

Critical Review of Nomenclature and Taxonomy of *Latakaranj* (*Caesalpinia crista*)

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ABSTRACT

The naming of plants is an extremely interesting topic with historical and cultural significance. Nomenclature and classification of a plant is very essential for proper identification and to distinguish a particular species from others. In Ayurveda, methodology of nomenclature is multinomial. Though the Sanskrit literature have provided accurate description, confusion in the identification of botanical sources of these drugs was probably brought about by poor understanding of the Sanskrit literature and misinterpretation by various commentators. This confusion has become confounded by the existence of several names for one drug and several drugs having one common name. Similarly, there is lot of confusion in the nomenclature of *latakaranj* and its synonyms i.e. interpreted as *latakaranj* and *karanj* separately and in common. In this present study, different *nighantu* and *samhitas* were thoroughly studied to analyze and compile the occurrence of *latakranj* in various *ganas* and *vargas* (groups based on therapeutic effects, morphology etc.) described there. Such a compilation study regarding nomenclature, etymology and taxonomy of *latakaranj* from classics and contemporary literature will help researchers, teachers and students to understand this drug with more clarity.

Key-words: *Latakaranj*, *nighantu*, *Caesalpinia crista*, nomenclature, taxonomy, classification

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Introduction

Names provide us with a way of structuring and mapping the world in our minds. So, in some way, they mirror or represent the objects of our experience. During the Vedic era and ancient ayurvedic texts era (*Samhita* and *Nighantu*), the physicians classified medicinal plants mainly on basis of their functions, properties, appearance and morphology. The plants were also classified and sub-classified based on types of root, stem, leaves, flowers, fruits, seeds, *rasa*, *guna*, *veerya*, *vipaka*, *prabhava* etc. But the science of taxonomy developed considerably in *Samhita Kaal*. *Charak* and

Sushrut have classified various drugs on the basis of origin like *jangam*, *audbhid*, *parthiv*; morphology, uses, properties, *rasa*, *virya*, *vipak*, *prabhav*, therapeutic actions, useful part (*Prayojyaanga*), etc. The groups are named mainly on the basis of action of the drugs by *charak* (e.g. *Jeevaniya gana*) and on the basis of main drug in the group (e.g. *vachadi gana*) by *sushrut*.

Even after having in hand such valuable heritage of developed system of nomenclature and taxonomy in our classics, it is difficult to correctly identify certain drugs described in ayurvedic classics due to reasons like non availability of certain drugs like *soma*, *jivaka*, etc., rare existence of endangered plants, multiplicity of names i.e.

synonyms of any drug in same and different languages, many drugs with same names like *rasna* (thirteen different drugs are identified as *rasna*), non availability of specific varieties of certain drugs like *haritaki*, *bhringaraj*, etc., Exotic plants e.g. wrong identification of *Argemone mexicana* as *swarnakshiri*, adulteration like that in *yashtimadhu* and synthetic preparations like that of *vanshalochan*. There are some drugs which elude proper identification because they may have become extinct in past 3000 years since when they are being described in texts e.g. *soma*. Many plants have been inadequately described e.g. *swarnakshiri*.

Non-availability of a species, poor or distorted understanding and parallel evolving knowledge systems are the three major reasons for looking for alternatives and wrong and multiple identities i.e. synonyms added to them, result in controversy. There is ambiguity and state of confusion related to synonyms of drugs. Thus a high percentage of plants used in the present day Ayurvedic practice have some controversy attributed to them. Therefore, it is necessary to compile the occurrences of important drugs at different places, to study them fluently.

Latakaranj is proven to have antipyretic¹, antimalarial², antiviral³, antidiabetic⁴, anti-inflammatory⁵, analgesic⁶, antioxidant and adaptogenic⁷, hepatoprotective⁸, anticancer⁹, and nootropic¹⁰ potential. It is also used to treat infertility caused by polycystic ovarian syndrome¹¹. But there is lot of confusion in the nomenclature of *latakaranj* (Sanskrit as well as Latin names). With reference to many Ayurvedic texts, both *nighantu* and interpreters of *samhitas*, an interesting feature that emerged is that many synonyms of “*Karanj*” (*Pongamia Pinnata*) have been interpreted as “*Latakaranj*” (*Caesalpinia crista*) and vice versa. In *Charaka samhita*, ‘*Udkeerya*’ and ‘*Prakeerya*’ are used for “*Brihad Karanj*” (*Pongamia Pinnata*) and *Pootika*, *Pootikaranj* are used for “*Latakaranj*” (*Caesalpinia crista*), but these are also used as synonym for *Karanj* at some places and even the word ‘*karanj*’ is used as a synonym for *latakaranj* at some places! *Dhanvantri nighantu* and *Raj Nighantu* have described *udakeerya* separately as *Karanja vishesh* and

even have mentioned *shadgrantha* and *hasticharini* as its synonyms.

In this review, the authors studied the classical and contemporary texts thoroughly to analyze and compile the occurrences of *latakaranj* and its synonyms (interpreted as *latakaranj* and *karanj* separately and in common). The drug has also been studied from the perspective of its taxonomy to make an attempt to introduce more clarity in understanding this crucial but easily available drug.

Material and Methods

All relevant books available on Ayurvedic medicinal plants were consulted for correct identification, synonyms, nomenclature, vernacular names and classification of *latakaranj* (*Caesalpinia crista*) i.e. *Shabdakoshas*, *Charak samhita*, *Sushruta samhita*, *Ashtanghridaya*, *Ashtangsangraha*⁴⁷, Ayurvedic pharmacopoeia of India, *Nighantu adarsh*, *Priya nighantu*, *Kaiyadeva nighantu*, *Prayogatmak Abhinav Dravyaguna Vigyan*, *Dravyaguna Hastamalkak*, *Ayurvediya Vanaspati Kosha*, *Dravyaguna-Vigyan*, *Vanaushadhi Ratnakar*, Indian Medicinal Plants, Indigenous Drugs of India, *Bhavaparkash Nighantu*, *Shaligram Nighantu*, *Ayurvediya Vanaspati Kosh*, Indian Materia Medica, Pharmacopoeia of India, *Vaidyaka Shabda Sindhu*. Expert opinion of plant taxonomists was also sought for cross checking and confirmation on identity.

