



A LITERARY REVIEW ON BALA PANCHAKA

*Dr. Umakant N. Rabb

Department of Dravyaguna Vijnana, Acharya Deshbhushan Ayurveda Medical College and Hospital,
Bedkihal-Shamanewadi Tal. Nippani, Dist. Belagavi, Karnataka, India

Received 10th October 2020; Accepted 08th November 2020; Published online 30th December 2020

Abstract

The word *Panchaka* means five, *Bala Panchaka* means five types of *Bala* viz; *Bala* (*Sida cordifolia* Linn), *Atibala* (*Abutilon indicum* Linn), *Mahabala* (*Sida rhombifolia* Linn), *Nagabala* (*Grewia hirsuta* Vahl), *Rajabala* (*Sida veronifolia* Linn). *Bala* means strength promoting, hence it bestows strength and is a tonic in general as well as rejuvenator for all kinds of *Vataja* disorders. The *Bala Panchaka* is having *Madhura Rasa*, *Madhura Vipaka* and *Sheeta Virya*. In *Brimhaniya Mahakashaya* of *Charaka Samhita* it is enumerated that *Vatyayani* as *Bala* and *Bhadroudini* is *Atibala*. There are two varieties of *Atibala* one is big and the other is small. The bigger one is known as *Abutilon hirtum* where as the smaller one is named as *Abutilon indicum* Linn. In the *Atharva Parishishta* the *Bala* flowers were used as *Pushpabhisheka*. The present study of *Bala Panchaka* reveals the pharmacological actions, their controversies, morphology, etc. according to different Ayurvedic lexicons. Further scope of study is to evaluate the pharmacological actions such as Nerve tonic, Aphrodisiac, weight promoting and weight loss actions, anti-tubercular activities.

Keywords: *Ayurveda*, *Bala Panchaka*, *Atibala*, *Nagabala*, *Mahabala*, *Rajabala*, etc.

INTRODUCTION

In the Ayurvedic lexicons, *Bala* is from a group of five drugs. The *Balachatusthaya*^[1] is *Balya* (tonic) and *Prajasthapana* (which promotes reproduction)^[2] *Acharya Vagbhata* mentions *Bala* under *Madhyama Panchamoola*^[3] and *Sushruta* enumerated under *Vata-Sanshamana Ganas* and *Vamanopaga Gana*^[4] *Charaka* also mentioned it under *Vatashanshamana Gana*^[5] In the *Panchashirisha Agada*^[6] and in *Sarvadhatugata Visha Chikitsa*, *Bala* is one of the ingredient^[7] *Bala* is more effective in cardiac ailments as a tonic, where as *Atibala* is stronger diuretic. Among four types of *Bala* viz; *Bala*, *Atibala*, *Mahabala* and *Nagabala*, the first two are commonly used. In *Brimhaniya Mahakashaya*^[8] of *Charaka Samhita* it is enumerated that *Vatyayani* as *Bala* and *Bhadroudini* is *Atibala*. There are two varieties of *Atibala* one is big and the other is small. The big one is named as *Abutilon hirtum* whereas the second one is named as *Abutilon indicum* Linn. which is smaller variety. *Bala* means strength promoting, hence it bestows strength and is a tonic in general as well as rejuvenator for all kinds of *Vataja* disorders. The *Bala* is *Sida cordifolia* Linn. and *Atibala* is *Abutilon indicum* Linn. both belongs to Malvaceae family. Both are having *Madhura Rasa*, *Madhura Vipaka* and *Sheeta Virya*. In the *Atharva Parishishta* the *Bala* flowers can be used as *Pushpabhisheka*.

Bala^[9] Botanical name - *Sida cordifolia* Linn Family - Malvaceae

Morphology- Shrubby, branched, softly hairy and with much stellate, hair nearly all over and subsperisitant. Leaves: 1-2 inch long, cordate or subacute, not acuminate, petioles are ½- 1½ inch long. Pedicels: Solitary or few together, short. Some up to ½- ¾ inch long jointed much above the middle. Calyx : ¼ -3/4 inch long, lobes ovate, acute.

