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#### VAMSHA (BAMBUSA BAMBOS (L.) VOSS.)- A PANORAMIC VIEW

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#### ABSTRACT

Bamboos are one of the oldest known grasses since the existence of mankind. Its varied utility is explored in therapeutics, ecology and nutraceuticals. The giant grass *Bambusa bambos* is widely distributed in India. In Ayurveda, this plant is termed as Vamsha and the different parts of the plant are attributed with diversified actions. The plant is mainly exploited for Vamsha lochana, a siliceous concretion found only in female plants of bamboo with respect to its high therapeutic value. Thus to understand the diversified actions of different parts of the plant the current article reviews the complete details of the Ayurvedic perspective of the drug Vamsha.

KEYWORDS: Vamsha, Bambusa bambos, Ayurveda

#### **INTRODUCTION**

Vamsha is one of the giant grasses described in the ancient scriptures of importance Ayurveda. Its has been accredited since the Vedic period and continues till date for its multi fold utility. Based on the part used the therapeutic effects vary, in Vamsha patra, mula, ankura, vava and twak are the part used and each of them have specific therapeutic value. In addition to these a siliceous concretion, vamsha lochana is the most important part of the plant found only in the female plants of Bambusa bambos. Due to its high demand and exploitation, availability of genuine bamboo manna is difficult and thus an understanding of different parts of Vamsha and its varied actions is essential.

# Literary review of Diversified action of Vamsha:

>The earliest known documentation of plant treatments is available in the Vedas, with over 300 plants description, Vamsha being one among them.

>Reference of Vamsha is described in 1<sup>st</sup> mandala, 110<sup>th</sup> sukta of Rigveda under the name Tejana.<sup>1</sup>

>In Atharvaveda, Acharya Saayana has defined Venu as – hollow inside and has mentioned its indication in snakebite, scorpion poisoning, disturbed sleep, headache, pain in flanks and abdominal pain.<sup>1</sup>

>In Kautilya Arthashastra: The forest flora is classified into nine vargas one of which is VenuVarga wherein enumeration of different types of bamboo is found.<sup>2</sup>

>In Charaka Samhita: Vamsha is included in kashaya skandha. It finds its utility in prameha, kshataksheena, kasa.<sup>3</sup>

>In Sushruta Samhita, Tugaksheeri is mentioned under kakolyadi gana. Various other contexts of its utility are in mahakushta, prameha, also as virechaka, in agnikarma, anushastra and vrana bandhana dravya.<sup>4</sup>

>Ashtanga Sangrahakara is of the opinion that vamsha ankura is kaphaghna and has katu vipaka<sup>5</sup>

>In Ashtanga Hrudaya, Properties of Venuyava (seeds of bamboo): ruksha and ushna veerya is mentioned.
Vamsakareera (tender shoots of bamboo) causes rukshata, vidaaha and increases vata

and pitta and is mentioned under shaka varga. $^{6}$ 

>Dalhana envisages twaksara, twak-ksheeri, and tugaksheeri as synonyms for vamsha lochana.

>Hemadri has referred vamsha ankura to be tridoshahara.

>Almost all the Nighantukaras have provided synonyms and description of Vamsha.<sup>8-28</sup>

Vamsha	Vamshalo	Vamsha twak	Venu yava	Vamsha	vamsha
patra	chana		(seeds of	Kareera (shoots	mula
(leaves)	(exudate)		bamboo)	of bamboo)	rasa
Nadisweda	Dhoomava	Mahagandhahas	As food	Properties of are	Rasakriya
and avagaha	rti in kasa.	ti agada and	indicated for	specified under	and varti
sweda dravya-		Panchashireesha	breast milk	udbhida shaka	indicated
kaphaja		agada indicated	purification.	and kanda varga	to treat
vyadhi, vataja		in Visha		as – kaphakara,	praklinna
jwara and		chikitsa.		mildly vatakara,	-vartma.
kaphaja				causes srushta	
shotha.				pureesha	
				mutrata, ruksha,	
				vidahi, possesses	
				madhura,	
				Kashaya rasa and	
				madhura vipaka.	
Lepa -	Gandhaha	ropana taila for	kudhanya	treatment of	
granthivisarpa	sti agada	treatment of	vishesha	shukra – eye	
		medogranthi.		disease	
fuel like		Splint (kusha) in			
cowdung		bhagna chikitsa.			
ingredient for		Vamsha			
treating the		twagaadi agada			
use of		in			
poisoned		sarpadamshtrach			
unguents.		ikitsa			
as tongs to		treating eye			
remove krimi.		diseases			

#### Table No.1: Diversified actions of different parts of Vamsha<sup>2-7</sup>

Andhapootana			
<u> </u>	29-30		

#### **Onomatology:** <sup>29-30</sup>

The word Vamsha has an uncertain derivation in Sanskrit, bearing the original meaning of 'bamboo' or 'reed'.