Observations and Results

Synonyms of *latakaranj* in *Nighantu*: The information related to different synonyms and nomenclature of *latakaranj* (*Caesalpinia crista*) in various classical Ayurvedic literatures have been presented and documented in the tables. Table 1 shows absolute synonyms which have been specifically indicated for *latakaranj*, while Table 2 shows equivalent synonyms i.e. names that are meant as “*Karanj*” also, in some texts.

Synonyms of *latakaranj* in *Shabdakoshas*: Nomenclature related data collected from *Amar Kosh*¹², *Shabdakalpadrum*¹³, *Halaayudh Kosh*¹⁴, *Vaijayanti Kosh*¹⁵, *Medini Kosh*¹⁶, *Vaidyak Shabda Sindhu*¹⁷, *Shabda Chandrika*¹⁸ and *Vachaspatyam*¹⁹ are described in Table 3.

Synonyms of *latakaranj* in *Charak samhita* (1000B.C.-400 A.D): There is clear indication of two types of *karanj* in *Charak chikitsasthana* 15/171²⁰. *Charak* has indicated *latakaranj* as ingredient of various therapeutic formulae for 15 diseases; and included it in *phalini*, *kandughna*, *lekhanaya*, *bhedaniya*, *virechaniya varga*, *katu skandha* and *tikta skandha*. *Latakaranj* is mentioned at 54 places in *charak samhita*. The names interpreted as '*Latakaranj*' in the text of *Charak Samhita* are mentioned in Table 4

Synonyms of *latakaranj* in *Sushruta samhita* (1000B.C – 500 A.D): Two types of '*Karanj*' are clearly mentioned in *Sushrut Samhita* (Ref. *sushruta chikitsa* 9/57).²¹ Names interpreted as '*Latakaranj*' in the text of *Sushrut samhita* are mentioned in Table 5.

***Latakaranj* in *Ashtanghridaya* (7th Century, A.D):** More than 900 medicinal plants are described in this text and the number hikes to 2000, including edible plants.²² Therefore, careful collection of synonyms interpreted as *Latakaranj*, was done and mentioned in Table 6.

***Latakaranj* in *laghutrayi* (medieval period):** *Madhavnidan* mainly deals with the pathogenesis of diseases so there is no description of plants in it. *Sharangdhar samhita* mentions *karanja* just as an ingredient of certain *taila* and *ghrita yogas*. No discussion about synonyms is found. Only *Bhavprakash* has mentioned the synonyms of *Latakaranj* in its *nighantu*²³ part (as mentioned in Table 1 and 2).

***Latakaranj* in Ayurvedic pharmacopoeia of India (API):** Under the Drugs & Cosmetics Act, the Ayurvedic Pharmacopoeia of India²⁴ (A.P.I.), Part-I, is the book of standards for single drugs. Drugs included herein and the standards prescribed, are considered to be official. Seed of *Latakaranj* is described in Part I/ Vol. V; Sr. No. 44, Page No. 126 of A.P.I. Various synonyms of *latakaranj* in different languages have also been documented here. Latin nomenclature of *latakaranj* in A.P.I is *Caesalpinia bonduc* (Linn.) Roxb. F amily- Caesalpiniaaceae.

Latin Synonyms of *latakaranja*: The interpreters and authors of various *nighantu* have identified the herb

latakaranj by following five latin names:

1. ***Caesalpinia crista* (linn)** - This is the most common Latin name used for *Latakaranja*. The interpreters of *nighantu adarsh*²⁵, *priya nighantu*²⁶, *kaiyadeva nighantu*²⁷ have mentioned it as Latin name of *Latakaranj*. Other books such as *Prayogatmak Abhinav Dravyaguna Vigyan*²⁸, *Dravyaguna Hastamalak*²⁹, *Ayurvediya Vanaspati Kosha*³⁰, *Dravyaguna-Vigyan*³¹ and *Vanaushadhi Ratnakar*³² also mention the same name. Indian Medicinal Plants³³ and Chopra's Indigenous Drugs of India³⁴ also mention the same name. But interpreter of *Bhavaparkash Nighantu* has accepted it as a synonym.

2. ***Caesalpinia bonducella* (fleming)** – Interpreters of *Shaligram Nighantu*³⁵, *Raj Nighantu*³⁶ and *Bhavprakash Nighantu* mention it as the Latin name of *latakaranj*. Encyclopedia of Medicinal Plants³⁷ also mentions it. *Nighantu Adarsha*, *Ayurvediya Vanaspati Kosh*, Indian Medicinal Plants and Chopra's Indigenous drugs of India have mentioned it as synonyms of *Caesalpinia crista*.

3. ***Caesalpinia bonduc*** - It is mentioned in Indian Materia Medica³⁸.

4. ***Caesalpinia (guilandina) bonducella***- It is mentioned in Pharmacopeia of India³⁹.

5. ***Guilandina bonduc***- This name is not found anywhere except *Vaidyaka Shabda Sindhu*.