Corolla : Slightly exceeding the calyx, yellow. Fruit; ¼-1/3 inch in diameter. Carpels : 7-10 strongly reticulated ciliate on the upper margins. The two dorsal margins almost scabrid, awns 2 nearly aslong as the carpels, linear, retroselyscabrid, hairy. Root : Occurs in variable sized pieces, 5-15 cms long with few lateral slender rootlets of smaller size, tap root branched at the tip; outer surface buff to grayish - yellow minutely striated or smooth, odorless, taste slightly bitter. It is found all over India

Atibala^[10]- Botanical Name: *Abutilon indicum* Linn., Family: Malvaceae

Morphology- It is a perennial softly tomentose shrub, with very big leaves. Stem - round, frequently tinged with purple. Leaves - ovate to orbicular - cordate, 2-2.5 cm. long acuminate, toothed, petioles long, stipules long, linear, acute,. Flowers - Solitary on jointed peduncles, orange-yellow or yellow. Calyx - lobes ovate, apiculate, Corolla - yellow, opening in the evening. Staminal tube hairy at the base, Filaments long. Seeds: 3-5, reniform, tubercled or minutely stellate - hairy, black or dark brown. (Flowers and fruits almost throughout the year). Found as a weed in all over India, the sub-Himalayan tract and hills up to 1,400 m. and in hotter parts of *Srilanka*.

Vedic period^[11]

Bala is mentioned as *Rasayana* (Tissue vitalizer), *Vishagna* (Subsides poison effect), *Balya*(Strength promoter) and *Pramehagna* (allevites urinary diseases including diabetes). In *Atharva Veda*, *Kalpasastra* the reference regarding *Bala* is available. In *Atharva Parishishta* it is used as *Pushpaabhisheka*. (Pai.19/39/1-13. A.P. 5/1/4.) According to *Charaka Samhita* *Bala* is mentioned in *Brimhaniya*,^[8] *Balya*, *Prajasthapana*^[12] and *Madhuraskandha*^[12] *Bala* is mentioned as strength promoting and *Vatashamaka* drug^[5] The *Bala Churna* is advised with water in *Sarvadhatugata Visha*

*Corresponding Author: Dr. Umakant N. Rabb,

Department of Dravyaguna Vijnana, Acharya Deshbhushan Ayurveda Medical College and Hospital, Bedkihal-Shamanewadi Tal. Nippani, Dist. Belagavi, Karnataka, India.

Chikitsa.^[17] Also it is one of the ingredients of *Panchashirishoagada*^[16] and *Amrutaghrta*. While explaining the different types of *Bala*, *Chakrapani* told that, *Vatyayani* is *Sweta Bala*^[18] and *Bhadraudini* is *Peeta Bala*^[18]. According to *Acharya Charaka - Bala* is *Madhura Rasa*, *Snigdha*, *Sheetavirya*, *Madhuravipaka*, *Vatashamaka*, *Grahi* (Absorbent). According to *Sushruta Samhita* in *Vamanopagagana*^[4] *Bala* is mentioned. In case of *Sahadeva*, *Acharya Sushruta* explained that it is one of the varieties of the *Bala* and it is having *Peeta Pushpa*^{[13], [14]} (yellow flowers) but the other varieties have *Neelapushpa* (blue color flowers). For all types of *Vataraktarogas*, *Bala Taila*^[15] is used. For the preparation of *Mahasugandhi Agadaraj*^[16] which is used in snake poison *Bala* is one of the ingredients. While explaining the *Baladwaya*, it is mentioned that *Bala* is having white flower (*Shuklapushpa*) and *Atibala* has yellow flower (*Peetapushpa*)^[17] and its seed is *Sheetapaki*^[18]

According to Acharya Sushruta - Madhura Rasa (Sweet in taste), *Snigdha* (Demulcent), *Sheetavirya* (Cold in potency), *Madhuravipaka* (Sweet at post digestive effect), *Vatashamaka* (Subsides Vata Dosh), *Balya* (Strength promoter), *Rasayana*.