## Vernacular Names: <sup>31</sup>

Kannada	Bidru
English	spiny or thorny bamboo
Hindi	Kanta bans, Bans
Konkani	Keerlu
GANA/VARGA: <sup>2-28</sup>	

#### Table No.2: Chronological Classification according to various authors

Classical Text	Gana/Varga	Description	
Kautilya arthashastra	Venu varga	Different types of bamboo	
Charaka Samhita	Kashaya Skandha	Vamsha is mentioned	
Sushruta Samhita	Udbhida shaaka, kanda varga	Properties of vamsha kareera	
Vagbhata	Shaaka Varga	Properties of vamsha kareera	
Amarakosha	Vanoushadi Varga	Vamsha synonyms	
Ashtanga Nighantu	Padmakadi Gana	Vamsharochana properties	
	Viprakeernaprakarana Gana	Venu Kareera synonyms	
Dravyaguna Sangraha	Shaaka Varga	Properties of vamsha kareera	
Dhanwantari nighantu	Karaveeradi varga	Vamsha, kareera and yava general	
		properties	
Shabdhachandrika	Vrukshadivarga	Synonyms of vamsha	
Nighantu Shesha	Vrikshakaanda	Synonyms of vamsha	
Shodala Nighantu	Karaveeradi varga	Vamsha synonyms	
Madhava Dravyaguna	Shaaka Varga	Vamsha kareera properties	
Abhidanaratnamala	Kashayaskanda	Vamsha synonyms	
Siddhamantra	Kaphapittaghna varga	Vamsha is mentioned	
	Doshala Varga	Vamsha ankura is mentioned	
Madanapala Nighantu	Abhayadivarga	Vamsha and kareera properties	
Raja nighantu	Mūlakādi Varga	Vamsha, its kareera and yava	
		properties	
Kaiyadeva Nighantu	Oshadhi Varga	Vamsha and kareera properties	
Bhavaprakasha Guduchyadi varga		Vamsha, its kareera and yava	
Nighantu		properties	
	Shaaka varga	Vamsha – samswedaja shaaka	
Saraswati Nighantu	Mahavriksha varga	Synonyms of Vamsha	
Rajavallabha Nighantu	Maadhyanika pariccheda	Vamsha kareera properties	

Drive nichenty Cherādi	Varga	Vansha ita kamana and yaya
Priya mgnantu Sharadi	varga	vanisha, its kareera and yava
$\mathbf{D} = (\mathbf{X} + \mathbf{C}, \mathbf{C})^2$		properties
Bheda / Variety:","		Rogaghnata –
As per Ashtanga Hrudaya	and Raja	<b>External</b> – Paste of root used in Varnavikar,
Nighantu: 2 types		Bhasma used in Dadru, Kushtha and
1. Ghana vamsha		Khalitya.
2. Randhra vamsha: Narahari pan	dit, author	Internal– Agnimandya, Ajeerna, Krimi,
of Raja nighantu mentions the pre-	operties of	Vamana, Atisara and Trishnaroga, Hridroga,
randhra vamsha in moolakad	ivarga as	Kasa, Shwasa, Mootrakrichrahara, Jeerna
deepana, pachana, n	uchikruth,	jwara, Kshayajajwara, Samanyaadaurbalya,
ajeernanashana, shulaghna, hru	ıdya and	Visarpa.
gulmanashana.		Moola (root) used in Raktavikara,
Rasa panchaka: <sup>32</sup>		Mootrakrichchara and Eye disease.
<b>Rasa</b> – Madhura, Kashaya.		Patrakwatha (decoction of leaf) used in
Guna – Laghu, Ruksha, Tikshna.		Rajarodha, Kashtaartava and prasavottara
<b>Vipaka</b> – Madhura.		garbhashaya shodhana;
Veerya – Sheeta.		Vamshayava (seed) used in Prameha,
Seed – Ruksha, Ushna.		Medoroga and Visha.
Vamshalochana – Madhura and she	eta.	Bark used in Vriddhiroga (hydrocele),
Doshaghnata –		Karnashoola, Agada in sarpavisha;
Vamshamoola - kaphapitt	ashamaka;	Vamshalochana (Tavakshiri) used in
Patrankur and fruit - Pitta	avardhaka;	Hridroga, Mootrakrichchhra, Raktavikara,
Vamshalochana – Vata-pitt	ashamaka;	Yakshma (Tuberculosis), Shwasa, Kasa,
Vamshakareera – Vata-pittavardh	aka	Kushtha.
Different Pharmacological A	ctions of	Therapeutic uses: <sup>23,33</sup>
various parts of Vamsha–		-Decoction of bamboo nodes 20gm and
External -Root Varnya and Ku	shthaghna,	shatapushpa 40gm mixed with jaggery
Patrankura Shothahara.		induces menses.
Internal – Patrankura - Deepana	, Pachana,	-Root of ankota and vamsa pounded with
Krimighna and Vidhahi;		milk should be taken in alarka visha (rabies)
Fruit- Krimighna; Vamshalochana	aShamaka,	-In case of prameha, the seed of bamboo is
Trishnanigrahana, Grahi,	Hridya,	made into edible food and given as regular
Raktasthambhaka, Rakta	ishodhaka,	diet.
Shwasahara, Mootrala, Jwarghn	a, Balya,	-The patient having pain due to arshas
Brimhan;		(piles) should be well massaged and then
Leaf-Artavajanana; Phala – Lek	chana and	given tub-bath in decoction of the leaves of
Vishaghna, Roots are also Vishagh	ına.	mulaka, triphala, arka, vamsha, varuna,
-		agnimantha, shigru and ashmantaka.