Vernacular names of *latakaranj*: Besides the synonyms mentioned in Ayurvedic texts, it is important to know the names and synonyms of any drug in different languages of different countries, regions and villages. It is practically very important to know the names of drugs in the language of a layman. Therefore synonyms used in various Indian and foreign languages are also compiled here. The synonyms of *latakaranj* in Indian and foreign languages^{28, 29, 31, 32, 33, 34, 38, 39} are mentioned in Table 7. Etymology²⁵ of important Sanskrit synonyms of *latakaranj* is mentioned in Table 8

Classification of *latakaranj*:

The *latakaranj* classification in various *Nighantus* is as follows:

1. **Bhavaprakash nighantu:** *Guduchyadi Varga* – This is the third group described in *Bhavaprakash Nighantu*.²³ This group has 144 drugs including – *Latakaranj*. Other herbs included are *Guduchi*, *Tambul*, *Bilva*, *Shewta Karveer*, *Rakta Karveer*, *Bringraj*, *Snuhi* etc.
2. **Raj nighantu:** *Shalmalyadi Varga* – This is the eighth group of *Raj Nighantu*. It has 59 drugs³⁶. Besides *Latakaranj*, *Irimeed*, *Khadir*, *Snuhi*, *Shalmali*, *Durva*, *Kush*, etc. are included in it.
3. **Kaiyadev nighantu:** *Aushadhi Varga* – This is the first group and has 494 drugs including *Latakaranj*.²⁷ Properties of various parts of same plant are described here along with synonyms, properties and functions of the plants.
4. **Dhanwantari nighantu:** *Aamraadi Varga* – This is the fifth group of *dhanwantari nighantu*.⁴⁰ It mentions 74 drugs, besides *latakaranj*. *Tinduk*, *Madhuk*, *Priyal*, *Karanj*, *Jati*, *Arjun* etc. are also mentioned.
5. **Priya nighantu:** *Haritakyadi Varga* – This is the first group of *Priya Nighantu* and number of drugs included in it is 115.²⁶ The main drugs are *Haritaki*, *Aamalaki*, *Latakaranj*, *Ela*, *Gokshur*, *Changeri*, *Brihati*, etc.
6. **Shadras nighantu:** *Tikta Dravya Skandh* – Here drugs are classified on the basis of *rasa*. *Tikta skandha* is fourth group.⁴¹ This *skandh* compiles 146 drugs. Besides *Latakaranj*, there are *vasa*, *Ativisha*, *Rasna*, *Usheer*, *Paribhadra*, *Guduchi* etc.
7. **Shaligram nighantu:** *Guduchyadi Varga* – This is the third group in *Shaligram Nighantu* in which *Latakaranj* is described along with more than 100 drugs like *Nagvalli*, *Bilva*, *Gambhari*, *Guduchi*, *Agnimanth*, etc.³⁵
8. **Astang nighantu:** *Aaragvadhadi Varga* – This is ninth *gana* of *Astang Nigantu*. 15 drugs have been

described in it including *Aaragvadh*, *Vatsak*, *Kirata tikta*, *Chitrak*, *madanphal* besides *latakaranj*.⁴²

9. **Madanpal nighantu:** *VaTaadi Varga* – This is 5th group of this *Nighantu* and has 55 drugs including *VaTa*, *Ashwattha*, *Paras pipal*, *Peelu*. *Latakaranj* is described along with *Panchakshiri* and *Panchvalkal*.⁴³
10. **Sodhal nighantu:** *Aamraadi varga* – It is fifth group described in *sodhalnighantu*. It mentions 80 herbs.⁴⁴ Some important herbs mentioned in this group are *aamra*, *jambu*, *latakaranj*, *shatapatri*, *arjun*, *shalmali*, *japaa*, *varun*, etc.
11. **Nighantu adarsh (purvardha):** *Putikaranjaadi varga* – This *nighantu* classifies drugs in 73 groups. *Putikaranjadi varga* mentions 15 herbs. Along with *latakaranj*, *sanay*, *kanchanar*, *amlika*, *ashoka*, *aragwadh*, *chakshushyaa*, *patanga*, etc are described.²⁵
12. **Hriday deepak nighantu:** *Chatushpaad varga* – This is first group and describes 21 herbs. Besides *latakaranj*, *yashtimadhu*, *Pippali*, *chandan*, *manjishtha*, are describes.⁴⁵
13. **Haritkyadi nighantu:** *Guduchyadi gana* – It is the third group and describes 150 drugs including *Bala*, *Musli*, *Shatavari*, *Kumari*, *Punarnava*, *latakaranj*, etc.⁴⁶

The classification of *latakaranj* in *brihatrayi* is mentioned in Table 9.

Botanical classification

Although the system of classifying and naming plants has changed over the years, its basic structure has remained the same. Today, all living things are classified into kingdom, phylum, class, order, family, genus, and species. This classification is done with the help of DNA sequencing and is overseen by the International Code of Nomenclature (ICN). The Bentham and Hooker classification of *latakaranj* is as follows:

Kingdom – Plantae; Division – Spermatophyta; Sub-Division – Angiospermae; Class – Dicotyledonae; Sub-class – Gamopetalae; Order – Rosalesae; Family – Leguminosae; Sub-Family – Caesalpiniaceae; Genus – Caesalpinia; Species - crista

Discussion

The nomenclature of Ayurveda is not a binomial system as adopted by modern botany. In Ayurveda, there are many names for a single entity and a single name is used to denote many plants. While studying the medicinal plants, first step is to understand its identification, nomenclature and taxonomy. Botanical classification is based mainly on morphology of plant. But in Ayurveda, drugs are classified on the basis of their characters, pharmacodynamics (*Rasa, guna, virya, vipaka, prabhava*, etc.), therapeutic actions as well as morphology. So by studying classification of any drug as per Ayurveda, we can know about its morphology as well as therapeutic and pharmacological role briefly. Present study described taxonomy of *latakaranj* according to various *nighantu* and *samhitas* and also as per botanical aspects.

