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Validation of classical pharmacology of *Sida cordifolia* Linn. (*Bala*) through reverse pharmacology

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ABSTRACT

Bala (*Sida cordifolia* Linn.) belonging to the Malvaceae family is one of the most frequently used herbs in *Ayurveda* therapeutics. It has been included in *Agraya Prakarana* (best among their class drugs) which signifies its role in various diseases. In *Charaka Samhita*, *Bala* has also been categorized under *Balya, Brimhaniya* and *Prajasthapana Mahakashaya*. It is used in several diseases like *Vatavyadhi, Vatarakta* and acts as a *Rasayana.* Ephedrine, pseudoephedrine, sterculic acid, malvalic acid are its main bioactive chemical constituents. It has been demonstrated to possess various pharmacological activities like CNS depressant, analgesic, anti-inflammatory, hypotensive, antidiabetic activities and the plant is reported to be used in the treatment of Parkinson's disease also. In classical texts, five varieties of *Bala* have been mentioned and all are said to possess similar properties and actions. All the varieties are abundantly available across the country. Thus, *Bala* becomes one of the most potent medicinal plants of present era. Present paper is an attempt towards exploration of therapeutic potential of the drug through reverse pharmacology.

Key words: *Ayurvedic medicine, Bala, Sida cordifolia, Country mallow.*

INTRODUCTION

Medicinal plants are considered to be the major component of traditional medicines, household's remedies and cosmetics. One such herb i.e., *Sida cordifolia* Linn. belonging to Malvaceae family is found all over India up to an altitude of 3500 feet. *Bala* is nourishing and gives strength to the body and also considered as aphrodisiac. In *Dhanwantari Nighantu*, *Bala* has been mentioned firstly in *Balapanchaka* (*Bala, Atibala, Nagbala, Mahabala, Rajbala*). *Bala* is useful in the diseases arising out of the vitiated *Kafa*.[1] It is also known as Country mallow. *Bala* has hard threads so it is called as *Vatyayani*.[2] It is an immunity booster. It has been mentioned as indication in weakness, urinary and menstrual disorders. It controls *Pitta* and diarrhoea.

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METHODOLOGY

An extensive review of literature regarding *Sida cordifolia* Linn. (*Bala*) available in text of *Ayurveda* from *Vedic* literature, *Samhita* texts including research papers published in different Journals was done in a stepped manner for the study.

OBSERVATIONS

Bala in Classical Text

In *Vedic* literature, *Bala* has been mentioned as *Rasayana, Vishaghna, Balya* and *Pramehaghna*.[3] In *Charaka Samhita*, *Bala* has been mentioned in *Balya, Brimhaniya* and *Prajasthapana Mahakashaya*.[4] It has been said to be "*Sangrahik Balya Vataharanam*".[5] It has been categorized in *Madhur Skandh Dravya*.[6] In *Sushrut Samhita*, *Bala* has been mentioned in *Vata*

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Samshaman Varga and categorized in *Madhur Varga*. *Parisek* of *Bala Taila* has been indicated in *Sadya Kshata Vrana*. In *Pakshaghat*, *Bala Taila* has been directed to be used in *Anuvasan Basti*.[7] *Acharya Vagbhatta* has mentioned *Bala* in *Madhyam Panchmoola*.[8]

In *Dhanwantari Nighantu*, *Bala* has been defined as *Vrishya* (Aphrodisiac), *Balya*, *Tridosh Nashak*. It has *Madhur Rasa* (Sweet taste), *Sheet Virya* (Cold).[9] In *Hridaya Deepak Nighantu*, it has been mentioned in *Doshaghna Varga*.[10] In *Kaiyadev Nighantu*, fruits of *Bala* have been defined as *Stambhak, Lekhan, Rakta-vikar Nashak, Vat-Pitta Shamak*.[11] In *Nighantu Adarsh*, *Bala* has been categorized in *Karpasadi Varga*. It is *Grahi, Vrishya, Ojvardhak*.[12] In *Maha Aushadh Nighantu*, *Bala* has been mentioned as taste enhancer and helps in retaining strength to the body.[13]