-In raktabhishyanda (conjunctivitis), the solid extract of vamsa root prepared in a

copper pan and made into a wick should be used as collyrium.

-The root of bamboo is made into paste and applied over the area affected with eczema, dark discoloration.

-The tender shoots of the bamboo is also made into paste and applied over the area affected with ringworm, discoloration of the skin etc.

-The siliceous exudate called as 'Vamshalochana' is made into powder and mixed with honey and given to treat cough, cold and fever.

-Vamshalochana is taken in a dose of 3-5 g and mixed with hot water or buttermilk and

given to treat indigestion, diarrhoea and nausea.

-Paste of Bamboo shoot or tender buds is applied over wounds as part of treatment.

-Decoction of the leaves is given in a dose of 40 - 50 ml to treat dysmenorrhea, pain in abdomen during menstruation and to strengthen the uterine muscles after delivery. -The decoction of the tender leaves of bamboo is given in a dose of 40 - 50 ml to treat intestinal worm infestation.

**Dose:** Decoction 50-100 ml. Vanshalochana powder – 1-3 gm.

Kalpana	Yoga	Adhikara	
Churna	Dadimashtaka churna	Atisarachikitsa <sup>6</sup>	
	Sitopaladi churna Taleesadi churna	Rajayakshma Chikitsa <sup>3</sup>	
Vati and gutika	Brumhani gutika	Samyoga sharamuliyo Vajeekaranapaada <sup>3</sup>	
	Pugakhanda	Shularoga Chikitsa <sup>34</sup>	
Avaleha and paka	Chyavanprasha	Abhaya-amlakeeya Rasayanapaada <sup>3</sup>	
	Drakshavaleha	Pandurogachikitsa <sup>6</sup>	
Rasayoga	Mahatarunarka rasa	Jwara Prakarana <sup>35</sup>	
Taila	Vamshavalekhadi taila	Karnaroga Chikitsa <sup>34</sup>	
Agada	Mahagandhahasti agada Panchashireesha agada	Vishachikitsa <sup>3</sup>	
	Vamsha twagaadi agada	Sarpadashtavishachikitsakalpa <sup>4</sup>	

### Table No.3: Yogas with Vamsha as ingredient

#### Substitutes and Adulterants:<sup>32</sup>

Tvakshiri or Tugakshiri is white in colour and used as substitute of Vamshalochana. It is prepared from the tubers of Curcuma angustifoliaRoxb. Synthetic product is white, very shining, sticky to the tongue *Bambusa bambos* (Linn.)Voss (*syn. B. arundinacea* (Retz.) Willd.) Etymology:<sup>36, 37</sup> The etymology of the word BAMBOO comes from the wrong pronunciation of the Indian word MAMBU, which is the local name of a native species of the plant. The Swedish naturalist Carl Linné first mentioned the "Arundo Arbor" in the famous book "Hortus Cliffortianus", which is one of the first methodical works on the vegetal world (dated 1737). Later, in another best known work "Species plantarum" (1753) it was named as the "Arundo Bambos", and this name, then modified in Table No 4: Toworomical electricities of D BAMBUSA, has been officially adopted as identification of the family.

