, Magalingam, Maredu, Peddamagalingam, Peddavulimidi, Tellavulimidi, Ulimidi, Urumudu, Usiki* in Telugu; *Barun, Tiktosak* in Bengal; *Bhatavarna, Hadavarna, Kawan, Kumla, Vayavarna, Waruna* in Mumbai; *Kadat, Kadet, Katat* in Burma; *Bilpatri, Bitusi, Hoddelenage, Mavilinga, Narave, Neravambe, Neravela, Tudemadirenge, Vitusi* in Canarese;

Bel, Bela in Central Provinces; *Nerajane, Nirajani, Vittasi* in Coorg; *Varno, Vayavarno* in Gujerati; *Kagdakeri* in Hansot; *Barna, Barun, Bila, Bilasi, Biliana, Varvunna* in Hindi; *Purbong* in Lepcha; *Cadat* in Malay; *Kili, Niravila, Nirumaliyan, Varana, Vitusi* in Malayalam; *Haravarna, Karvan, Kumla, Nirvala, Ramala, Varun, Vayavarna* in Marathi; *Bunboronda, Tailadu* in Meehi; *Barna, Barnahi* in Punjab; *Barna, Barnahi* in Rajputana; *Lunuwarana* in Sinhalese; *Barna* in Urdu. ¹

The plant *Crataeva nurvala Buch-Ham* is known as *Tikta saka* because its leaves are bitter in taste. *Setu briksh* due to its expulsive property of renal calculus. ² *Kumarak* because its leaves remain younger for many days. ² *Sweta puspa* due to its whitish flower. ²

Classical References

1. In *Charak Samhita*, though *Charak* did not mention it among the *Mahakashay*. (C.S.Su. 4/8).³
2. In *Susrut Samhita*, *Susrut* Quoted *Varunadi gana* (along with a few more drugs) which is used for the treatment of *Asmari* and *Mitrakichra*. (S.S.Su. 38/8).⁴
3. In *Astanga Hriday Vagbhatta* has placed it in *Varunadi gana*. (A.H.Su. 15/21-22).⁵

Description of *Varun* is found almost all *nighantus*. *Bhava prakash nighantu* & *Madanpal nighantu* described it under *Vatadi varga*, *Raj nighantu* included under *Pravadradi varga*, *Nighantu adarsha* has mentioned under *Kariradi varga*, *Dhanwantari nighantu* and *Sodhala nighantu* included under *Amradi varga*, *Kaiydev nighantu* described under *Oushadhi varga* & *Priya nighantu* has mentioned under *Haritakyadi varga*.⁶

Botanical Description⁷

Crataeva nurvala Ham. is a small tree with a much-branched head. The tree grows 25-30 meters in height.

Leaves: Deciduous, 3-foliolate; petioles 3.8-7.6 cm long; leaflets 5-15 by 3.8-6.3 cm. ovate, entire, lanceolate or obovate, acute or acuminate, attenuate at the base, entire, glabrous on both surfaces, pale beneath and reticulately veined, the lateral leaflets oblique at the base; petiolules 6-9 mm. long.

Flowers: Many, in dense terminal corymbs, greenish white; pedicels 2.4-4.4 cm. Long stout, glabrous. Sepals petaloid, small, distant, ovate, acute. Petals (including the claw) nearly 2.5 by 0.9 cm; claw up to 6 mm. long, very narrow. Stamens longer than the petals, spreading. Gynophores nearly 5 cm. long, terete, smooth. Ovary ellipsoid; stigma flat.

Fruits: A globose or ovoid, woody, smooth or scurfy berry, on the thickened gynophores. Seeds imbedded in pulp, nearly smooth, brown.

The filaments of the stamens are purple or white when young, lilac when old; the gynophores is lilac; the sepals green when young, yellow or pale pink when old.

Distribution; Almost all over India and Burma, wild or cultivated. Often found along streams, but also in dry deep boulder formation in the sub-Himalayan tract.

Chemical Constituents

The chief chemical constituents of *Varun* are triterpenoids, lupeol & varunol have been isolated from root and bark stem. The water extracts also contains tertiary and quaternary bases including choline. The leaves yield flavonoids including rutin, quercetine, isoquercetine. From root bark lauric, stearic, undecylic, oleic and lenoleic acid have been isolated. A new triterpene alcohol isolated from root bark. Ceryl alcohol, friedeline, betulenilic acid and diosgenin from bark isolated. Cetyl alcohol, ceryl alcohol, triacontane, triacontanol & gluco-capparin isolated from fruits, several variations found in diosgenin contents. Cadabicine and its diacetate isolated from stem bark.⁸

Ayurvedic Properties and Pharmacological Effect

According to *Ayurveda* literature, *Varun* is *Tikta* (bitter) & *Kashay* (astringent) *Rasa* (taste); *Laghu* (light) & *Rukshya* (non-unctuousness) in *Guna* (properties); *Ushna* (hotness) in *Virya* (potency) and *Katu* (pungent) in *Vipak* (metabolism).⁹

