



Ijapc 2018

Volume 8 Issue 1

www.ijapc.com

1/10/2018

Greentree Group



Vidarikand (Puerariatuberosa DC.) an Ayurvedic Drug a Review

Saurav Sharma^{1*}, Monika Agrawal² and MakhanLal³

¹⁻³Dravyaguna Department, State Ayurvedic College Lucknow, UP, India

ABSTRACT

Ayurvedic medicinal plants have been used for curing diseases since centuries. There are large number of drugs of plant origin mentioned in Ayurvedic texts which carry potential therapeutic benefits and *Vidarikand* is one of them. The term *Vidari* is derived from “*vidaarayatiitividari*” as per *Shabdakalpadruma*¹. Its tubers are useful in several disorders including *Daha*, *Raktapitta*, *Angamarda*, *Daurbalya*, *Sosha* etc and carry many therapeutic potentials like *Brimhan*, *Vrashya*, *Jivniya*, *Rasayan*, *Shukral*, *Balya*, *Varnya*, *Dahahar* etc. It is an important part of Chawanprash, a rejuvenating formulation of Ayurveda. Its pharmacological activity includes Wound healing, Anti inflammatory, Antihypertensive, Immunomodulatory, Anti-oxidative etc. The present article highlights the properties and therapeutic action in Ayurvedic texts along with recent researches of *Vidarikand*.

KEYWORDS

Vidarikand, *Ayurveda*, *Medicinal plant*



Greentree Group

Received 08/12/17 Accepted 29/12/17 Published 10/01/18



INTRODUCTION

Vidarikand (*Pueraria tuberosa* DC.), commonly known as Indian Kudzu is a member of family Fabaceae. It is distributed nearly throughout the India except in very humid or very arid regions and ascending up to 1200m² in Punjab, Western Uttar Pradesh, Central India⁴. It is a perennial climber with woody tuberculated stem with large tuberous roots. In Ayurveda, tuberous roots of *Vidarikand* are used to treat many diseases such as *Daha*, *Raktapitta*, *Angamarda*, *Daurbalya*, *Sosha* etc and carries many therapeutic potentials like *Brimhan*, *Vrashya*, *Jivniya*, *Rasayan*, *Shukral*, *Balya*, *Varnya*, *Dahahar*, etc. It is a part of important formulations such as *Chyavanprasharasayan*, *Indroktarasayan*, *Brimhanigutika*, *Chandanadi tail*, *Satavaryadighrita*, *Amritprashghrita*, *Sukumar tail*, *VidaryadiGhrita* etc. *Puerariatuberosa* extract contains different classes of phytoconstituents including Alkaloids, Carbohydrates, Steroids, Glycosides, Tannins, Terpenoids, Flavonoids, Coumarins and anthocyanides. *Vidarikand* has been extensively studied for its biological activities and therapeutic potential exhibiting wide spectrum of activities including Androgenesis, Antihypertensive, Immunomodulatory, Anti-

oxidative and very effective in Ischemic heart disease, Wound healing and Oligospermia.

MATERIALS & METHODS

It is a conceptual research. Various Ayurvedic and Modern texts including *Samhitas*, *Nighantus* and Books on Medicinal plants etc have been consulted. Internet has also been explored for recent researches.

MORPHOLOGY

It is perennial climber with very large tuberous roots, distributed nearly throughout the India except in very humid or very arid regions and ascending up to 1200 m. Stem is woody up to 12 cm in diameter. Leaves are trifoliolate. Flowers are, purplish-blue in colour, fascicled on 15-30 cm long racemes. Pods flat, 5-7 cm long³. Tuberous roots are globose or pot-like, up to 60 cm long and 30 cm thick, weight approx 5 to 10 kg, up to 35 kg².

AYURVEDIC PHARMACOLOGY

Ayurvedic pharmacology is based on biophysical, experiential, inferential and intuitional mechanisms. The action of a substance is based on five mechanisms of action or attributes of a substance, namely, *Rasa* (taste), *Guna* (property of any substance), *Vipaka* (intestinal digestion and



tissue metabolism), *Virya* (potency) and *Prabhav* (specific action through specialized receptors). All these mechanisms related to drug action are biophysical in nature. *Karma* is the final effect of the drug. The properties, action (pharmacodynamics) and uses (indications) of *Vidarikand* are-

Rasa : *Madhura*²

Guna : *Snigdha, Guru*²

Virya : *Sita*²

Vipaka: *Madhura*²

Karma: *Vatahara, Pittahara, Stanyadaa, Sukrala, Mutrala, Jivaniya, Rasayana, Brmhaniya, Svarya, Varnya, Balya etc*².