Synonyms

Synonyms of *Bala* are *Udakika,*[1] *Kalyanini,*[1] *Mota,*[1] *Baladhya,*[1] *Bhadra,*[1] *Bhadrabala,*[1] *Vatyayani,*[2] *Vati,*[9] *Mahasamanga,*[9] *Audanika,*[9] *Vatyalika,*[13] *Vatya,*[13] *Balini,*[13] *Kharakashtika,*[13] *Vatyapushpi,*[13] *Fadijihvika,*[13] *Bhadrodin,*[1,9,14] *Samanga,*[1,9,14] *Kharayashtika,*[1,9,14] *Sheetapaki,*[9,13,14] *Vatyalaka.*[14]

Classical Pharmacological Properties

Bala is *Sheet Virya,*[2,9,13,15,18] *Snigdha,*[2,9,13,16] sweet in taste,[2,9,15,18] *Laghu-Pichchill-Hridya,*[18] *Balya,*[1,2,9,11,15] *Vrishya,*[1,2,9] *Tridosh Nashak,*[9,11] *Raktapitta,*[9,11,13] *Kshaya Roga Nashak,*[2,9,11] *Ojovardhaka,*[9] *Tikta Rasa* but *Madhur Vipaka,*[1] *Pitta-Atisar Nashak,*[1] *Kaf Roga Vishodhak,*[1] *Grahi,*[11,15,18] *Dhatuvardhaka,*[11] *Ayu-Kanti Vardhaka,*[11,15] *Vatarakta-Kshata Nashak,*[11] *Ruchikarak,*[13,16] *Brimhana,*[2] *Vat-Pittajit,*[2,13,16] *Kaf-Vata Nashak.*[17] *Lepa* is used in *Vranashoth, Netraroga* and *Daha.*[17] Its internal uses are *Vatvyadhi, Pakshaghat, Ardita* and other *Vatavikara, Pradara, Garbhashaya Daurbalya, Yoniroga, Sutikaroga, Vranaropana* and *Shodhana, Arsha, Galaganda,*[17] *Vednasthapan, Shothhar, Shukral, Prajasthapana.*[18]

***Bala's* fruit -** *Kashaya, Madhur Rasa, Madhur Vipaka, Sheet Virya, Guru, Stambhaka, Lekhana, Vibandha, Adhmana, Vata-Pitta- Rakta Vikar Nashak.*[11]

Vernacular Names[17]

- English: Country mallow
- Hindi: *Kungyi, Bariyaar, Khiratee, Kharentee*
- Bengali: *Swetberela, Brela, Bala, Barila*
- Gujrati: *Mahabala, Bala, Khapat, Baladana, Janelimethi*
- Punjabi: *Kowar, Simak, Kharent, Kharyati*
- Tamil: *Nilatutti, Akhil mnapundu, Mayir manikham*

Classical therapeutic uses of *Bala*

1. ***Vatvyadhi***
   a. *Bala Taila*[19] (CS.Ci.28.148-56)
   b. In hemiplegia, *Bala Taila* is used in unctuous enema.[20] (SS.Ci.5.19)
   c. Soup made of *Bala* is an excellent remedy for *Vatavyadhi*.[21] (VM.22.2)
2. ***Vatarakta***
   a. *Sahasrapaka* or *Satapaka Bala Taila,*[22] (CS.Ci.29.119-20)
   b. *Bala Taila* should be used for bathing, enema and in diet.[23] (SS.Ci.5.12)
3. **Bleeding piles** - Liquid gruel made of parched paddy processed with *Bala* (*Sida cordifolia* Linn.) and *Prsniparni* (*Uraria picta* Desv.) checks bleeding immediately.[24] (CS.Ci.14.199)
4. **Intrinsic haemorrhage** - Cow-milk prepared with *Bala* or *Goksura* (*Tribulus terrestris* Linn.) is useful.[25] (CS.Ci.21.79)
5. **Goitre -** Intake of oil cooked with *Bala* and *Atibala* (*Abutilon indicum* Linn.) along with *Devdaru* (*Cedrus deodara* Roxb.) is effective in treating goitre.[26] (SS.Ci.18.47)
6. **Difficult labour (Post-operative)**
   a. *Bala Taila,*[27] (SS.Ci.15.29-39)
   b. Oil extracted from sesame (*S. indicum* L.) seeds soaked with *Bala* decoction and cooked hundred times with decoction of the same is an excellent remedy.[27] (SS.Ci.15.40)