The present study emphasizes the need for an objective research on the plants mentioned in the Ayurvedic classical literature to link their description to the correct botanical sources mentioned in the modern floras applying the principles of *namajnana, roopajnana, yuktijnana*, etc. and study their pharmacognosy, pharmacology and clinical aspects to make them acceptable in modern medical practice. Literary review of drugs like *latakaranj* (*Caesalpinia crista*), with proven therapeutic potential in multiple systems of the body, helps researchers, teachers and students to understand the drug with more clarity.

On referring various classical and contemporary texts there is a clear indication of both the drugs *Karanj* and *Latakaranj* separately. But interpretation of synonyms, produce an ambiguity as the names are interchangeable at many places. So, the data presented in this study includes tables enlisting all the synonyms interpreted as *latakaranj* specifically. The frequency of occurrence of synonyms of

latakaranj in *brihat trayi* has been also studied, which indicates importance of the drug in the classics. A large list of vernacular names represents the popularity of this drug in different areas throughout the world, which shows that *latakaranj* is well known to layman since long time.

Latakaranj is a drug having therapeutic role in multiple systems of body and is indicated for many diseases internally as well as externally in Ayurveda. It is under consideration as a topic of research for various scientists even in the field of cancer, immunology and neurology. In this context, classical references from Ayurvedic texts prove to be of great importance for researchers since review of literature is the initial step in any research. So after studying the *nighantu, shabdakosh, samhita*, their commentaries and other contemporary literature thoroughly, here we have compiled and analyzed most of the data regarding nomenclature and taxonomy of *Latakaranj*. One should be very selective and cautious and choose only those synonyms which are meaningful and significant to identification.

Conclusion

In this study, basic details of *latakaranj* i.e. nomenclature, vernacular names in different Indian and foreign languages and etymology of important synonyms, classification based on Ayurvedic concepts and botanical classification has been presented under one umbrella. So, this study will be helpful for the researchers, physicians, teachers and students as it will serve as a collection of references regarding *latakaranj* and will help a quick start to study the drug ever.

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References

1. Archana P, Tandan SK, Chandra S. Antipyretic and analgesic activities of *Caesalpinia bonducella* seed kernel extract. *Phytotherapy Research*. 2005

- May 1;19(5):376-81.
2. Kalauni, Surya Kant, *et al.* Antimalarial activity of cassane-and norcassane-type diterpenes from *Caesalpinia crista* and their structure-activity relationship. *Biological and Pharmaceutical Bulletin*. 2006; 29(5): 1050-1052.
 3. Patil U, Sharma M C. Antiviral activity of Lathakaranja (*Caesalpinia Crista L.*) crude extracts on selected animal viruses. *Global Journal of Research on Medicinal Plants & Indigenous Medicine*. 2012; 1(9): 440.
 4. Chakrabarti, Shrabana, *et al.* Advanced studies on the hypoglycemic effect of *Caesalpinia bonducella* F. in type 1 and 2 diabetes in Long Evans rats. *Journal of Ethnopharmacology*. 2003; 84(1): 41-46.
 5. Yodsaoue, Orapun, *et al.* Potential anti-inflammatory diterpenoids from the roots of *Caesalpinia mimosoides* Lamk. *Phytochemistry*. 2010; 71(14): 1756-1764.
 6. Ochieng, Charles O., *et al.* Antinociceptive and antiplasmodial activities of cassane furanoditerpenes from *Caesalpinia volkensii* H. root bark. *Fitoterapia* 2012; 83(1): 74-80.
 7. Mandal, Sourav, *et al.* Assessment of the antioxidant and reactive oxygen species scavenging activity of methanolic extract of *Caesalpinia crista* leaf. *Evidence-Based Complementary and Alternative Medicine* 2011: 1-11
 8. Sarkar, Rhitajit, *et al.* Hepatoprotective potential of *Caesalpinia crista* against iron-overload-induced liver toxicity in mice. *Evidence-Based Complementary and Alternative Medicine*. 2012: 1-9
 9. Bodakhe S. H., Agrawal A, *et al.* Anticancer study on alcoholic extract of *caesalpinia crista* root bark extract. *Journal of Pharmaceutical Research and Opinion*. 2011; 1(4): 126 – 128
 10. Kshirsagar, Sunil N. Nootropic activity of dried seed kernels of *Caesalpinia crista* Linn against scopolamine induced amnesia in mice. *International Journal of PharmTech Research*. 2011; 3(1): 104-109.
 11. Sharma M, Sharma G P, Singh M M. Role of traditional ayurvedic herbs in gynecological disorders a demand of 21st century. *International Journal of Applied Ayurved Research*. 2015; 1(8): 1-4
 12. Amarkosh – Hargovind Singh Shastri, Ramashrami Sanskrit Prakashan, II Edition 1987.
 13. Shabdikalpdrum – Rajaram Kanta Dev, Choukhamba Sanskrit Series, Varanasi, I Edition.
 14. Halayudha Kosh – Jaishankar Joshi, Saraswati Bhavan Prakashan, Varanasi, I Edition.
 15. Vaijayanti Kosh – Hargovind Shastri, Choukhamba Sanskrit series, Varanasi, I Edition.
 16. Medini Kosh – Pandit Jagannath Shastri, Choukhamba Sanskrit Series, Varanasi, III Edition.
 17. Vaidyak Shabda Sindhu – Kaviraj Shri Narendranath Sen, Choukhamba Oriental, III Edition, 1986.
 18. Shabda Chandrika – Shri Chakrapanidutt Virchita, Kendriya Ayurved And Sidhdha Anusandhan Parishad, 1989.
 19. Vachspatyam – Shri. Taranath Bhattacharya, Choukhamba Series, Varanasi, I Edition.
 20. Charak Samhita (Vidyotani Tika), P. Kashinath Shastri, Choukhamba Sanskrit Sansthan, Varanasi.
 21. Sushrut Samhita (Purvardh & Uttarardh), Dr. Ambikadatta Shastri, Choukhamba Sanskrit Sansthan, VII Edition 1989
 22. Asthang Hridaya – Dr. Brahmanand Tripathi, Choukhamba Sanskrit Pratishthan, Delhi, I Edition 1999