Therapeutic uses - *Daha, Raktapitta, Angamarda, Daurbalya, Sosha etc*².

Part used -Tuberous Root. **Dosage** - 3-6 g of the drug in powder form².

Important formulations -

*Chyavanprasharasayan, Indroktarasayan, Brahanigutika, Chandanadi tail, Satavaryadighrita, Amritprashghrit, Shukumar tail, VidaryadiGhrit etc*².

CHEMICAL COMPOSITION

Puerariatuberosa extract contains different classes of phytoconstituents including Alkaloids, Carbohydrates, Steroids,

Glycosides, Tannins, Terpenoids, Flavonoids, Coumarins and anthocyanides. Tuber contain 85.1% dry matter, 64.6% Carbohydrates, 28.4% crude fibers, 10.9% Protein, Sucrose, Glucose and Fructose have been identified in Carbohydrates. Some of the important phytoconstituents are isoflavonoids – pueraren, genaestin, daidzein, tuberosin, pterocarpanone-hydroxytuberosone, two pterocarpenes-anhydrotuberosin and 3-O methylanhydro-tuberosin, coumestantuberosin, isoflavone - puerarone and a coumestan-puerarostan^{2,3}.

CULTIVATION

For the cultivation of *Puerariatuberosa* textured loam soil is best for the cultivation high moisture contents and partial shady areas are suitable for its cultivation. Pre-soak the seed for 12 hours in warm water and sown in a warm greenhouse in early spring. Germination is take place within 2 weeks. Prick out the seedlings into individuals pots when they are large enough to handle and plant them out. Cover the young plants with a frame until growing well⁵. The yield of tubers is reported to be about 5 – 7.5 tonnes per hectare³.



Vidarikand mentioned in different Vargaor Gana in Veda-Purana and Ayurvedic text

Table 1 Classification of Vidarikand in Ayurvedic texts

S.N.	Veda-Purana and Ayurvedic text	Vargaor Gana
1	Veda-PuranAtharvavediyaKausikaGrihya Sutra ⁶	chepter- 4
2	CHARAK SAMHITA ⁷	Shakavarga (vegetable) (Ch.su.27/121), Madhurskandh and Kanthya, SnehopagaMahakashaya.
3	SUSHRUTA SAMHITA ⁸	Kanda varga (Su.su.46/300), Vidarigandhadigana, Vallipanchamoola, Pitta sanshaman and Madhuravarga.
4	ASHTANG HRIDAYA ⁹	Shakavarga (A.H.su.6/85), Madhurgana and Vidaryadigana.
5	AMARKOSHA ¹⁰	Vanosaddivarga
6	DHANVANTARI NIGHANTU ¹¹	Guduchyadivarga
7	DRAVYAGUNA (DRAVYAGUNASAMGRAHA) ¹²	Shakavarga
8	SHODAL NIGHANTU ¹³	NamasamgrahaGuduchyadivarga, GunasamgrahaGuduchyadivarga
9	MADANPAL NIGHANTU ¹⁴	AbhayadiVarga
10	KAIYADEVA NIGHANTU ¹⁵	Aushadhivarga
11	BHAVPRAKASH NIGHANTU ¹⁶	Guduchyadivarga
12	RAJ NIGHANTU ¹⁷	MulakadiVarga
13	ABHIDHAN MANJARI ¹⁸	Vidaryadivarga
14	ABHIDHAN RATNAMALA ¹⁹	Swaduskandha
15	MADHAVA DRAVYAGUN ²⁰	Shakavarga
16	SHALIGHRAM NIGHANTU ²¹	Guduchyadivarg

Table 2 Effect of Vidarikand on Tri-dosh

S.N.	Ayurvedic text	Effecton Tri-dosh
1	SUSHRUTA SAMHITA ⁸	Pita-vatahar
2	ASHTANG HRIDAYA ⁹	Vata-pitaghna
3	DHANVANTARI NIGHANTU ¹¹	Samirjit, pitasrjit
4	DRAVYAGUNA (DRAVYAGUNA SAMGRAHA) ¹²	Vata-pitahar
5	SHODAL NIGHANTU ¹³	Vatahar
6	MADANPAL NIGHANTU ¹⁴	Pitasrapavan-hanti
7	BHAVPRAKASH NIGHANTU ¹⁶	Pitasrapavan-hanti
8	RAJ NIGHANTU ¹⁷	Asrapitajit-kaphkrat
9	MADHAVA DRAVYAGUN ²⁰	Vata-pitaghni