Table No.4: Taxonomical classification of *Bambusa bambos* <sup>38</sup>

Kingdom	Plantae
Division	Magnoliophyta
Class	lilopsida
Order	Poales
Family	Poaceae (Syn. Graminae)
Genus	Bambusa
Species	Bambos(L.) Voss.
Scientific Name	Bambusabambos(L.) Voss.

## Defining Characteristics of Bambusa bambos: <sup>39,40</sup>

>Very densely tufted bamboo with thorny branches.

>Culm sheath has a short triangular blade, with a broad sloping and wrinkling base on either side (constituting auricles)

>Lower surface of the sheath blade is coated with dark brown velvety hair.

>Ligule is continuous along the top of the sheath.

>Rachis very glabrous, shining, hard; spikelets few, long, 6-12 flowered; leaves smooth.

# Botanical description of *Bambusa* bambos: <sup>31,32</sup>

Found most abundantly in mixed moist deciduous forest. Thorny giant grass in tree form, Perennial; caespitose –growing in clusters or tuft .grows upto 30 meter high; culms 15-18cm across; nodes prominent, the lower emitting horizontal almost naked shoots armed at the nodes with 2-3 stout recurved spines; internodes upto 45 cm. long. Leaves  $17.5 - 20.5 \times 2-2.5 \text{ cm}$ , linear or linear – lanceolate, tip stiff, glabrous or puberulous beneath, margins scabrous, base ciliate, mid-rib narrow, leaf-sheath ending

on a thick callus and shortly bristly auricle. Inflorescence, an enormous panicles often occupying the whole stem. Caryopsis (grain) oblong, 5-8 mm long, grooved on one side. Flowering and Fruiting: Once in life time, often during September – May

**Part used:** Leaf, root, shoot, seed, vanshalochana (siliceous crystalline deposition in the nodal part of female plants).

#### Pharmacognosy: <sup>31</sup>

Macroscopic

The dried cut pieces of tender shoot are light in weight and vary in size and shape. The outer surface is smooth, brown in colour, the inner surface is rough, longitudinally striated and granular at places, buff in colour; fracture fibrous, odour not characteristic; taste slightly bitter and pungent.

#### Microscopic

-Detailed transverse section shows an outer thick walled radially elongated cells of epidermis covered with thin cuticle, traversed with stomata; underneath this lies 2 to 4 rows of thick walled, compactly arranged sclereidal cells of hypodermis followed by wide zone of parenchymatous ground tissue traversed with conjoint collateral vascular bundles of various sizes; -The vascular bundles in the outer region consist of two metaxylems lying side by side with one to two protoxylem rows lying in between them at the lower side and phloem tissue at its opposite side, mostly consisting of phloem parenchyma, the whole being encircled by thin walled fibrous sheath.

- The vascular bundles at places, especially those located in the middle region of the ground tissue are associated with a huge bundle of groups of lignified parenchymatous tissue at its lower side **Images of Bambusa bambos-** adjacent to the vessels which in mature shoot develops into a lysigenous cavity.

-The parenchymatous tissues of ground tissue encircling the vascular bundles are thick and beaded walled, and forms a characteristic network throughout.

Powder Microscopy:

Shows fragments of epidermal cells with beaded walls and stomata; hypodermal cells in surface view; fragments of annular and spiral vessels with pitted parenchyma from protoxylem; pitted vessels from metaxylem; vessels associated with fibre and parenchyma cells