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7. **As *Rasayana* -** *Bala Rasayana.*[28] (SS.Ci.27.10)
8. **Diarrhoea -** In case of dehydration, if digestion is proper, patient should be treated with milk prepared with *Bala* and *Sunthi* (*Zingiber officinale* Roxb.) mixed with jaggery and oil is indicated.[29] (BP.Ci.2.111)
9. **Wasting due to Phthysis (chest-wound) -** *Bala, Ashwagandha* (*Withania somnifera* Dunal), *Kasmari* (*Gmelina arborea* Roxb), *Satavari* (*Asparagus racemosus* Willd.) and *Punarnava* (*Boerhavia diffusa* Linn.) individually or in combination should be used regularly with milk.[30] (VM.10.77)
10. **Filaria -** *Bala* with milk in morning is used to treat filaria even if chronic and severe.[31] (BS.*slipada*.30)
11. **Meno-metrorrhagia -** Root of *Bala* mixed with honey is taken with milk or root of *Kusa* (*Desmostachya bipinnata* L.) or rice-water.[32] (VM.63.10)
12. **Thirst -** In thirst caused by alcoholism water processed with *Haridra* (*Curcuma longa* Linn.) or *Bala* or *Prsniparni* (*Uraria picta* Desv.) or *Kantakari* (*Solanum surattense* Burm.) should be given.[33] (CS.Ci.24.165).
13. **Consumption -** *Ghee* cooked with *Dashmula*, milk or meat-soup along with the paste of *Bala* should be used or the same cooked with meat-soup of carnivorous animals or ten times milk added with honey.[34] (AH.Ci.5.14-15)

Classical Formulations of *Bala*[17]

***Asava* and *Arista* -** *Kumaryasava, Sarivadyasava.*

***Avaleha* and *Paka* -** *Agastya Haritaki Rasayan, Chyavanaprasha, Brahma Rasayana.*

***Kvatha Churna* -** *Rasnadi Kvatha Churna (Maha), Masabaladi Kvatha Churna.*

***Ghrita* -** *Amritaprasa Ghrita.*

***Taila* -** *Bala Taila, Chandanabalalakshadi Taila.*

***Lepa* -** *Dasanga Lepa.*

Other classical formulations - *Bala Taila* (SS.Ci.15.29), *Gaurarista, Baladi Rasayana, Padmakadileha, Nilinadya Ghrita, Kantikari Ghrita* (AH.Ci.3.60), *Mayur Ghrita, Rasna Taila, Mulakdya Taila, Amritadya Ghrita* (AH.Ci.3.95), *Vasishta Haritaki* (AH.Ci.3.133).[35]

Table 1: *Balapanchaka*[9]

It is a group of drugs containing five varieties of *Bala.* Details of herbs included in this group are listed in table number 1.

Classical Name	Botanical Name	Family
Bala	*Sida cordifolia* Linn.	Malvaceae
Atibala	*Abutilon indicum* Linn.	Malvaceae
Nagbala	*Grewia hirsuta* Vanb.	Tiliaceae
Mahabala	*Sida rhombifolia* Linn.	Malvaceae
Rajbala	*Sida veronicaefolia* Lam.	Malvaceae

Ethnomedicinal uses of *Bala*

1. Roots, leaves and seeds are slightly bitter in taste and are used in medicine. The juice of the plant is mixed with the juice of *Borassus flabellifer* L. for local use in elephantiasis.[36]
2. Root is considered to possess astringent, diuretic and tonic properties in Combodia and China. Its infusion is given in urinary diseases and gonorrhoea. It is also used in cystitis, strangury and haematuria. In nervous disorders such as hemiplegia, sciatica and facial palsy, its root is administered internally in combination with asafoetida and rock salt.[36]
3. Seeds are credited with demulcent and laxative properties and are used in bowel complaints such as piles, colic and tenesmus.[36]
4. The mucilaginous leaves are used as a demulcent and their infusion is given in fever as a refrigerant. They are reported to be used against dysentery and for poulticing ulcers.[37]
5. A decoction of the leaves is said to possess emollient and diuretic properties.[37]

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6. The root bark is powdered and administered with milk and sugar to relieve frequent micturition and leucorrhoea.[38]

Official drug for *Bala*

- Quality Standards of Indian Medicinal Plants, which is publication of Indian Council of Medical Research, New Delhi, *Sida cordifolia* (Linn.) has been described as official source for *Bala.*
- In *Ayurvedic* Formulary of India published by Govt. of India, Ministry of Health and Family Welfare, Department of AYUSH (New Delhi), *Bala* is mentioned in various formulations like *Patrangasava, Nastapuspantaka Rasa* as *Sida cordifolia* (root) and in list of drugs of plant origin used in the formulations, root of *Sida cordifolia* (Linn.) and whole plant is taken as *Bala*'s.