**Table 3** Therapeutic Effect of *Vidarikand* in Ayurvedic texts

S.N.	<i>Veda-Purana and Ayurvedic text</i>	Therapeutic Effect
1	<i>Veda-PuranAtharvavediyaKausikaGrihya Sutra</i> ⁶	<i>Vidarikand</i> is considered as <i>Pumsavana karma</i> .(chepter - 4)
2	<i>CHARAK SAMHITA</i> ⁷	<i>Jivniya, Bramhini, Vrashya, Kanthya, Rasayan, Balya, Mutral</i>
3	<i>SUSHRUTA SAMHITA</i> ⁸	<i>Bramhini, Vrashya, Mutral, Balya</i>
4	<i>ASHTANG HRIDAYA</i> ⁹	<i>Mutral, Jivniya, Bramhini, Kanthya, Vrashya, Rasayan</i>
5	<i>DHANVANTARI NIGHANTU</i> ¹¹	<i>Balya, Vrashya</i>
6	<i>DRAVYAGUNA (DRAVYAGUNASAMGRAHA)</i> ¹²	<i>Bramhini, Vrashya, Mutral</i>
7	<i>SHODAL NIGHANTU</i> ¹³	<i>Balya, Bramhini, Vrashya, Mutral</i>
8	<i>MADANPAL NIGHANTU</i> ¹⁴	<i>Bramhini, Stanya, Shukral, Dahahar, Rasayan</i>
9	<i>BHAVPRAKASH NIGHANTU</i> ¹⁶	<i>Bramhini, Stanya, Shukral, Suarya, Mutral, Jivniya, Balya, Varnya</i>
10	<i>RAJ NIGHANTU</i> ¹⁷	<i>pusthi, Balya, Viryavardhan</i>
11	<i>MADHAVA DRAVYAGUN</i> ²⁰	<i>Vrashya, Balya, Rasayan</i>

Therapeutic Effect of *Vidarikand* in Ayurved

Vidarikand is an important and potential medicinal plant in *Ayurveda*. *Vidarikand* has outstanding therapeutic action to improve health. Various therapeutic effects of *Vidarikand* are mentioned in various *Ayurvedic* texts some of which are as follows:

1. **Bramhini** - anabolic/promoters of tissue growth²².
2. **Vrashya**- eugenics;aphrodisiacs; substances that enhance the sexual power like that of bull²².
3. **Jivniya**- To give life, one of the functions of *RaktaDhātu* (Blood)²².

4. **Rasayan**- The term *Rasayana* comprises of two words, i.e. *Rasa* and *Ayana*. *Rasa* stands for *Rasa-RakthadiDhatus* (tissues) of the body and *Ayana* conveys the sense of *Apyayana*, which suggest a measure or methodology to saturate or enrich or conduct a special benefit to the body. *Rasayandravya* is one which has capacity to enrich, saturate or replenish the *Sapthadhatus* of the body. Precisely a drug or food which has capacity to prevent ageing, improves longevity, provide immunity against the diseases, promote mental competence, increase vitality and luster of the body²².
5. **Shukral/Viryavardhan**- substances which enhance *Shukra* (semen / sperm)²².



6. **Balya**- strength, stamina & immunity promoter²².
7. **Varnya**- Complexion promoters²².
8. **Dahahar** - pacify burning sensation²².
9. **Stanya**- Galactagogue²².
10. **Kantha/Suarya** - Promoter/beneficial for Throat or Voice²².
11. **Mutral** - diuretics; substances used to increase volume of urine²².

PHARMACOLOGICAL ACTIVITIES

Androgenesis and Sexual Behavior

An experimental study was conducted to study the effects of ethanolic extract of *Pueraria tuberosa* on sexual behavior and androgenic activity of Male albino rats.

A dose dependent increase in sexual behavior was evidenced in the animals of extract treated group. Also, there was an increase in serum concentration of FSH and improvement in serum testosterone level in group treated with *Pueraria tuberosa*. Administration of *Pueraria tuberosa* showed a significant androgenic stimulation as evidenced by an increase in the weights of the testis, epididymis, and seminal vesicles. Spermatogenesis was also improved²³.

Hypertension

A study was conducted to evaluate effect of *Pueraria tuberosa* on blood pressure, with stage 1 (primary) hypertension. A significant fall of 25, 11 and 16 mmHg was observed in systolic, diastolic, and mean blood pressure, respectively at the end of the study²⁴.

Immunomodulatory and anti oxidative

An experimental was study conducted on healthy male mice. The phagocytic activity and immunoglobulin A (in intestines) and immunoglobulin G (serum) levels increased significantly in *Puerariatuberosa* supplemented groups after a period of 28 days. *Puerariatuberosa* showed significantly higher reduced glutathione level and significantly lowered thiobarbituric acid reactive substances levels in liver and red blood cells as compared to control²⁵.