## Table No.5: Phyto-Constituents of Bambusa bambos 31,32, 41-43

Part	Chemical constituent
Plant	Cholin, betain, cyanogenic glycosides, albuminoids, Benzoic acid, oxalic acid, lupeol, amyrin, p-amyrin, friedelin, tetraxerol, ferneol, 2-furaldehyde, lignin, hemicellulose] holocellulose, miliacin, glutinone, glutinol, cylindrin, crusgallin, beta-sit sterol, stigmasterol
Shoot	Oxalic acid, reducing sugar, resins, waxes, HCN, benzoic acid, diferuloyl arabinoxylanhexasaccharide, lignins and lignans, carotene, fucosterol, allantoin, p-hydroxybenzaldehyde,trans-p-hydroxycinnamicacid, 1,8-dihydroxy-3-methoxy-6-methylanthraquinone, diferuloyl oligosaccharide, vitamins, citric acid, ascorbic acid, Calcium, Copper, Sodium, Potassium, Phosphorus, Selenium and Magnesium. taxiphyllin. Methanolic extract of shoot- Hexadecanoicacid, methyl ester, Methylparaben, 9,12,15-Octadecatrienoic acid, methyl ester, Methyl stearate
Seed	Arginine, cysteine, histidine, isoleucine, lysine, methionine, phenyl amine, threonine, valine, tyrosine, niacin, riboflavin, thiamine.
Leaves	Protein, gluteline, contains lysine, methionine, betain, cholin, proteolytic enzyme, nuclease, and urease.

#### **Toxicity profile:**

-Occurrence of taxiphyllin, (4-hydroxy-(R)mandelonitrile- $\beta$ -D-glucopyranoside), a cyanogenic glycoside has been found to be the potential toxic component present in the different species of raw bamboo shoots and its side effect on human health, thus requires processing to eliminate the toxic compound without disturbing the nutrient reserve. The acute lethal dose of Hydrogen cyanide (HCN) for humans is 0.5–3.5 mg/kg body weight and for animals is 0.66–15 mg/kg body weight.<sup>44</sup>

Culm sheath of B.bambos

-Young shoots are lethal to mosquito larvae.<sup>32</sup>

-Consumption of improperly prepared or processed bamboo shoots may produce symptoms like rapid respiration, drop in blood pressure, dizziness, stomach pains, headache, vomiting convulsion, and coma<sup>45</sup> **Processing of Bamboo shoots:**There are numerous ways in which bamboo shoots are processed and prepared. The major processing methods are shown below.<sup>46</sup>



#### **CULTIVATION AND PROPAGATION:**<sup>32</sup>

Seeds are the most convenient mode of propagation followed by other conventional methods like layering, rhizome cuttings, culm cuttings, pre-rooted and pre-rhizomed branch cuttings, branch cuttings nodal bud **RESEARCH PROFILE:** <sup>47-54</sup>

chips, seedling multiplication, offset and clump division.

### Harvesting <sup>32</sup>

Bamboos are harvested for food when the young shoots are 30–75 cm tall.

Research activity	Part Used	Result
Antineoplastic activity - Ehrlich Ascites Carcinoma in Mice.	Bambusa arundinacea roots	B. bambos is reported for highest cell growth inhibition 81.9% in Swiss albino mice inoculated with ehrlich ascites carcinoma cells.
Cytotoxic, Membrane Stabilizing and Antidiarrheal Activities	Leaves	In the cytotoxicity screening, the dichloromethane and pet ether soluble fractions displayed the highest lethality to brine shrimps with LC50 of 3.91 and $8.45\mu$ g/ml, respectively, whereas the standard vincristine sulphate had LC50 value of $0.45\mu$ g/ml. In the membrane stabilizing assay, the crude methanolic extract exhibited highest inhibition of haemolysis of human RBCs by 71.08 ± 0.43% and 49.44 ± 0.73% in heat- and hypotonic solution- induced haemolysis, respectively. The extract

#### Table No.6: Research profile of Bamboo

		exhibited significant ( $p < 0.05$ ) anti-diarrheal effect at a dose of 400 mg/kg body weight in the castor oil induced anti-diarrheal assay.
Anti-inflammatory and antiulcer activities	Leaves	The anti-inflammatory effect of the methanol extract of the leaves of <i>Bambusa bambos</i> against carrageenin-induced as well as immunologically induced paw oedema and also its antiulcer activity in albino rats have been studied and found to be significant when compared to the standard drugs. The combination of methanol extract and phenylbutazone (Non-Steroidal Antiinflammatory Agent, NSAIA) has been studied and found to be the most potent anti-inflammatory activity experimentally with least toxic (no ulcerogenic) activity.
In Vitro Antimicrobial and Haemolytic Studies	Leaves	Bambusa arundinacea leaves possess significant antimicrobial activity. It justifies its folklore use in curing microbial infections. Haemolytic activity of plant extracts against human erythrocytes was checked and it was in safe range with minor cytotoxicity.
Phytochemical, Antioxidant And Cytotoxicity Activity	Leaves	The leaf extract of Bambusa arundinacea showed positive DPPH radical scavenging IC50 and percentage inhibition of linoleic acid peroxidation at 278-1536 $\mu$ g/ml and 24.41- 78.05%, respectively, and was found to be a potent antioxidant against degradation of corn oil
Anti – Diabetic activity	Seeds	Aqueous ethanol extract of Bambusa bambos seeds were tested for anti-diabetic activity using alloxan induced diabetic rats and compared with standard. The results demonstrated that the aqueous ethanol extract showed significant protection and maximum reduction in blood glucose levels in alloxan induced diabetic rats. The anti-diabetic activity was comparable with reference standard glibenclamide.
Anti – fertility activity Shoots		Ethanol extract of Bambusa bambos tender shoots caused a reduction in fertility of male rats. The number of spermatozoa in the caput and cauda epididymis was decreased with concomitant