23. Bhavprakash Nighantu – Commentary - Dr. Chunekar, Edited by Dr. Pandey, Choukhamba Bharati Academy, Varanasi, VII Edition, 1986.
24. Ayurvedic Pharmacopoeia of India, Part I/ Vol. V; Sr. No. 44, Page No. 126
25. Nighantu Aadarsh – Vaidya Bapalal, Choukhamba Sankrit Sansthan, 1968.
26. Priya Nighantu – Acharya Priyavrat Sharma, Choukhamba Surbharti Prakashan, Varanasi, 1986.
27. Kaiyadev Nighantu – Acharya Priyadev Sharma, Choukhamba Oriental, Varanasi, I Edition 1979
28. Prayogatmak Abhinav Dravyaguna Vigyan – Mayaram Uniyal, Vaidyanath Ayurved Bhavan, I Edition, 1991.
29. Dravyaguna Hastamalak – Vaidya Banvarilal Mishra, Choukhamba Publication, II Edition 1986
30. Aushadhopyogi Ayurvediya Vanaspati Kosh - Bapalal Vaidya, Harichand Mehta Charitable Trust, Kolhapur, 1977.
31. Dravyagun Vigyan – Vaidya Vishnu Mahadev Gogate, Bharatiya Vidya Bhavan 2001
32. Vanaushadhi Ratnakar – Vd. Gopinath Pareek, Sudhanidhi Karyalaya, Vijaynagar (Aligarh) 2001.
33. Indian Medicinal Plants by Kirtikar.R. & Basu B.D., L.M.Basu & Co.,Allahbad, I Edition 1933
34. Chopra's Indigeneous Drugs of India - R. N. Chopra, I.C. Chopra, K.L.Handa, L.D.Kapoor, Dhur Academic Publishers, Calcutta II Edition 1958
35. Shaligram Nighantu – Lala Shaligram Ji Vaishya, Khemraj Shrikisandas Prakshan, Mumbai 1996.
36. Raj Nighantu – Shri. Narharipandit, commentary by Indradev Tripathi, Krishnadas Academy, Varanasi 1982
37. Encyclopedia Of Medicinal Plants - Andrew Chevallier, Darling Kindersley Publishing House, London, 1996
38. Indian Materia Medica Vol. I - K.M. Nadkarni, Popular Book Depot, III Edition, 1955
39. Pharmacopiea Of India, Ministry Of Health And Family Welfare, Government Of India, New Delhi, III Edition 1985
40. Dhanvantari Nighantu – Priyavrat Sharma. Choukhamba Orientalia, Varanasi, 1982.
41. Shadras Nighantu – Priyavrat Sharma, Choukhamba Orientalia , Varanasi, 1977.
42. Asthang Nighantu – Shri Vahat virachit, Kuppuswamy Shastri Research Institute Madras, 1976.
43. Madanpal Nighantu – Pandit Ramprasad, Shri Gangavishnu Shri Krishnadas Press, Bombay, III Edition 1986
44. Sodhal Nighantu – Vaidyacharya Sodhalvirachit, Edited by Priyavrat Sharma, Oriental Institute, Baroda, I Edition 1978.
45. Hriday deepak Nighantu – Shri. Vopdev Krut, Edited by Priyavrat Sharma, Choukhamba Amar Bharti, 1977
46. Haritkyadi Nighantu – Bhavamishra with Shivaprakashika Hindi commentary by Shivasharmavaidya Shastri, Khemaraj, Shrikrushnadas Properties,Bombay, 2000
47. Asthang Sangraha, Sarvangasundari Vyakha, P.Lalchand Shastri Vaidya, Vaidyanath Ayurved Bhavan, III Edition, 1986.

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Table 1 : Absolute synonyms of *latakaranj* in *nighantu*