According to Acharya Vagbhata - The reference regarding *Bala* found in *Balya Dashemani*^[19] and in *Madhyama Panchmoola*^[20]. In *Astanga Hrudaya*, *Uttaratantra*, *Vagbhata* has mentioned *Bala Dwaya*^[21], *Dwibala*^[22] and *Balatraya*^[23]. According to *Arunadatta* the *Balatrayam*^[24] are *Bala*, *Atibala* and *Nagabala*.

According to Acharya Vagbhata - Madhura Rasa (Sweet in taste), *Snigdha* (Demulcent), *Sheetavirya* (Cold in potency), *Madhuravipaka* (Sweet at post digestive effect), *Vatashamaka* (Subsides Vata Dosh), *Balya* (Strength promoter). **Bhavaprakasha Nighantu**^[25] *Bala* is mentioned in *Guduchyadi Varga*. *Bala Chatusthaya* (Four types of *Bala*) are *Madhura* in *Rasa* (Sweet in taste), *Snigdha* (Demulcent) in *Guna*, *Sheeta* (Cold in potency) in *Veerya*, *Bala*, *Kantikaraka* (Improves complexion), *Grahi* (Absorbent) in *Karma*, alleviates *Samira*, *Arsha* (Haemorrhoids), *Pittaasra* (Blood diseases) and *Kshata* (Injury). The root bark of this is taken along with curd or sugar cures *Mutratisara* (Excess urination).

According to Bhavaprakasha Nighantu - Madhura Rasa, *Snigdha* (Demulcent), *Sheetavirya* (Cold in potency), *Madhuravipaka* (Sweet at the post digestive effect), *Vatashamaka* (Subsides Vata Dosh), *Balya* (Strength promoter), *Kantikaraka* (Improves complexion), *Grahi* (Absorbent).

According to Dhanavantari Nighantu^[26] *Bala* is mentioned in *Guduchyadivarga*, *Shukravardhaka* (Increases semen), *Balya* (Strength promoter), *Tridoshashamaka* (Subsides Vata-Pitta-Kapha Doshas), also acts as *Shukra*, *Ojavardhaka* and cures *Raktapitta* (Blood diseases) and *Kshaya* (Emaciation), *Madhura Rasa* (Sweet in taste), *Snigdha Guna* (Demulcent), *Sheeta Virya* (Cold in potency), *Madhura Vipaka* (Sweet at post digestive effect).

According to Shaligrama Nighantu^[27] *Bala* is mentioned in *Guduchyadivarga*. Also explained various synonyms of *Bala*. *Ruchikaraka* (Taste promoter), *Vrushya* (Aphrodisiac), *Grahi* (Absorbent) and *Vata* and *Pitta Shamaka* (Subsides Vata and Pitta Doshas). It is *Madhura Rasa* (Sweet in taste), *Snigdha*

(Demulcent), *Sheetavirya* (Cold in potency), *Madhuravipaka* (Sweet at post digestive effect), *Vata-Pitta Shamaka* (Subsides Vata and Pitta Doshas), *Balya* (Strength promoter). *Vrushya* (Aphrodisiac), *Grahi* (Absorbent). *Shodhala Nighantu*^[28] *Bala* is mentioned in *Guduchyadivarga*, *Vrushya* (Aphrodisiac) and strength promoting i.e. *Balakaraka*.

According to Shodhala Nighantu^[28] - *Madhura Rasa* (Sweet in taste), *Snigdha* (Demulcent), *Sheetavirya* (Cold in potency), *Madhuravipaka* (Sweet at post digestive effect), *Vata-Pitta Shamaka* (Subsides Vata and Pitta Doshas), *Vrushya* (Aphrodisiac), *Balakaaraka* (Strength promoter).