		decrease in motility of spermatozoa collected from cauda epididymis, with significant decrease in weight of testes, epididymis, vas deferens and prostrate.
Anti- thyroid activity	Shoots	Shoots of <i>Bambusa bambos</i> contain cyanogenic glycosides, glucosinates and thiocynate. Raw, boiled and cooked extract of thyroid peroxidase (TPO) which was reversed by iodide thus demonstrating in vitro anti-thyroid activity.

#### **DISCUSSION AND CONCLUSION**

Vamsha is a very popular grass used since ages known for its high medicinal, culinary and commercial uses. The plant can prove medicine potent in different as a pathological conditions. Vamshalochana is the most exploited part of the plant owing to its significant action in respiratory system, cardiovascular system and in blood related disorders. To obtain genuine Vamshalochana in the present days is very difficult, but the other parts of the plant can still be considered for its versatile actions. The plant is described by almost all Nighantukaras and most of them have categorized it under Shakavarga owing to its edible uses. Vamsha is frequently mentioned in Visha Chikitsa and the same can be explored through research based activities. With the vast knowledge of its diversified actions, the plant can reduce the burden on other medicinal plants as it grows very quickly.

#### REFERENCES

1. Bindu S, Vedon men Osadhiya Sutra. 1sted.ChaukhambhaVisvabharati;2010.Tpg:183

 Applied Botany Abstracts, Economic Botany Information Service (India).
 Economic Botany Information Service, National Botanical Research Institute Publication, 1998 Vol 18 pg 213 https://books.google.co.in/books?id=1YPTq yH3zsMC (cited 2017 Dec 19)

3. Agnivesha, Charaka Samhita, Revised by Charaka and Drdhabala, Commentary by Pt. Kasinath Sastri and Dr. Gorakhanatha Chaturvedi, Re-print 2004, Varanasi, Chaukhamba Bharati Academy, Tpg-738.

4.Sushruta, Sushruta Samhita with the Nibandha Sangraha commentary of Sri Dalhanacharya and the Nyaya Candrika of Sri Gayadasacharya edited by Vaidya Yadavji Trikamji. 8th ed. Varanasi: Choukmba Bharathi Academy; 2005. Tpg 824

5. Acharya Vagbhata, Astanga Sangraha, Volume II, Translated by Prof. K. Srikanthamurthy, Second edition 1999, Varanasi, Chaukhamba Orientalia, Tpg-627.

6. Vagbhata, Astanga Hridaya with the commentaries of Arunadatta and Hemadri Collated by Dr. Anna Moreswara Kunte and Krishnaramachandra Sastri Navare, Edited by Bhishagacharya Harisastri Paradakara Vaidya, 9th ed. 2002, Tpg 956.

7. Vruddha Jivak, Kashyapa samhita, edited with vidyotini hindi commentary by Pandita Hemaraja Sharma, Varanasi: Chowkambha Sanskrit sansthan; 2012, Tpg:578. 8. Soushrutanighantu, edited by Dr. Sharma. Kashiraja Suvedi, Dr. Tiwari Narendranath, Nepal, Mahendra samskruthi Vishvavidyalaya, Tpg:166

9. Vahatacharya. Ashtanga Nighantu, Sharma PV, 1st ed, Madras: Kuppuswamy Sastri Research Institute, 1973,Tpg:253

10.Amarasimha,Amarakōśahttp://localhost:4 001/enighantu/amarakosha/?mod=read[acce ssed Dec 21 2017]

 Chandranandana. Madanadi nighantu,
 1985, kottayam: vaidyasarathi Sanskrit series, Tgp:267

12. Cakrapāṇidatta, Dravyaguṇa saṅgraha , Commentary by ŚivadāsaSena, http://localhost:4001/enighantu/dravyagunas angraha/?mod=read

