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A classical review on *Krishna Sariva* (*Cryptolepis buchanani* Roem. & Schult) An Ayurvedic Conceptual Review

Abstract

Sariva (*Hemidesmus indicus* R. Br.) a well-known drug of Ayurvedic Materia medica has been in wide use since ancient times. In Ayurvedic literature, two varieties (*Shweta* and *Krishna*) of *Sariva* are described. At present, different botanically identified plants are used as *Krishna Sariva* in different parts of the country. Hence an attempt was taken to review the drug *Krishna Sariva* and enlightened on properties, actions, uses, Pharmacological activities of *Krishna Sariva*. After reviewing Ayurvedic literature and scientific research papers, it is concluded that *Cryptolepis buchanani* Roem. & Schult should be used as source plant of *Krishna Sariva* and it have high medicinal values.

Keywords:

Sariva, *Krishna Sariva*, Variety, Properties,

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Introduction – *Sariva* is a broad spectrum Ayurvedic herbal drug used to treat a vast range of ailments since ancient times. The tuberous root is reputed for its cooling and blood purifying properties and so used for making drinks¹⁻². Various market samples are available in the name of *Sariva*, identified as *Hemidesmus indicus* R. Br., *Cryptolepis buchanani* Roem. & Schult, *Ichnocarpus frutescens* R. Br., *Decalepis hamiltonii* W & A and *Vallaris Solanaceae* Linn.³⁻⁵. In Ayurvedic literature, two kinds of *Sariva* namely *Shwetasariva* (white) and *Krishnasariva* (black) are mentioned which together constitute *Sarivayugal* / *Sarivadwaya*⁶⁻⁹. *Hemidesmus indicus* R. Br. is unanimously identified as *Swetasariva*. Two plants, namely *Ichnocarpus frutescens* R. Br. (Apocynaceae) known as pal-valli in vernacular and *Cryptolepis buchanani* Roem. & Schult are equated with the black variety / *Krishnasariva*. But Ayurvedic Pharmacopeia of India accepts *Cryptolepis buchanani* Roem. & Schult as a source of *Krishna Sariva*¹⁰. *Cryptolepis buchanani* Roem. & Schult is used as substitute to *Hemidesmus indicus* R.Br. In Indian markets stem pieces of *Cryptolepis buchanani* Roem. & Schult are generally sold instead of its roots, under the name *Anantamoola* (*Sariva*)¹¹.

Root is official part of *Krishna Sariva*. *Nighantukar* quoted same properties of *Sarivadwaya* i. e *Sweta Sariva* and *Krishna Sariva*. Ayurvedic properties of the *Sarivadwaya* are described as having madhura (sweet) and tikta rasa (bitter), with hime (cooling), snigdha (slimy) and guru (heavy) properties; they are useful in agnimandya

(loss of appetite), aruchi (distaste), kasa (cough), swasa (dyspnoea), jwara (fever), raktapradar (menorrhagia), vatrakta (gout) and as a rakta shodhaka (blood purifier) in skin diseases¹².

Materials and Methods – A literature survey was done using numerous Ayurvedic literatures includes *Bruhatrayi*, *Laghutrayi*, *Nighantu grantha* and PubMed, Google scholar etc.

Botanical source of *Krishna Sariva* - *Cryptolepis buchanani* Roem.& Schult

Synonyms – *Krishnamuli*, *Bhadra*, *Krishnavalli*, *Kalika*, *Mahashyama*, *Krishna*, *Dugdhavalli*, *Shyama*, *Shyاملata* etc^{6-9, 12}.

Vernacular names¹⁰ :

- **Sanskrit:** Jambu Patra Sariva, Krishnavalli, Shyama.
- **Bengali:** Shyamalata, Krishna Saarivaa
- **Hindi:** Kaleesar, Kalee Anantmool, Karanta, Dudhi
- **Kannada:** Karccumbu
- **Malayalam:** Kalipalvalli
- **Marathi:** Mothi Kawalee, Kallee Kawalee
- **Oriya:** Gopikonioro, Maloti
- **Telugu:** Naltig, Adavipalatige, Rokallipala
- **English:** Black creeper
- **Gujarati:** Kala Phulvali Upalsari
- **Tamil:** Udargoli, Illukata

Botanical Description - Twining shrubs with milky juice. Older stem generally black. Leaves shortly petiolate, elliptic-oblong or oblong-lanceolate, shining green above, nearly whitish beneath. Flowers yellow-green, in axillary, paniculate cymes. Follicles 5-10 cm long, smooth, straight, tapering to a blunt point. Seeds ovate-oblong, black, 6-8 mm long, with 2-2.5 cm long coma¹¹.