Taxonomic classification

Kingdom:	Plantae
Division:	Magnoliophyta
Class:	Magnoliopsida
Order:	Malvales
Family:	Malvaceae
Genus:	*Sida*
Species:	*Sida cordifolia*

Morphology

It is an annual or perennial short, erect, greyish-green, soft hairy or pubescent woody undershrub, 0.5-1m in height. Leaves are simple, alternate (3-6 cm long), petioled, ovate, cordate, obtuse, tomentose on both surfaces. Flowers are bisexual, light or sulphur yellow to cream white in colour, axillary and solitary but appears crowded in the upper part and towards the tip of branches. Carpels are 10 and each with 2 long awns, which exceed the calyx. Fruits are depressed. Seeds are smooth, flattened, reniform, brown or black in colour.[39]

Flowering and fruiting season - flowering and fruiting season is august-november. It occurs commonly in waste lands on damp sandy soils.[39]

Geographical Distribution - *Bala* is found throughout the tropical and subtropical regions of India upto a height of 1800m in Himachal Pradesh. Bengal, Maharashtra, Gujrat, Andhra Pradesh, Assam, Jammu, Kashmir, Tamilnadu, Uttar Pradesh, Karnataka and Kerala are the chief regions of its occurance. It is also available in Sri Lanka.[17]

Phytochemistry - Ephedrine, pseudoephedrine, sterculic, malvalic and coronaric acid, Fatty acids, saponine, betaphenethylamine, hypaphorine, ecdysterone, Indole alkaloids, palmitic, stearic and β – sitosterol.[17]

Alkaloids - The total alkaloid content of the whole plant (including seeds, leaves, skins and roots) is reported to be 0.085 percent; seeds contain the maximum dose of alkaloids. Ephedrine is one of the alkaloids reported. In addition to the alkaloids, the seeds contain a fatty oil (3.23%), steroids, phytosterol, resin, resin acids, mucin and potassium nitrate.[40]

Validation of classical pharmacological properties through reverse pharmacology

1. **CNS depressant:** *Acharya Charaka* has included *Bala* in *Agraya Varga* (Best among their class of drugs) and considered it to be best drug as *Balya* and *Vatahara*. It has been demonstrated to bear nervine tonic activity. This activity has been further substantiated by CNS depressant activity in animal models. Hydro alcoholic extract from leaves of *S. cordifolia* exhibited CNS depressant activity in mice.[41]
2. **Analgesic and anti-inflammatory activity:** Aggravation of *Vata* has been considered as the main factor for pain. When aggravated *Vata* causes aggravation of *Pitta* and *Kafa*, inflammation is produced. *S. cordifolia* has been considered as one of the best *Vata Shamak* drugs. This classical claim has been authenticated by analgesic and anti-inflammatory activity of *S. cordifolia* in animal models.[42]
3. **Hypotensive activity:** Hypertension in *Ayurveda* has been explained as *Raktagata Vata.* Being one of the best *Vata* pacifying drugs, *Bala* may be

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considered as anti-hypertensive drug. This claim has been further authenticated by its hypotensive activity in animal models. The alkaloid fraction of *S. cordifolia* induced hypotension and bradycardia activity in normotensive rats.[43]

4. **Anti-stress and adaptogenic activity:** *Bala* has been considered to be *Balya* and *Vata-Pitta Shamak*. Such drugs are considered to increase body endurance making it fit for fighting different type of stresses. This classical claim has been further substantiated by pharmacological studies in animal models. Plant extract was administered via oral route in rats. *Withania somnifera* Dunal. (*Ashwagandha*) powder is used as standard for the study. Extracts showed reduction in plasma cortisol and blood glucose levels in results.[44]

5. **Anti-diabetic activity:** *Acharya Charaka* while describing line of treatment of *Madhumeha* has advocated *Santarpan Chikitsa* (Treatment to nourish body tissues). This concept is now being widely accepted by modern researchers also. *Bala* has been considered as *Balya* and *Ojovardhak*. *Madhumeha* is also otherwise called as *Ojomeha*. *Bala* being *Ojovardhak* is supposed to be effective in the treatment of *Ojomeha*. This classical claim has been further authenticated in animal studies. Root extracts of *S. cordifolia* showed anti-diabetic property as diminished blood glucose level was reported in rats.[45]