13. Bhogika Mahendra, Dhanwantari Nighantu, Commentary by Sharma Guruprasad, edited by Sharma Priyavrat: Varanasi, Chowkambha Orientalia Publication, 2<sup>nd</sup> edition, 1998,Tpg:360

14. Cakrapāṇidatta, Śabdacandrikā, http://localhost:4001/enighantu/shabdacandr ika/?mod=read[accessed Dec 21 2017]

15. Hemacandra suri, Nighaṇṭuśēṣa, http://localhost:4001/enighantu/nighantushes ha/?mod=read[accessed Dec 21 2017]

16. Acharya Shodhala, Shodhala Nighantu, Commentary by Pandey Gyanendra, Edited by Prof. Dvivedi. R. R, Varanasi, Chowkambha Krishnadas Academy, 1<sup>st</sup> edition 2009, Tpg 538.

17. Mādhava, Mādhava Dravyaguņa, http://localhost:4001/e-nighantu/madhava dravyaguna/?mod=about[accessed Dec 21 2017]

18.Abhidhana ratna mala, http://localhost:4001/enighantu/abhidhanaratnamala/?mod=read[ac cessed Dec 21 2017]

19. Vaidyaacharya Keshava, Siddhamantra, Commented by Prakasha, Edited by P.V. Sharma, First edition 1977, Varanasi, Chaukhamba Amarabharathi Prakashan, Tpg-113.

20. Madanapala Nrupa, Madanapala Nighantu, Published by Ganga Vishnu Sri Krishnadas, Bombay, 1867, Tpg: 296.

21. Narahari Pandit, Raja nighantu ,Vyakhyakara- Dr. Indradev Tripati,3rd edition, Varanasi: Chaukhamba Krishnadas Academy, 2003,Tpg:703

22. Kaiyadeva, Kaiyadeva Nighantu, Pathyapattya vibodhaka, Sampadde Acharya Priyavrit Sharma and Guruprasad Sharma: Varanasi, Chowkambha Orientalia, 1979, Tpg: 696.

23. Bhavamishra. Bhavaprakasha Nighantu -Hindi Commentary by K.C. Chunekar. 1<sup>st</sup> ed. Varanasi: Published by Chaukhumbha Bharathi Academy; 2002, Tpg:984

24. Sarasvatī nighaņtu, http://localhost:4001/enighantu/sarasvatinig hantu/?mod=read[accessed Dec 21 2017]

25. Rājavallabha, Rājavallabha nighaņţu, Redacted by Nārāyaṇadāsa, http://localhost:4001/enighantu/rajavallabha nighantu/?mod=read[accessed Dec 21 2017] 26. Sri Vaidya Bapalal, Nighantu Adarsha, Varanasi, Chaukhabha Bharati Academy, Reprint-2007 vol 2 Tpg-847

27. Sharma P.V., Priya Nighantu, along with Hindi commentary entitled Padma, 2<sup>nd</sup> edition, Varanasi: Chaukhamba Surabharathi Prakashan, 1995, Tpg: 275.

28. Thayyil, Krishnan K, Ayurvediya Oshadhi Nighantu, The Central Council of Ayurvedic Research; 1966. Pg: 694-695 29. Raja Radhakanta dev, Shabdakalpadruma, 4th vol 1st edition, Delhi: Naga Publishers, 3rd reprint 2006 Tpg:565.

30. Williams M. A Sanskrit English dictionary M. Monier –Williams. Collected ed. Delhi: Motilal Banarsidas Publishers Private Limited; 2002.

31. Quality standards of Indian medicinal plants. Vol 13, ICMR, New Delhi, 2015, pg: 110-118

32. Chandra K, Chaudhari BG, Dhar BP et al, Database on medicinal plants used in Ayurveda. Vol 8. CCRAS, New Delhi, 2007, Tpg:560

33. Sharma PV, Classical uses of Medicinal Plants. 1<sup>st</sup> ed. Chaukambha Vishvabharati, Varanasi; 1996. pg: 333

34. Sen GK, Bhaishajya Ratnavali, Edited by Siddhiprada Hindi Commentary by Prof Siddhinandan Mishra 1st ed. Chaukhamba Surabharathi Prakashan Varanasi; 2005. Tpg:1196

35. Basavaraju, Basavarajeeyam, edited by MS Krishnamurthy. Jaikrishnadas Ayurveda Series; 2014. Tpg:807

36. Ohrnberger D, The Bamboos of the World: Annotated Nomenclature and Literature of the species and the Higher and Lower taxa, 1st ed. Elsevier Science; 1999, Tpg:596