S.N.	Synonyms	R.N	BP.N	SH.N	K.N	M.N	P.N	Sh.N	A.N	D.N	So.N	HD.N	H.N	N.A
1.	<i>Angarvalli</i>	-	-	-	-	+	-	+	-	-	-	-	-	-
2.	<i>Uttundika</i>	-	-	-	-	-	-	+	-	-	-	-	-	-
3.	<i>Udakirya</i>	-	-	-	-	-	-	-	-	-	-	+	-	-
4.	<i>Rikachika</i>	-	-	+	-	-	-	-	-	-	-	-	-	-
5.	<i>Karanj</i>	-	-	-	-	-	+	-	-	-	+	-	-	-
6.	<i>Karanja</i>	-	-	+	-	-	-	-	-	-	-	-	-	-
7.	<i>Karanji</i>	-	-	-	-	+	-	-	-	-	-	-	-	-
8.	<i>Kalimar</i>	-	-	-	-	-	-	-	-	-	+	-	-	-
9.	<i>Kantaki</i>	-	-	-	-	-	+	-	-	-	-	-	-	-
10.	<i>Kantakini</i>	-	-	+	-	-	-	-	-	-	-	-	-	-
11.	<i>Kantphal</i>	+	-	-	-	-	-	-	-	-	-	-	-	-
12.	<i>Kantakikaranj</i>	-	+	-	-	-	+	-	-	-	-	-	+	-
13.	<i>Kaktundi</i>	-	-	-	-	-	-	+	-	-	-	-	-	-
14.	<i>Kaktikta</i>	-	-	-	-	+	-	-	-	-	-	-	-	-
15.	<i>Kuberaksh</i>	+	+	-	-	-	+	-	-	-	-	-	-	+
16.	<i>Kuberakshi</i>	-	-	+	-	-	-	-	-	-	-	-	-	-
17.	<i>Kaiirya</i>	-	-	-	-	-	-	-	-	-	-	+	-	-
18.	<i>Gaur</i>	-	-	-	-	-	-	-	-	+	-	-	-	-
19.	<i>Chirbilva</i>	-	-	-	-	-	-	+	+	+	-	-	-	-
20.	<i>Tarani</i>	-	-	-	+	-	-	-	-	-	-	-	-	-
21.	<i>Tinagacchika</i>	-	-	+	-	-	-	-	-	-	-	-	-	-
22.	<i>Tiragandhika</i>	-	-	-	+	-	-	-	-	-	-	-	-	-
23.	<i>Tirini</i>	-	-	+	-	-	-	-	-	-	-	-	-	-
24.	<i>Duhsparsa</i>	+	-	-	-	-	-	-	-	-	-	-	-	-
25.	<i>Dhanadaksha</i>	+	-	-	-	-	-	-	-	-	-	-	-	-
26.	<i>Naktahva</i>	-	-	-	-	-	-	-	-	-	-	+	-	-
27.	<i>Naktamala</i>	-	-	-	-	-	-	-	-	+	+	+	-	-
28.	<i>Prakirya</i>	-	+	-	-	-	-	-	+	+	-	+	+	-
29.	<i>Prakirna</i>	-	-	-	-	-	-	-	-	-	-	-	-	+
30.	<i>Prakiryak</i>	-	-	-	-	-	-	+	-	-	-	-	-	-
31.	<i>Putik</i>	-	+	-	-	-	-	+	-	+	-	+	+	+
32.	<i>Putikaranaj</i>	-	+	-	-	-	-	+	+	-	+	+	+	+
33.	<i>Putipatruk</i>	-	-	-	-	-	-	-	-	-	+	-	-	-
34.	<i>Matrinandan</i>	-	-	-	-	-	-	-	-	-	+	-	-	-
35.	<i>Latakaranj</i>	+	+	-	-	-	-	-	-	-	-	-	-	-
36.	<i>Vajrajirak</i>	+	-	-	-	-	-	-	-	-	-	-	-	-
37.	<i>Valli</i>	-	-	+	-	-	-	-	-	-	-	-	-	-
38.	<i>Vallikaranj</i>	-	-	-	-	-	+	-	-	-	+	-	-	-
39.	<i>Vayasya</i>	-	-	-	-	+	-	-	-	-	-	-	-	-
40.	<i>Varana</i>	-	-	-	+	-	-	-	-	-	-	-	-	-
41.	<i>Varini</i>	-	-	+	-	-	-	-	-	-	-	-	-	+
42.	<i>Vitapakaranj</i>	-	+	-	-	-	-	-	-	-	-	-	-	-
43.	<i>Virasya</i>	+	-	-	-	-	-	-	-	-	-	-	-	-
44.	<i>Sharangeshta</i>	-	-	-	-	-	-	+	-	-	-	-	-	-
45.	<i>Somavalka</i>	-	+	-	-	-	-	-	-	-	-	-	+	-
46.	<i>Saurashtri</i>	-	-	-	-	-	-	-	-	-	+	-	-	-

R.N – Raj Nighantu; BP.N – Bhavprakash Nighantu; SH.N – Shaligram Nighantu; K.N – Kaiyadeva Nighantu; M.N – Madanpal Nighantu; P.N – Priya Nighantu; Sh.N – Shadras Nighantu; A.N – Ashtang Nighantu; D.N – Dhanwantari Nighantu; So.N – Sodhal Nighantu; HD.N – Hridaydeepak Nighantu; H.N – Haritakyadi Nighantu; N.A – Nighantu Adarsh.

Table 2 : Equivalent synonyms of *latakaranj* in *Nighantu*.

S.N.	Synonyms	R.N	BP.N	SH.N	K.N	M.N	P.N	Sh.N	A.N	D.N	SO.N
1.	<i>Angarvalli</i>	-	-	+	-	+	-	+	-	+	-
2.	<i>Ambashtha</i>	-	-	-	-	-	-	-	-	+	-
3.	<i>Uttundaki</i>	-	-	-	+	-	-	-	-	-	-
4.	<i>Udakirya</i>	-	-	+	+	-	-	-	-	-	+
5.	<i>Karanj</i>	-	-	+	-	-	-	-	-	-	-
6.	<i>Karanjak</i>	-	-	+	-	-	-	-	-	-	-
7.	<i>Karanji</i>	-	-	-	-	+	-	-	-	-	-
8.	<i>Kalimar</i>	-	-	+	-	-	-	-	-	-	-
9.	<i>Karabhandika</i>	-	-	-	+	-	-	-	-	-	-
10.	<i>Kaktikta</i>	-	-	-	+	-	-	-	-	-	-
11.	<i>Kakavalli</i>	-	-	-	-	-	-	-	-	+	-
12.	<i>Kalmikabheda</i>	-	-	-	-	-	-	-	-	+	-
13.	<i>Kakaghni</i>	-	-	+	-	-	-	-	-	+	-
14.	<i>Kairya</i>	-	-	+	+	-	-	-	-	-	-
15.	<i>Gajakanta</i>	-	-	-	-	+	-	-	-	-	-
16.	<i>Gaur</i>	-	-	+	-	-	-	-	-	-	+
17.	<i>Chirbilvak</i>	-	-	+	+	+	-	-	-	+	+
18.	<i>Tiragicchi</i>	-	-	-	-	+	-	-	-	-	-
19.	<i>Naktamala</i>	-	-	+	-	+	-	-	-	+	-
20.	<i>Prakirya</i>	-	-	+	-	-	-	-	+	+	-
21.	<i>Prakirna</i>	-	-	+	+	-	-	-	-	-	-
22.	<i>Putik</i>	-	-	+	+	+	-	-	+	-	-
23.	<i>Putikaranaj</i>	-	-	+	+	-	-	-	-	-	-
24.	<i>Putipatrak</i>	-	-	+	-	-	-	-	-	-	-
25.	<i>Putiparna</i>	-	-	+	-	-	-	-	-	-	-
26.	<i>Putivarna</i>	-	-	-	-	+	-	-	-	-	-
27.	<i>Vayavya</i>	-	-	-	-	-	-	-	-	+	-
28.	<i>Vrittatunda</i>	-	-	-	-	-	-	-	+	-	-
29.	<i>Sharangeshta</i>	-	-	-	-	-	-	-	+	-	-
30.	<i>Shadgrantha</i>	-	-	+	-	-	-	-	-	-	+
31.	<i>Swadukanta</i>	-	-	-	-	-	-	-	+	-	-
32.	<i>Hastivaruni</i>	-	-	+	-	-	-	-	-	-	-