6. **Anti-oxidant activity:** *Bala* has been indicated as *Rasayana* by *Acharya Charaka*[46] and *Acharya Sushrut*. This claim has been further substantiated by its efficacy in neurodegenerative disorders. The anti-oxidant activity of *S. cordifolia*, *Cynodon dactylon* (L.) and *Evolvulus alsinoides* (L.), which were used in treatment of neurodegenerative disorders, revealed that all the three medicinal plants showed anti-oxidant activity with the help of some procedures, e.g. ABTS radical cation decolorization assay and inhibition of lipid peroxidation of rat brain homogenate.[47]

7. **Nephroprotective activity:** *Bala* is *Madhur-Tikta* in *rasa* and has been considered as *Pitta-Vata Shamak*. Some scholars consider it *Tridosh Shamak*. Being *Rasayana* and *Shothhar*, *Bala* has been indicated in degenerative and chronic inflammatory diseases of internal organs. This classical claim has been further authenticated by its nephroprotective activity. Aqueous and ethanolic extract of *S. cordifolia* showed nephroprotective activity against Gentamycin induced nephrotoxicity due to its antioxidant activity.[48]

8. **Anti-fertility activity:** In *Charaka Samhita*, *Bala* has been classified in *Balya, Brimhaniya* and *Prajasthapana Mahakashaya. Prajasthapana Mahakashaya* is a group of drugs which promote conception. Study reporting anti-fertility activity of crude aqueous extract of *S. cordifolia* in swiss albino mice contradicts classical claim and therefore, this study demonstrating anti-fertility activity should be revalidated. The ability of *S. cordifolia* (crude aqueous extract) to inhibit fertility was evaluated in Swiss albino mice. Ovarian and uterine weights decreased as a result of the medication, which is consistent with its antifertility effects. Its antifertility efficacy is further supported by the results of the histological test conducted in the study.[49]

9. **Anthelmintic activity:** In *Bhel Samhita*, *Bala* has been indicated in the treatment of filariasis. The claim has been further authenticated by its anthelmintic activity against Indian earthworm. A study conducted on Indian earthworms (*Pheretima posthuma*) to examine the plant's anthelmintic effects revealed that it exhibited anthelmintic properties.[50]

10. **Cardioprotective Activity:** *Bala* has been indicated as *Rasayana* and *Hridya* in classical texts. This classical claim has been further authenticated by its cardioprotective activity in animal studies. Activity against myocardial injury in rats was reported in hydroalcoholic extract of *S. cordifolia* leaves. A safe effect of *S. cordifolia* was found on heart injury with the help of antioxidant levels, endogenous biomarkers such as lactate

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dehydrogenase and creatine kinase isoenzyme. Findings indicates the use of *S. cordifolia* in myocardial injury.[51]