According to Kaiyadeva Nighantu^[29] In *Oshadivarga*, *Bala* is mentioned as *Balachatusthaya* (all the four types of *Bala*), are *Ayurvedhaka* and alleviates *Vatarakta* (Gout / Arthritis), *Tridosha* (*Vata-Pitta-Kapha*), *Kshata* (Injury) and *Kshaya* (Emaciation). Its fruits (seeds) are *Kashaya* (Astringent) and *Madhura* (Sweet) in *Rasa*, *Madhuravipaka* (Sweet at post digestive effect), *Sheeta* in *Veerya* (Cold in potency), *Guru* (Heavy), *Sthambaka* (Astringent property), *Lekhana Karaka* (Scraping action), *Vibandha* (Relieves Constipation), *Adhmana* (Distention of abdomen), *Vata-Pitta* and *Rakta-Vikaranashaka* (Subsides Vata-Pitta-Kapha diseases).

According to Raja Nighantu^[30] - The *Raj Nighantu* explained various synonyms of *Bhadraudini* like *Nagabala*, *Kharagandha*, *Chatushphala*, *Mahodaya*, *Mahashakha*, *Mahapatra*, *Mahaphala*, *Vishvadeva*, *Arishtha*, *Kharva*, *Hrisva*, *Gavedhuka*, *Deavadanda*, *Mahadanda* and *Ghata*. Its qualities are, *Mahura* (Sweet), *Amla* (Sour), and *Kashaya* (Astringent in taste) in *Rasa*, *Ushnavirya* (Hot in potency) and *Guru* (Heavy). It alleviates *Kandu* (Itching sensation), *Kushtha* (Skin diseases), and *Vatadosha*, *Vrina* (Wound) and *Pitta Vikaranashaka* (Subsides Pitta related diseases). *Bala* is mentioned in *Shatahvadivarga*. *Bala* is *Ati-tikta* (Bitter), *Madhura* (Sweet) in *Rasa*, cures *Pittatisara*, provides *Bala* (Strength promoter), *Veerya* (Increases semen), *Pushti* (Nourishing) and relieves *Kapharoga*.

According to Adarsha Nighantu^[31] In *Karpasdivarga*, the *Bala* is mentioned, and having *Brumhaniya* (Weight promoting), *Balya* (Strength promoter), *Prajasthapana* (Offspring preserving), *Grahi* (Absorbent), *Vrushya* (Aphrodisiac), *Ojavardhaka* (Increases essence of seven *Dhatus*), *Vatahara* (Subsides Vata Dosh), *Pittaghna* (Subsides Pitta Dosh) and *Kshayanashaka* (Alleviate emaciation) properties. It is *Madhura Rasa* (Sweet), *Snigdha* (Demulcent), *Sheetavirya* (Cold in potency), *Madhuravipaka* (Sweet at post digestive effect), *Vata-Pitta Shamaka* (Subsides Vata and Pitta Doshas), *Brumhaniya* (Weight promoting), *Balya* (Promotes strength), *Prajasthapana* (Offspring preserving), *Grahi* (Absorbent), *Vrushya* (Aphrodisiac), *Ojavardhaka* (Increases the essence of seven *Dhatus*),

According to Priya Nighantu^[32] In *Shatapushpadi Varga*, *Balapanchaka* is mentioned. The *Balapanchaka* are *Bala*, *Atibala*, *Mahabala*, *Nagabala* and *Raja Bala*. It is *Madhura Rasa* (Sweet), *Snigdha* (Demulcent), *Sheetavirya* (Cold in potency), *Madhuravipaka* (Sweet at post digestive effect), *Vata-Pitta Shamaka* (Subsides Vata and Pitta Doshas), *Balya* (Promotes strength), *Vrushya* (Aphrodisiac), *Brumhanakaraka* (Weight promoter).