According to *Raj nighantu* *Varun* is *Katu* (pungent) in taste & *Ushna* (hotness) in *Virya* (potency); *Snigdha* (unctuousness) *Guna* (properties). It is used as strong blood purifier and appetizer. It is also used for the healing of wounds.¹⁰

According to *Bhav prakash nighantu*, *Varun* enhances *Pitta*, softens and expels hardened faeces, cures the diseases of *Kapha* and *Vata*, suppresses difficulty in micturation and urolithiasis. It mitigates intestinal growths, *Vata* and *Rakta* disease. *Varun* is an appetizer, astringent, sweet, bitter and pungent in taste, hot in potency, drying and light in action.¹¹

Crataeva nurvala is one of the best litholytic herbs (ability to break up stones). Scientific research has indicated that a constituent of *Varuna*- lupeol, deactivates

the enzyme glycolate oxidase, reducing the body's production of oxalates which combines with calcium to form kidney stones. Additionally *varuna* is used as a natural diuretic as it also could hinder kidney stones formation.¹²

Medicinal Uses¹³

Parts medicinally used are bark, leaves, root & flower.

Bark: The bark is hot, bitter at first, and then sweet sharp taste; easy to digest; stomachic, laxative, antilithic, vesicant, anthelmintic, detergent, bechic, expectorant; removes *Vata*, well in strangury, biliousness. The bark promotes appetite, decreases the secretions of the bile and phlegm, and removes disorders of urinary organs. It also acts as demulcent, antipyretic, sedative, alterative and tonic. The bark is useful in some cases of urinary complaints and fever, and in some mild forms of skin disease.

Leaves

Leaves are stomachic, tonic and are used externally rubefacient and internally febrifuge and tonic.

Root

The root and the bark are laxative and lithontriptic; the root is also alterative. Root and bark promote appetite, increase biliary secretion.

Flowers

The flowers are astringent and cholagogue. The fruit is sweet and oily; laxative; removes "*Vata*" "*Pitta*" and "*Kapha*".

Therapeutic Uses

1. In *Vidradhi* and *Gandamala*, a decoction is prepared with the bark of *Varun* and given with honey.¹⁴
2. The paste of root bark applied externally on *gandamala*.¹⁴
3. Decoction of root bark added with bark powder of *Varun* given for the treatment of Urolithiasis.¹⁴
4. The decoction of bark highly effective in painful-micturition.¹⁴
5. *Varun* bark decoction along with *Apamarg*, *Punarnava*, *Yavakshara*, *Gokhura* and *Yastimadhu* given in Diabetes, Painful bladder, Urolithiasis and any other urinary tract diseases.¹⁴
6. The cold infusion (Phanta) prepared with fresh leaves of *varun* given in *Udarasula* (Painful abdomen) and *Kupachana*.¹⁴
7. The fresh leaves are given to eat for reducing the *meda* (Fats) from the body.¹⁴
8. The flowers are considered as *Grahi* & *Pittarechak*.¹⁴
9. The bark promotes appetites, decreases the secretion of the bile and phlegm, and removes the disorders of urinary organs. (*Yunani*).¹⁵
10. The plants combination with other drugs is recommended for the treatment of snake bite (*Sushruta*) and scorpion sting (*Chraka*).¹⁵
11. In Ceylon the bruised roots, leaves and seeds are applied to the wounds.¹⁵
12. The bark is demulcent, antipyretic, sedative, alterative and tonic. The fresh leaves and root-bark are rubefacient.¹⁵
13. The bark is useful in some cases of urinary complaints and fever and in some mild forms of skin diseases in which

Sarasaparilla is generally resorted to and also relieves vomiting and other symptoms.¹⁵

14. The fresh leaves and root-bark, particularly the former, are very efficacious in all the affections in which mustard poultice is indicated.¹⁵

15. Bruised well with a little vinegar, lime-juice or hot water and applied to the skin in the form of a poultice or paste, the fresh leaves act as a rubefacient and vesicant.¹⁵

16. In Ceylon the leaves are used for gouty swelling.¹⁵

17. In Bombay they are a remedy for swelling of the feet, and a burning sensation in soles of the feet.¹⁵

18. In the Konkan the juice is given in rheumatism.¹⁵

19. In caries of the bones of the nose, the leaf is smoked and the smoke exhaled through the nose.¹⁵

20. A couple of buds pounded with salt are taken before meals to promote the appetite. In Indigestion they must be given after meals.¹⁵

21. The bark and the leaves are equally useless in antidotal treatment of snake bite (Mhaskar and Caius) and the symptomatic treatment of scorpion sting.¹⁵

22. A decoction prepared by taking equal quantity of *Varun twak*, dry zinger, *Gokshur* and mix with *Yabakshara* and Jaggery (*Gud*) given for the treatment of Urolithiasis.¹⁶