Distriution: Throughout India, Ceylon, Burma. China. Throughout India, from western Kashmir to Assam and Bihar, ascending the Himalaya to 4000 ft.; and southwards to Travancore and Ceylon¹³⁻¹⁴.

Actions and uses - The root is sweet, bitter, mild aromatic, demulcents, diaphoretic, blood purifier, diuretic, cooling and is used in rickets, fever, skin diseases, epistaxis, lactation deficiency, sores, ascites, cholera, dysentery, snake bite, rickets, expelling worms, fits, jaundice, in syphilis, abdominal pains, anasarca, bodyache and fractures¹¹. The root bark is used in rheumatism. root paste given internally in abdominal pain. Root powder given to women to increase milk secretion¹⁵.

Leaves is uses for blood clotting, knee swelling and as a tonic. Leaf juice is given in intermittent fever. Root, stem, leaves used in fractures. Stem is used in burns, paralysis. Latex is applied locally in fissures, sore of the feet, scabies, leukoderma and blisters¹⁶.

Ayurvedic properties¹⁰

Rasa - Madhura, Tikta

Guna - Guru, Snigdha

Veerya - Sheeta

Vipaka - Madhura

Doshagnata - Tridoshashamaka

Rogagnata - Netrabhishyanda, Daha, Shotha, Aruchi, Agnimandya, Pravahika, Grahani, Raktavikara, Vatarakta, Upadansha, Phiranga, Jeerna amavata, Shleepada, Gandamala, Kasa, Shwasa, Shukradaurbalya, Stanyavikara, Pradara, Garbhasrava, Yonivyapada, Mootrakrichchhra, Paittika prameha, Kushtha, Visarpa, Visphota, Charmaroga, Jwara, Daurbalya, Pandu, Shotha, Vishavikara.

Karma - Dahaprashamana, Shothahara, Rochana, Deepana, Pachana, Anulomana, Raktashodhaka, Kaphaghna, Vrishya, Stanyashodhana, Garbhasthapana, Mootrajanana, Mootravirajaneeya, Kushthaghna, Jwaraghna, Rasayana, Vishaghna, Trushnaprashamana, Sangrahi, Kashar, Shwashar.

Therapeutic uses : Agnimandya, Aruchi, Atisara, Jvara, Kshaya, Kustha, Prameha, Pradara, Raktapitta, Shvasa, Kasa, Kandu, Vatarakta, Mukha durgandhya, Deha durgandha¹⁰

Doses - Decoction - 50 -100 ml; Paste - 5 - 10 gm, Powder 5-10 gram¹¹.

Pharmacognosy

Macroscopy - The roots vary in length and are 1-1.5 cm thick. They are slender, cylindrical and possess a dark brown or blackish exterior. The surface is rough due to fine longitudinal ridges and wrinkles running sinuously lengthwise. The thicker roots show a few transverse cracks, fissures and longitudinal wrinkles with remnants of

rootlets and a few lenticels. The cork is easily peelable. Fracture is short and fibrous. The odour is indistinct (slightly aromatic) with sweet but astringent taste¹⁰.

Microscopy – T.S of root shows thin cork consisting of 4 to 14 layers of thin-walled, rectangular to tangentially elongated cells, arranged radially; cork cambium single layered, followed by wide zone of secondary cortex composed of polyhedral, oval to tangentially elongated cells having fibres in single or in groups of two to ten; fibres long, thick-walled but very occasionally appear also as elongated stone cells; secondary phloem wide consisting of sieve elements, phloem parenchyma, fibers and a few crystal fibers and traversed by phloem rays; phloem fibres occur in small groups or rarely in singles, somewhat similar in shape to those of secondary cortex with comparatively thicker walls; crystal fibres elongated, thick-walled and divided into chambers, usually 7 to 17 in number, each chamber containing a prismatic crystal of calcium oxalate; medullary rays run to triseriate; cambium 2 to 4 layered; secondary xylem composed of vessels, tracheids, fibre-tracheids, fibres and parenchyma and traversed by xylem rays; vessels with bordered pits and filled with tyloses; tracheids long and narrow having bordered pits, and moderately thick-walls; xylem parenchyma usually rectangular in shape with pitted walls but some of the pits become T or Y shaped with reticulate thickening; xylem elements thick-walled and lignified; simple and compound starch grains found in abundance in all parenchymatous cells simple being elliptical to oval,

measuring 3 to 19 μ in dia. with central hilum and compound with 2 or 3 components¹⁰.