According to *Gada Nigraha*^[33]- While explaining the treatment of all types of *Vatavyadhi*, *Bala Taila* and *Brihad Bala Taila*, *Tritiya Bala Taila* and *Mudhagarbhe Chaturtha Bala Taila* is mentioned.

Substitute and Adulterants^{[34],[35],[36]}

The plants most commonly used as the source of *Bala* belong to the genus *Sida*. *Sidaretusa* Linn, syn. *S.rhombifolia*, var. *retusa* Linn, *S. rhombifolia* Linn, *S.rhoboidea* Roxb, *S. spinosa* Linn, *S.acuta* Burn, *S.veronicaefolia* Lamk and *Abitulon indium* G.Don, *Urena lobata* Linn, *U. sinuate* Linn, *Pavonia odorata* Wild, *P. zeylanica* Cav. are being used under the name of *Bala* in different part of the country. *Abitulon indicum* (L). Sweet, *S.retusa* Linn, *Pavonia odorata* Wild and *Urena lobata* Linn. are used as adulterants. *Sida cordifolia* Linn. is the widely used source of *Bala* in northern parts of India while physicians of Kerala have adopted *Sida rhombifolia* Linn. *S.retusa* (Linn) Borss. (Syn *S. rhombifolia* var. *retusa* (Linn) Mast; Family: Malvaceae) as *Bala*. The drugs may commonly adulterate with *Sida rhombifolia* and *Sida spinosa* species.

Chemical Constituents^[37]

Root- C 28 phyto-ecdysones viz, sidasterone B, carboxylated tryptamines, quinazoline alkaloids, symathomimetic amines, bête-phenethylamine, beta - sitosterol, acylstery glycosidesitoinoside, ephedrine, S-(+)- Nb-methyl tryptophan methylester, hypaphorine, vasicinone, vasicine, vasicinol, choline, betaine, phytosterol, resin acids.

Seed- Proteins, steroids, resin, resin acid, mucin, phenethylamine, ephedrine, pseudoephedrine, fatty oil, potassium nitrate, linoleic acid, malvalic acid, sterculic acid and coronaric acid.

Aerial parts- Palmitic, stearic, hexacosanoic acids, beta - sitosterol.

Controversial aspect of Bala^[38]

In Kerala, fresh bundles of green *Bala* plants are sold in the market. It is widely used in Kerala. Not a single pharmacy may be there, which may not be using *Bala*. *Ghee*, *Taila* and other preparations are made from *Bala*. But their *Bala* is *Sida retusa* Linn, somewhat different from ours. *Vatyalaka* is a synonym of *Bala* and this word has been as derived as it is used for sweeping purposes. Some plants are tied together and made into a sweep. *Sida cordifolia* Linn. contains an alkaloid Ephedrine; other species do not contain ephedrine. So *Sida cordifolia* Linn. should be used for medication. Looking to all this *Bala* is not at all controversial. Still, however, in some parts of India *Atibala* is known as *Bala*. This should be corrected. Another species *A. theophrastii* Mdic. (*A. avicennae* Gaertn) is also used by some as *Atibala* because of their similarity in appearance. It is used in nerve disorders like paralysis and *Vata* prominent disorders. It is also used as the adulterant of *Bala*.

MAHABALA

Mahabala is not found in *Charaka Samhita* and *Sushruta Samhita*. *Sida rhombifolia* Linn is *Mahabala* and is bigger than the other species. *Mahabala* is not used medicinally. It is used as substitute and adulterant of *Sida cordifolia* Linn

NAGABALA

Naga means serpent as well as elephant. Taking it to be a serpent it means one which creeps like a serpent is *Nagabala*. Others opine that it gives strength like an elephant and so it has been named as *Nagabala*^[39]. *Nagabala* some believe it to be *Sida veronifoila* Lam, and *Grewia hirsuta*. Syn- *Sida humilis* belongs to *Malvaceae* family. **Morphology**-It is a trailing or prostrate, perennial, much branched plant, more or less hairy. Leaves 1-5cms long, cordate, ovate, acute or acuminate, serrate, clothed with stellate hair. Petioles long. Calyx 5 angled, hairy, lobes triangular, acute. Corolla pale yellow. Carpels 5, smooth, Seeds brown, glabrous.