37. Description of *Bambusa arundinacea*. Available from:

http://www.homeovision.org/3590-0-

Bambusa-bambos.html

38. India Biodiversity Portal. *Bambusa bambos* (L.) Voss. Available from:
http://indiabiodiversity.org/species/show/22
8834[accessed Dec 21 2017]

39. The Bamboo Book 19 Selected Indian Species. National Mission on Bamboo Applications, Government of India.pg:28-29
40. Gamble JS, The Bambuseae of British India. Vol7. M/S Bishen Singh Mahendra Pal Singh, Jayyed Press, Dehradun; 1978.
41.

https://herbs.indianmedicinalplants.info/inde x.php/sanskrit-names-of-plants/51-2012-03-14-06-49-40/695-bambusa-bambos-363 (cited 2017 Nov 26)

42. https://www.arcjournals.org/journal-ofnutrition-and-growth/volume-3-issue-

1/1(cited 2017 Nov 26)

43. Kalita C, Ganguly M, Devi A, Evaluation of Antioxidant Capacity and Antimicrobial Properties of Ethnic Bambuseae species and Identification of the Active Components International Journal of Pharmaceutical & Biological Archives 2016; 7(1): 61 - 71

44. Bamboo shoot processing: Food quality and safety aspect (a review) Available from: https://www.researchgate.net/publication/22 3640706\_Bamboo\_shoot\_processing\_Food\_ quality\_and\_safety\_aspect\_a\_review [accessed Dec 21 2017].

45. The Nutritional Facts of Bamboo Shoots and Their Usage as Important Traditional Foods of Northeast India P. Nongdam and Leimapokpam Tikendra Hindawi Publishing Corporation International Scholarly Research Notices Volume 2014, Article ID 679073, 17 pages http://dx.doi.org/10.1155/2014/679073

46. Chongtham N, Bisht M S, Haorongbam S, Nutritional Properties of Bamboo Shoots: Potential and Prospects for Utilization as a Health Food. Comprehensive Reviews in Food Science and Food Safety. Institute of Food Technologists Vol. 10, 2011

47. Masud Rana A.Y.K.M., Khanam J.A., Asad-Ud-Daula M. Antineoplastic Screening of Some Medicinal Plants Against Ehrlich Ascites Carcinoma in Mice. Journal of Medical Sciences Year: 2004 | Volume: 4 | Issue: 2 | Page No.: 142-145 DOI: 10.3923/jms.2004.142.145

48. Rashid RB, Shampa S K, Md. Al Faruk, Adib M, Khan MF, Cytotoxic, Membrane Stabilizing and Antidiarrheal Activities of *Bambusa bambos* Linn.Article Bangladesh Pharmaceutical Journal 19(2): 161-165, 2016 August 2016 DOI: 10.3329/bpj.v19i2.29274

49. Muniappan M, Sundararaj T., Antiinflammatory and antiulcer activities of *Bambusa arundinacea*. J Ethnopharmacol. 2003 Oct;88(2-3):161-7.

50. Zubair M, Bibi Z, Rizwan K, Rasool N, Zahoor AF and Riaz M. In Vitro Antimicrobial and Haemolytic Studies of *Bambusa arundinaceae* leaves Journal of Applied Pharmaceutical Science Vol. 3 (04), pp. 111-115, April, 2013 Available online at http://www.japsonline.com DOI: 10.7324/JAPS.2013.3420

51. NAZ, Shaukat Hussain et al. Phytochemical, Antioxidant and Cytotoxicity studies of Bambusa arundinacea leaves. International Journal of Phytomedicine, [S.l.], vol. 4, no. 2, p. 220-228, dec. 2012. ISSN 0975-0185. Available at:

<http://www.arjournals.org/index.php/ijpm/ article/view/555>. [accessed Dec 21 2017] 52.Sundeepkuma HK, Raju MBV, Dinda SC, Sahu SK. Antihyperglycemic activity of *Bambusa arundinacea.* Rasayan J Chem 2012;5:112-116

53. Vanithakumari G, Manonavagi S, Padma S, Malini T. Antifertility effect of Bambusa arundinacea shoot extracts in male rats. I Etnopharmacol 1989; 25:173-180

54. Amar KC, Sanjukta M, Dishari L, Smritiratan T. Goitrogenic content of Indian cyanogenic plant foods and their in vitro anti-thyroidal activity. Indian J Med Res 2004; 119:180-185

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