Chemical composition:

The major constituent of the root extract is *germanicol docosanoate*. Sarmetogenin and *Sarmetocymarin* isolated from roots; isolation of a new cardiac glycoside - *buchanin* - from roots and its characterization as *serverogenin* - 3-O- α -*Loleandropyranoside*; *cryptanoside* A (*Buchanin*) as major compound and *cryptanoside* B as minor compound isolated from leaves. Roots afforded *Cryptanoside* C (along with *germanicol docosanoate*; *Cryptanosides* B and C characterized as isosarverogenin-3-O-*Loleandrosiide* and sarverogenin-3-O-[β -D-glucopyranosyl-(1 \rightarrow 4)-*Loleandrosiide*] respectively; *cryptanoside* D (*Isosarverogenin*-3-O-[β -D-glucopyranosyl(1 \rightarrow 4)-*Loleandrosiide*] also isolated as tetra acetate; isolation of a new cardenolide cryptosin from leaves and its crystal structure determination. The presence of pyridine alkaloid *buchanine*, β -amyrin, β -sitosterol, glucoside, *cryptolepine* from the stems. A new cardiac glycoside *cryptosin*, α -amyrin, β -amyrin are reported from leaves¹⁷.

Pharmacological activities - Antibacterial, antimicrobial, hypotensive, CNS depressant, anti-amphetaminic, anti-diarrheal, anti-ulcerative, blood purifier, diuretic¹⁸.

Substitute and adulterants - *Cryptolepis buchani* Roem. & Schult is used as substitute to *Hemidesmus indicus* R.Br. (*Sariva* or *Sweta Sariva*). *Icnocarpus frutescens* R.Br. is used as *Krishnasariva* in Kerala and South India. In Indian markets stem pieces of *Cryptolepis buchani* Roem.

& Schult are generally sold instead of its roots, under the name *Anantamoola* (*Sariva / Krishnasariva*)¹¹.

Discussion - Two plants, namely *Ichnocarpus frutescens* R. Br. (Apocynaceae) known as pal-valli in vernacular and *Cryptolepis buchanani* Roem. & Schult are equated with the *Krishnasariva*. *Dalhana* has mentioned *Jambupalashika* as country name for *Krishna Sariva*. *Aacharya Dalhana* quotes that *Krishna Sariva* has leaves like *Jambu* and *Patalgarudi*, it is a climber having latex, root has aroma like sandal and it is called as *Karveli*. On the other hand, there is no characteristic feature mentioned in the literature which is present in *Ichnocarpus*¹⁹⁻²¹. Hence, Ayurvedic Pharmacopeia of India accepts *Cryptolepis buchanani* Roem. & Schult as a source of *Krishna Sariva*.

It is found that the roots of *Krishna Sariva* are slender and cylindrical in shape. Roots are found in about 10-20 cm long pieces, it varies in size and about 1-1.5 cm in thickness. Fresh roots are brown in colour and become blackish brown when dry. Inner region of the root is yellow when fresh and it becomes yellowish brown when dry. Fresh roots are rough and become woody and rough with transverse cracks when dry. Fracture is short at periphery and tough at center. it is odourless. It is sweet and slightly bitter, acrid in taste. Macroscopic and microscopic characters enable to differentiate *Cryptolepis buchanani* Roem. & Schult from *Ichnocarpus frutescens* R. Br. This study provides a means of identification of market samples of *Cryptolepis buchanani* Roem. & Schult.

Both *Sariva* (*Sweta* & *Krishna*) are having *madhura* (sweet) and *tikta rasa* (bitter), with *hime* (cooling), *snigdha* (slimy) and *guru* (heavy) properties; they are useful in *agnimandya* (loss of appetite), *aruchi* (distaste), *kasa* (cough), *swasa* (*dyspnoea*), *jwara* (fever), *raktapradar* (menorrhagia), *vatrakta* (gout) and as a *rakta shodhaka* (blood purifier) in skin diseases.

The scientific research revealed the presence of flavonoids, alkaloid, glucoside, tannins, phenols, saponins, steroids and carbohydrates from root, stem, leaf of *Cryptolepis buchanani* Roem. & Schult²²⁻²⁵. This phytoconstituents are reported to have many biological and therapeutic properties. So, this species is expected to have many medicinal values.

Conclusion – *Cryptolepis buchanani* Roem. & Schult should be used as source plant of *Krishna Sariva* as per API. *Sweta Sariva* (*Hemidesmus indicus* R. Br.) and *Krishna sariva* (*Cryptolepis buchanani* Roem. & Schult) have same properties and actions. So, *Krishna Sariva* (*Cryptolepis buchanani* Roem. & Schult) can be checked as a Substitute to *Sweta Sariva* (*Hemidesmus indicus* R. Br.). Further Phytochemical and Pharmacological evaluation are needed.

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