CONCLUSION

The literary review reveals that all the types of *Bala* are having *Madhura Rasa Snigdha Guna*, *Sheeta Veerya*. *Bala- Sida Cordifolia* Linn, *Atibala- Abitulon indicum* Linn, *Mahabala- Sida rhombifolia* Linn, *Naga Bala- Grewia Hirsuta* Vahl, *Raja Bala- Sida veronicaefolia* Linn. All together called as *Bala Panchaka*^[40]. *Bala* is fibrous, therefore called as *Vatyayani*, *Atibala* looks like comb known as *Kankatika Phala*. *Mahabala* is *Balavardhaka* (Tonic) and gives strength so named *Mahabala*. *Nagabala* gives strength like that of an elephant. *Bala Panchaka*^[41] is *Madhura* (Sweet), *Sheeta*(Cold in potency), *Snigdha* (Demulcent), *Balya* (Tonic), *Vrishya* (Aphrodisiac), *Brimhana* (Nourishing), alleviate *Vata-Pitta* and *Kshayaroga* (Emaciation with tuberculosis).

REFERENCES

1. Bhavamishra, Bhavaprakasha Nighantu, commentary by Dr. Chuneekar K.C., Edited by Dr.Panday G.S. Guduhyadivarga, Varanasi, Chaukhamba bhārati academy, reprinted 2004, page no-366, 337.
2. Acharya Charaka, Charaka Samhita by Agnivesha revised by Charaka and Dridhabala of Chakrapanidatta, sutrastana 4th & 8th chapter, edited by Yadavji and Trikamji, first edition, Varanasi, Chaukhamba Sanskrit Samsthana, 2001, Page no- 284.
3. Acharya Vagbhata, Astanga Hridaya with Sarvangasunder of Arunadatta and Ayurveda rasayana of Hemadri commentary sutrasthana 6th chapter, edited by Pt. Bhisagacharya Harishastri Paradkar Vaidya , Varanasi, Krishnadas academy, reprint 2000, page no-120.
4. Acharya Sushruta, Sushruta Samhita commentary of Dalhanacharya Sutrasthana 39th chapter, edited by Acharya Yadavji and Trikamji, 7th edition Varanasi, Chaukhamba Orientalia, 2002, page no-171.
5. Acharya Charaka, Charaka Samhita by Agnivesha revised by Charaka and Dridhabala of Chakrapanidatta, Sutrastana 25/40 chapter, first edition, edited by Acharya Yadavji and Trikamji, Varanasi, Chaukhamba Sanskrit Samsthana, 2001, Page no-132.
6. Acharya Charaka, Charaka Samhita by Agnivesha revised by Charaka and Dridhabala of Chakrapanidatta, Chikitsastana 23/212 chapter, edited by Acharya Yadavji and Trikamji, first edition, Varanasi, Chaukhamba Sanskrit Samsthana, 2001, page no-580.
7. Acharya Charaka, Charaka Samhita by Agnivesha revised by Charaka and Dridhabala of Chakrapanidatta, Chikitsastana 23 / 188 chapters, edited by Acharya Yadavji and Trikamji, first edition, Varanasi, Chaukhamba Sanskrit samsthana, 2001, Page no-579.