23. Decoction of dry zinger (*Sonth*), *Arani* (Agneemanth), *Pasanabheda*, *Sahijana*, *Gokhura*, *Amaltasa* added with *Hingu*, *Yavakshara* and *Saindhav namak* given for the treatment of urolithiasis and painful micturation.¹⁶

24. In *Vataja Asmari*, *Sneha paka* of *Varun*, *Pasanaveda*, *Agastya*, *Satavari*, *Asmantaka*, *Gokshuru*, *Kachanar*, *Yava*, *Kulathi* etc. are given.¹⁶

25. "*Varunadya Ghrita*" given for the treatment of *Kaphaja Asmari*.¹⁶

26. Drugs of *Varunadi gana* are given for the treatment of *Kapha* and *Meda* roga.¹⁶

27. Decoction of *Varun twak* mix with Jaggery given for the treatment Urolithiasis and painful bladder.¹⁶

28. Decoction of *Varun twak*, *Pasanaveda*, Dry zinger, *Gokhura* mixed with *Yavakshara* given in the treatment of *Asmari* and *Sarkara*.¹⁶

29. Decoction of *Varun twak*, *Erand patra*, Dry zinger and *Gokhura* given in *Asmari vedan*.¹⁶

30. "*Varun Ghrita*" used in the treatment of *Asmari*, *Sarkara* and *Mutrakrichha*.¹⁶

31. "*Varunadya taila*" given as *Asthapan vasti* in the treatment of *Sarkara*, *Asmari*, *Sula* and *Mutrakrichha*.¹⁶

32. In *Vyanga* the stem bark of *Varun* is applied externally with goat milk. (C.D).¹⁷

33. In *Kikkisa*, first the suprapubic area is rubbed with dried cow-dung and then anointed with the paste of *Varun* leaves.¹⁷

Research Work¹⁸

1. Diuretic Activity of the leaves of *Crataeva nurvala*: It was used in the traditional medicine as diuretic. An aqueous and ethanolic extract of leaves of *Crataeva nurvala* were evaluated for diuretic activity and the activity was compared with furosamide (10mg/kg) as standard. Both extracts were evaluated by determination of urine volume and electrolyte concentration in albino rats.

2. Decoction of *Varun (Crataeva nurvala)* is effective in the management of Urolithiasis on the metabolic correction or on serum as well as urinary electrolytes in experimental models.

3. Alcoholic extract of *Crataeva nurvala* showed protective activity against cisplatin induced nephro-toxicity. The alcoholic extract significantly altered the dysfunction of renal proximal tubule cells by decreasing the concentration of blood urea nitrogen, creatinine, lipid peroxidation, glutathione.

4. The hepato-protective effect of hydro-alcoholic extract of whole plant of *crataeva nurvala* was investigated in vivo against carbon tetra chloride induced hepato toxicity. Result indicated extracts booster anti-oxidant enzyme level and restore serum bilirubin, cholesterol level compared to diseased state.

5. Chloroform extract of stem bark of *Varun (Crataeva nurvala)* is found to be effective against both gram positive (*B. cereus*) and gram negative (*E. coli*) mediated urinary tract infection and prostatitis at minimum inhibitory concentration.

6. In- Vivo assay revealed anti-protozoal potential of extracts of *Crataeva nurvala* and isolated active compound lupeol against malaria, leishmaniasis and trypanosome species.

7. *Varun (Crataeva nurvala)* stem bark extracts showed potent anti-diabetic activity in alloxan-induced diabetes in - vivo. Results were comparable with standard glibenclamide. The effect may be due to increase insulin secretion from β -cells of islets of Langerhans or its release from bound insulin due to enhanced glucose utilization by peripheral tissues.

8. The central unit of Govt. Research dept. of *Ayurveda*, Hyderabad *Varun Kwath* is used as stomach wash through Ryle's tube and is found to very effective in case of peptic ulcer.¹⁹

CONCLUSION

Worldwide the peoples are suffering from several numbers of chronic diseases, due to the variation in the climate and environment. To cure these peoples there is an urgent need for an herbal drug that can be utilized to treat various diseases with better acceptability, compatibility with the physical body and lesser side effects, to fulfil this requirement *Varun (Crataeva nurvala)* is definitely a gift of nature & Ayurveda. So, it is concluded that *Crataeva nurvala* is highly effective in urolithiasis (*Asmari vedan*), lymph adenitis (*Gandamala nasan*) and immature wound healing (*Apakwa vidradhi*) etc. It has diuretic, anti-malarial, antipyretic, sedative, hepato-protective, anti-diabetic, and anti-ulcer activities. Various parts such as bark decoction is used for *Vidradhi* and *Gandamala*, painful micturation, leaves are used to reduce fats in the body (*Medohar*), flowers are considered as *Grahi* & *Pittarechak*. This plant *Varun (Crataeva nurvala)* is very much essential for almost all systems of the body. Current paper is an effort of the authors to provide up to date information highlighting the current ethno- pharmacological status of the plant *Varun (Crataeva nurvala)*.

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