11. **Hypolipidemic activity:** *Bala* has been considered as *Hridya* and *Rasayana*. It is reported to be used as a cardioprotective drug in *Ayurveda*. The classical claim has further been authenticated in a study carried out in albino rats. In this study, hydroalcoholic extract of *S. cordifolia* was administered orally to animal models kept on high fat diet. Results of the study demonstrated that *S. cordifolia* lower serum total cholesterol, triglycerides, LDL cholesterol, while raised the serum HDL cholesterol. The treatment also reduced ALT & AST levels.[52]
12. **Anti-pyretic and anti-ulcerogenic activity:** *Bala* is *Madhur-Tikta* in *Rasa*, *Madhur Vipaka* and *Sheet Virya*. It is effective *Pitta* pacifying herb. In *Ayurveda*, fever is considered as disease caused by vitiated *Pitta Dosha*. It has also been reported to be used as anti-pyretic in ethnomedicinal practices also. Anti-pyretic properties of *Bala* have been re-validated in animal studies. Methanolic extract of *S. cordifolia* aerial parts revealed the anti-pyretic and anti-ulcerogenic properties in rats. Extract showed reduction in pyrexia induced by TAB vaccine and antiulcerogenic effect.[53]
13. **Anticancer and cytotoxic activity:** *Bala* is a well-known and trusted *Rasayana* and *Ojovardhak* drug in *Ayurvedic* system of medicine. It is antioxidant and protective activities of *Bala* for oxidative damage for various internal organs have been validated in animal studies. The claim has been further re-validated by cytotoxic activities of *Bala* on Hella cell lines. Bio-active compounds from *S. cordifolia* showed cytotoxic activity on Hella cell lines. Findings of study showed a significant reduction in cancerous cells.[54]
14. **Rheumatoid Arthritis and Osteoarthritis:** Arthnex forte was tried in 80 patients of rheumatoid arthritis and osteoarthritis in the dose of 2 tabs. t.i.d. 1 month, 2 tabs b.i.d. for 1 month and 1 tab/t.d. from then onwards, with warm water. Arthnex forte contain eight plants which are supposed to be *vatahar* drugs- *Pluchea lanceolata* (DC) C.B. Clarke, *Tinospora cordifolia* (Willd.) Miers, *Ricinus communis* L., *Cedrus deodara* Roxb., *Zingiber officinale* Roscoe, *S. cordifolia, Vitex negundo* L. and *Commiphora myrrha* gum. 92.5% patients improved remarkably and 7.5% patients showed moderate improvement.[55]
15. **Diabetic Neuropathy:** "Effect of *Bala* on diabetic neuropathy" was evaluated in patients of confirmed diabetic neuropathy, attending the diabetic clinic by adopting new physiological parameters. The results obtained after the completion of study exhibited that the drug *S. cordifolia* has proven its efficacy in managing diabetic neuropathy.[56]
16. **Parkinsonian Disease:** In a clinical study, the efficacy of *Ayurvedic* treatment (Powdered *Mucuna pruriens* (L.), *Hyoscyamus reticulatus* (L.) seeds, *Withania somnifera* and *S. cordifolia* roots) in 18 parkinsonian patients was assessed. According to *Ayurvedic* principles, 13 patients experienced both cleansing (28 days) and palliative therapy (56 days), 5 patients experienced palliative therapy alone (84 days). Only the former group showed improvement in activities and on motor examination as per UPDRS rating. They showed better response in tremor, stiffness and cramps. Excessive salivation worsened in both groups. Analysis of powdered samples in cow's milk, as administered in patients, revealed about 200 mg of L-DOPA per dose. The study establishes the requirement of cleansing therapy in *Ayurveda* medication prior to palliative therapy. It also shows the contribution of L-DOPA in the recovery as observed in Parkinsonian disease following *Ayurvedic* treatment.[57]

Above mentioned three clinical studies re-validate classical claims regarding consideration of *Bala* as best *Vathar* drug.

Toxicology

Aqueous extracts of leaves exhibited low acute toxicity in mice. The hydro alcoholic extract of leaves was

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found to be toxic at high i.p. doses. The LD_{50} values were 2639 mg/kg bw with 95% confidence limits of 2068-3367 mg/kg bw for i.p. administration.[42]

Substitutes and adulterants

The plants most commonly used as the source of *Bala* belongs to the genus *Sida. Sida retusa* Linn. syn *S. rhombifolia* var. *retusa* Linn., *S. rhombifolia* Linn.; *S. rhomboidea* Roxb; *S. spinosa* Linn., *S. acuta* Burm.; *S. veronicaefolia* Lamk and *Abutilon indicum* G. Don, *Urena lobata* Linn., *U. sinuata* Linn.; *Pavonia odorata* Wild., *P. zeylanica* Cav. are being used under the name of *Bala* in different parts of the country. *Abutilon indicum* (L.) Sweet., *S. retusa* Linn, *Pavonia odorata* Wild. and *Urena lobata* Linn. are used as an adulterant.[58]

Conclusion

Bala is one of the important drugs in *Ayurveda* having roots of *Sida cordifolia* as its official botanical source. It has been reported to be used in a wide range of disease conditions in *Ayurveda*. As discussed above, pharmacotherapeutic potential of *Bala* described in classical texts of *Ayurveda* have been revalidated through reverse pharmacology. Different species of *Sida* have been reported to be used as substitute for *Sida cordifolia* as classical drug *Bala* in different parts of the country. All the species of *Sida* like *S. cordifolia, S. acuta, S. cordata* and *S. rhomboidea* are abundantly available. Broad therapeutic potential of classical drug *Bala* along with its wide availability in abundance makes it fit for consideration as ideal drug.

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