8. Acharya Charaka, Charaka Samhita by Agnivesha revised by Charak and Dridhabala of Chakrapanidatta, Sutrastana 4/2 chapter, edited by Acharya Yadavji and Trikamji, first edition, Varanasi, Chaukhamba Sanskrit Samsthana, 2001, page no-32.
9. Theodore Cook C.I.E. Flora of the Presidency of Bombay vol-1, Ranunculaceae to Rubiaceae, by Bishen Singh Mahendrapal Singh Dehradun, India, page no- 94.
10. Bapalal Vaidya, Some Controversial Drugs in Indian Medicine, first edition, Varanasi, Chaukhamba Orientalia, 1982, Page No-216
11. Sharma P.V. Dravya Guna Vijnana (Vedic plants and history of Dravyaguna), Varanasi, Chaukhamba Bharati Academy, reprint 2003, Page no-104.
12. Acharya Charaka, Charaka Samhita by Agnivesha revised by Charaka and Dridhabala of Chakrapanidatta, Sutrastana, 4th chapter, edited by Yadavji and Trikamji, first edition, Varanasi, Chaukhamba Sanskrit Samsthana, 2001, Page no-32, 34.
13. Acharya Sushruta, Sushruta Samhita commentary of Dalhanacharya Sutrasthana 38/4, 5, edited by Acharya Yadavji and Trikamji, 7th edition, 2002, Varanasi, Chaukhamba Orientalia, page no-164.
14. Acharya Sushruta, Sushruta Samhita commentary of Dalhanacharya Uttarasthana 31/6, edited by Acharya Yadavji and Trikamji, 7th edition Varanasi, Chaukhamba Orientalia, 2002, page no-663.
15. Acharya Sushruta, Sushruta Samhita commentary of Dalhanacharya Chikitsasthana 5/12, edited by Acharya Yadavji and Trikamji, 7th edition Varanasi, Chaukhamba Orientalia, 2002, page no-426.
16. Acharya Sushruta, Sushruta Samhita commentary of Dalhanacharya, kalpastana 6/16, edited by Acharya Yadavji and Trikamji, 7th edition, Varanasi, Chaukhamba Orientalia, 2002, page no-581
17. Acharya Sushruta, Sushruta Samhita commentary of Dalhanacharya, sutrastana 39/7, edited by Acharya Yadavji and Trikamji, 7th edition Varanasi, Chaukhamba Orientalia, 2002, page no-171.
18. Acharya Sushruta, Sushruta Samhita commentary of Dalhanacharya, sutrastana 46/190 edited by Acharya Yadavji and Trikamji, 7th edition Varanasi, Chaukhamba Orientalia, 2002, page no-229.
19. Acharya Vagbhata, Atanga Sangraha commentary of Shashilekha by Indu, Sutrastana 15, edited by Dhivaprasad Sharma, 7th edition Varanasi, Chaukhamba Sanskrit Series Office, 2006, page no-130.
20. Acharya Vagbhata, Astanga Hridaya with Sarvangasunder of Arunadatta and Ayurveda rasayana of Hemadri commentary sutrasthana 6th chapter, edited by Pt. Bhisagacharya Harishastri Paradkar Vaidya, Varanasi, Krishnadas academy, reprint 2000, page no- 120.
21. Acharya Vagbhata, Astanga Hridaya with Sarvangasunder of Arunadatta and Ayurveda rasayana of Hemadri commentary, uttaratantra 22/68, edited by Pt. Bhisagacharya Harishastri Paradkar Vaidya, Varanasi, Krishnadas academy, reprint 2000, page no-855.
22. Acharya Vagbhata, Astanga Hridaya with Sarvangasunder of Arunadatta and Ayurveda rasayana of Hemadri commentary, uttaratantra 34/37, edited by Pt. Bhisagacharya Harishastri Paradkar Vaidya, Varanasi, Krishnadas academy, reprint 2000, page no-899.