R.N – *Raj Nighantu*; BP.N – *Bhavprakash Nighantu*; SH.N – *Shaligram Nighantu*; K.N – *Kaiyadeva Nighantu*; M.N – *Madanpal Nighantu*; P.N – *Priya Nighantu*; Sh.N – *Shadras Nighantu*; A.N – *Ashtang Nighantu*; D.N – *Dhanwantari Nighantu*; So.N – *Sodhal Nighantu*

Table 3 : Synonyms of *latakaranj* in *shabdakosh*

S.N.	Synonyms	A.K	S.K	H.K	V.K	M.K	V.S	S.C	<i>Vachaspatyam</i>
1.	<i>Angarvali</i>	-	-	+	-	-	-	-	-
2.	<i>Karanj</i>	-	-	-	+	-	+	-	-
3.	<i>Karanjaka</i>	-	-	+	-	-	-	-	-
4.	<i>Kantpal</i>	-	+	-	-	-	-	-	+
5.	<i>Kalimalya</i>	-	-	-	-	-	+	-	-
6.	<i>Kalimarak</i>	-	-	-	-	-	+	-	-
7.	<i>Kalingac</i>	-	-	+	+	-	-	-	-
8.	<i>Kalikarak</i>	-	-	+	+	-	+	+	-
9.	<i>Kuberaksha</i>	-	-	-	-	-	-	-	+
10.	<i>Kuberakshi</i>	-	+	-	-	-	+	-	-
11.	<i>Chirbilva</i>	+	-	+	-	-	-	-	-
12.	<i>Chirbilla</i>	-	-	+	-	-	-	-	-
13.	<i>Dusparsha</i>	-	+	+	-	-	+	-	+
14.	<i>Dhandaksh</i>	-	-	-	-	-	-	-	+
15.	<i>Dhandakshi</i>	-	+	-	-	-	+	-	-
16.	<i>Nakatmal</i>	+	-	+	+	-	-	-	-
17.	<i>Pattila</i>	-	-	+	-	-	-	-	-
18.	<i>Prakirya</i>	+	-	+	+	+	-	+	-
19.	<i>Prakiryya</i>	-	-	-	-	+	+	-	-
20.	<i>Prakirna</i>	-	-	-	-	-	+	-	-
21.	<i>Putika</i>	+	-	+	+	-	+	+	-
22.	<i>Putikaranj</i>	+	-	+	+	+	+	+	-
23.	<i>Putikahva</i>	-	-	-	-	-	+	-	-
24.	<i>Putiparna</i>	-	-	-	-	-	+	-	-
25.	<i>Rajnipushpa</i>	-	-	-	-	-	+	-	-
26.	<i>Latakaranj</i>	-	-	-	-	-	-	-	+
27.	<i>Virakhya</i>	-	+	-	-	-	+	-	-
28.	<i>Virasya</i>	-	-	-	-	-	-	-	+
29.	<i>Vajrabijak</i>	-	+	-	-	-	+	-	-
30.	<i>Vajravirak</i>	-	-	-	-	-	-	-	+
31.	<i>Shadgrantha</i>	-	-	+	-	-	-	-	-
32.	<i>Somvalka</i>	-	-	+	-	-	-	-	-
33.	<i>Sumana</i>	-	-	+	-	-	+	-	-

AK - *Amar Kosh*; SK - *Shabda Kalpa Drum*; HK - *Halaayudh Kosh*; VK - *Vaijayanti Kosh*; MK - *Medini Kosh*; VS - *Vaidyak Shabda Sindhu*; SC - *Shabda Chandrika*.

Table 4 : Synonyms of *latakaranj* in *charak samhita*

S.N.	Synonyms	<i>Sutra Sthana</i>	<i>Viman Sthana</i>	<i>Shaarira Sthana</i>	<i>Chikitsa Sthana</i>	<i>Kalpa Sthana</i>	<i>Siddhi Sthana</i>	Total count
1.	<i>Udakiryaka</i>	2	1	-	-	-	1	4
2.	<i>Karanj</i>	8	3	1	20	2	-	34
3.	<i>Karanjdvaya</i>	-	-	-	1	-	-	1
4.	<i>Chirbilva</i>	1	-	-	3	-	-	4
5.	<i>Naktmal</i>	1	2	-	3	-	-	6
6.	<i>Puteek</i>	2	-	-	-	-	1	3
7.	<i>Prakirya</i>	1	1	-	-	-	-	2
	<i>Total Count</i>	15	7	1	27	2	2	54

Table 5 : Synonyms of *latakaranj* in *Sushruta samhita*

S.N.	Synonyms	<i>Sutrasthan</i>	<i>Chikitsasthan</i>	<i>Kalpa Sthan</i>	<i>Uttar Sthan</i>	Total count
1.	<i>Udakirya</i>	1	1	-	-	2
2.	<i>Karanj</i>	9	15	2	8	34
3.	<i>Karanjbeej</i>	-	-	1	1	2
4.	<i>Karanjdvaya</i>	-	1	-	-	1
5.	<i>Karanjika</i>	-	3	1	-	4
6.	<i>Chirbilva</i>	1	1	1	7	10
7.	<i>Naktmal</i>	4	8	-	1	13
8.	<i>Prakirya</i>	-	-	-	1	1
9.	<i>Prakiryaa</i>	1	-	-	-	1
10.	<i>Putik</i>	3	7	-	5	15
11.	<i>Putikaranj</i>	7	3	-	-	10
	<i>Total Count</i>	26	39	5	23	93

Table 6 : *Latakaranj* in *Ashtanghridaya*

S.N.	Synonyms	<i>Sutra Sthan</i>	<i>Chikitsa Sthan</i>	<i>Kalpa Sthan</i>	<i>Uttar Sthan</i>	Total count
1.	<i>Udakirya</i>	1	-	-	-	1
2.	<i>Karanj</i>	5	10	-	5	20
3.	<i>Karanjika</i>	-	-	-	1	1
4.	<i>Karanjbeej</i>	-	-	-	1	1
5.	<i>Chirbilva</i>	-	1	1	-	2
6.	<i>Naktmal</i>	1	3	-	3	7
7.	<i>Prakirya</i>	1	-	-	-	1
8.	<i>Prikiryaa</i>	1	-	-	-	1
9.	<i>Puti</i>	-	2	-	-	2
10.	<i>Putik</i>	1	3	-	-	4
11.	<i>Putikaranj</i>	-	1	1	1	3
	<i>Total Count</i>	10	22	2	10	44

Table 7 : Synonyms of *latakaranj* in Indian and foreign languages.

Sr. No.	Language	Synonyms
1	Sanskrit	<i>Kuberaksha, Kantaki karanja</i>
2	English	<i>Fever Nut, Physic nut, Bonduc nut, Indian Filbert, Nikkar Nut</i>
3	Bengali	<i>Kantakaranj, Natarakanj, Nata, Natu Karanja, Natarphal, Latakaranj</i>
4	Gujrati	<i>Kankach, Tenaphal, Kankachiya, Kank, Gajga, Kachaki, Rohido, Vaketi</i>
5	Hindi	<i>Lataranj, Kanja, Karanja, Karanjua, Karanjuva, Kantakaranj, Karanju, Katkaleja, Katkarej, Kashta karej, Katkuliji</i>
6	Kannada	<i>Karanj Meddu, Gajjikekai, Gajagkai, Gajera, Gajkai</i>
7	Malayalam	<i>Kalanchikaru, Kajan, chikkaru, Kinnam, chikkua</i>
8	Marathi	<i>Sagargota, Gajra, Gaajgaa, Gajarghota</i>
9	Oriya	<i>Katokaleja, Nauta</i>
10	Tamil	<i>Kajahar, Shikai, Kajichikay, Kachukai, Kalarasi, Kalargodi</i>
11	Telugu	<i>Gacchakai, Kachnai, Gucche Pikka Gajvilap</i>
12	Urdu	<i>Aktamakt, Bandak</i>
13	Arabi	<i>Akmal, Aktamakt, Haz rulbidalat</i>
14	Persian	<i>Khayiblis, Iayeiv</i>
15	Burma	<i>Kalein, Kaliendza</i>
16	Ceylon	<i>Punaikkalaicha</i>
17	French	<i>Bois canic, Bois Qette, Bonduc, Bonduc Gris, Cadoc, Cniq uier, Crete de paon, Pois, Genic, Pois-quenique, Queniquier, Yeux de chat</i>
18	French Guiana	<i>Cauri</i>
19	Hausa	<i>Yayandar</i>
20	Indo-China	<i>Moc Meo Mui</i>
21	Java	<i>Kalitji, Matahijang</i>
22	Kumaon	<i>Karaunj</i>
23	Lareunion	<i>Kadoque</i>
24	Lepcha	<i>Kup, Yang Yangkup</i>
25	Madagascar	<i>Vatolalaka</i>
26	Malaya	<i>Buvagore</i>
27	Mundari	<i>Janum Koronjo</i>
28	Oudh	<i>Kathkarunja</i>
29	Persian	<i>Finduk Khayaheiblis</i>
30	Philippines	<i>Calambiti</i>
31	Sudani	<i>Kataphar</i>
32	Santal	<i>Bagni</i>
33	Sinhalese	<i>Kumburuatta, Kumburuvel</i>
34	Tagalog	<i>Baya-gcambing, Calambi Bit</i>
35	Talu	<i>Gajige</i>

Table 8 : Etymology of Sanskrit synonyms of *latakaranj*.

Synonym	Etymology
<i>Angaarvalli</i>	Creeper which is red in colour like burning coal.
<i>Udakirya</i>	Its seeds jump in upward direction after ripening.
<i>Karanj</i>	Its colourful flowers can colour water.
<i>Kalimaal</i>	Its buds appear like garland ³⁷ .
<i>Kakaghni</i>	It gives deathlike pain to birds especially crow.
<i>Kuberaaksha</i>	Its bark and pods are dirty in appearance.
<i>Chirabilwa</i>	It has a later action of purgation.
<i>Dusparsha</i>	Difficult to touch.
<i>Naktamal</i>	It has beautiful garland like appearance at night.
<i>Prakirya</i>	It spreads all over.
<i>Putika</i>	It has bad odour.
<i>Putikaranj</i>	This type of karanj is with bad odour.
<i>Prakirna</i>	It destroys diseases like kushtha etc.
<i>Latakaranj</i>	Karanj in the form of creeper.
<i>Somavalka</i>	Its bark has characteristics of soma