23. Acharya Vagbhata, Astanga Hridaya with Sarvangasunder of Arunadatta and Ayurveda rasayana of Hemadri commentary, uttaratantra 27/38, edited by Pt. Bhisagacharya Harishastri Paradkar Vaidya, Varanasi, Krishnadas academy, reprint 2000, page no-876.
24. Acharya Vagbhata, Astanga Hridaya with Sarvangasunder of Arunadatta and Ayurveda rasayana of Hemadri commentary, uttaratantra 13/52, edited by Pt. Bhisagacharya Harishastri Paradkar Vaidya, Varanasi, Krishnadas academy, reprint 2000, page no-822.
25. Bhavamishra, Bhavaprakasha Nighantu, commentary by Dr.Chunekar K.C., Edited by Dr.Panday G.S. Guduhyadivarga, Varanasi, Chaukhamba Bharati academy, reprinted 2004, page no-366, 337, 370.
26. Sharma P.V. and Sharma Guruprasad, Dhanavantari Nighantu, 2nd edition, Varanasi, Chaukhamba Orientalia, page no- 66- 67.
27. Lalashaligramji Vaishya, Shaligram Nighantu, vol-7, 8 edition Mumbai, Kemraj Shrikrishnadas Prakashana, 2002, page no-234.
28. Acharya Shodhala, Shodhala Nighantu (Namasangraha and Gunasangraha) edited by Sharma P.V, first edition, Baroda. Orientalia Institute, 1978, Page no-28, 112.
29. Acharya Kayadeva, Kayadeva Nighantu Oshaddivarga, redacted by Sharma P.V., 1 st edition, New Delhi, Chaukhamba publications, 1979, page no-194,195.
30. Pandit Narahari, Raj Nighantu, Shatahvadivarga, redacted by Indradeva Tripathi, Varanasi, Chaukhamba KrishnadasAcademy, 2003, page no- 80- 83.
31. Vaidya Bapalal, Nighantu Adarsha, Karpasadivarga redacted by Vaidya Bapalal, vol-1, Chaukhamba Bharati Academy, reprinted 2007, page no- 152-153.159, 161
32. Sharma P.V. Priya Nighantu, Shatapushpadivarga, shloka no-102-106, redacted by Sharma P.V, Varanasi, Chaukhamba Surabharati Prakashana, edition 2004, page no- 94.
33. Vaidya Shodhala, Gada Nigraha, vidyotini commentary, edited by Indradev Tripathi and Gangasahaya Pandey, part-1, Varanasi, Chaukhamba Sanskrit Series, edition 1968, page no-74-75.
34. Indian Herbal Pharmacopoea, Revised new edition, Mumbai, Indian Drug Manufacturers Association, 2002, Page no-390
35. Dr.Rajpal V. Standardisation of Botanicals, vol-2, New Delhi, Eastern Publishers, reprint 2005, page no- 307.
36. Prof. Levekar G.S. Database of Medicinal Plants, vol-8, New Delhi, Central Council for Research in Ayurveda and Siddha, Govt. of India, edition 2007, page no-44, 50.
37. Prof. Levekar G.S. Database of Medicinal Plants, vol -8, NewDelhi, Central Council for Research in Ayurveda and Siddha, Govt. of India, edition 2007, page no-42.
38. Bapalala Vaidya, Some Controversial Drugs in Indian Medicine, first edition, Varanasi, Chaukhamba Orientalia, 1982, Page No-214.
39. Bapalala Vaidya, Some Controversial Drugs in Indian Medicine,Chapter 7, first edition, Varanasi, Chaukhamba Orientalia, 1982, Page No-216-217
40. Prof. Priya Vrat Sharma, Priya nighantu, Shatapushpadi Varga, Shloka No- 102, Hindi commentary entitled PADMA, Varanasi, Chaukhambha Surabharati Prakashana Edition 2004, Page No- 94.
41. Prof. Priya Vrat Sharma, Priya nighantu, Shatapushpadi Varga, Shloka No- 106, Hindi commentary entitled PADMA, Varanasi, Chaukhambha Surabharati Prakashana Edition 2004, Page No- 94