Ischemic heart disease

A case study of a patient with ischemic heart disease who took Indian kudzu tuber powder in the dose of 1.5 gram twice daily for 12 months, reported that The patient experienced clinical improvement in angina and cardiac performance as well as demonstrated favorable alterations in biochemical parameters without any untoward side effects²⁶.

Wound healing and anti-inflammatory activity



In a study *Pueraria tuberosa* extracts were screened for wound-healing activity by excision and incision wound model and Anti-inflammatory activity by rat paw edema method. The *Pueraria tuberosa* showed significant wound healing activity and anti-inflammatory activity compared to that of control and standard drugs Nitrofurazone ointment and ibuprofen respectively²⁷.

TOXICITY STUDY

Methanolic extract of tubers of *Pueraria tuberosa* DC. (*Fabaceae*) (PTME) were tested for hepatotoxicity in rats at oral dose 100–400 mg/100g BW for acute study and repeated doses of 100 mg/100 g BW, for 30 days in sub chronic study. The study concluded that the higher dosing of PTME or its continuous use for longer period (even in low doses) is hepatotoxic by inducing oxidative stress²⁸.

DISCUSSION

As per table :1 Vidarikand mentioned in various Ayurvedic texts. In Ayurveda Vidarikand is used to treat many diseases such as Daha, Raktapitta, Angamarda, Daurbalya, Sosha etc². As per Table:3 Vidarikand show many therapeutic effect like Bramhini, Vrashya, Jivniya, Rasayan, Shukral, Balya, Varnya, Dahahar, etc. Many

formulations such as Chyavanprasharasayan, Indroktarasayan, Brahanigutika, Chandanadi tail, Satavaryadighrita, Amritprashghrit, Shukumar tail, Vidaryadi Ghritetc². Scientific Research of Vidarikand therapeutic potential and shown to possess wide spectrum of activities like Androgenesis and Sexual Behavior²³, Hypertension²⁴, Immunomodulatory²⁵ and Ischemic heart disease²⁶, Wound healing and anti-inflammatory activity²⁷ and its effectiveness on diseases like Hypertension, Ischemic heart disease, Oligosparmia. It is also used as emmenagogue, and to support immune system. As per Table:2 Acharya Sushruta, Ashtang Hridaya, Dhanvantari Nighantu, Madanpal N., Kayadeva N., Bhavprakash N., Raj N., and Madhava Dravyagun Vidarikand have mentioned its Vathar, Pitta- Raktahar, property. All findings discussed above indicate that Vidarikand is a very useful drug for vataj, pitaj, and raktaj vikar.

CONCLUSION

All findings discussed above indicate that *Vidarikand* used to treat many diseases. *Pueraria tuberosa* is an important and potential medicinal plant in *Ayurveda*. It is used without any side effects. This plant can provide a valuable agent for many diseases.

However, additional studies are required of the effectiveness of Vidarikand, alone or in combination with other drugs.



REFERENCES

1. Shabdakalpadruma by Raja RadhaKanta Deva Volume 4, Published by Chaukhambha Sanskrit Series Varanasi, Pg387.
2. THE AYURVEDIC PHARMACOPOEIA OF INDIA first edition - (PART- I VOL 2nd p.173,174 and Vol 5th p. 193,194) – Government of India Ministry of Health And Family Welfare DEPARTMENT OF AYUSH.
3. The-Wealth-Of-India-Raw-Materials-Vol-VIII-Ph-re.
4. Indian Medicinal Plants An Illustrated Dictionary, by C.P. Khare (Ed.), Springer.
5. <http://www.gits4u.com/agri/agri5bidarikand.htm#Cultivation>.
6. AtharvavediyaKausikaGrihya Sutra, by kaushikaacharya, Hindi translated by Shri Dr. Udayanarayan Singh, Published by ShastraprakashaBhavanMadhurapur, post-viddupurbajar, distt. MujhaparpurVihar, samvat 1999. chepter 4 pg. 82
7. CHARAKA SAMHITA – By AcharyaVidyadharShukla and prof. Ravi DuttTripathi, foreword by AcharyaPriyVrata Sharma, Chaukhamba Sanskrit Pratishthan Delhi, Edition Reprint 2004. P.400.
8. SUSHRUTA SAMHITA - By Anantram Sharma, Published by ChaukhambhaSurbharati, Varanasi, Edition Reprint 2006. P. 423.
9. ASHTANG HRIDAYA – By KavirajaAtrideva Gupta, Edited by VaidyaYadunandanaUpadhyaya, ChaukhambhaPrakashan, Varanasi, Edition Reprint 2016. P.77.
10. Amarakosa - By K.C. VamanacharyaJhalakikar, Second Edition(1990), Published by K.C. Publishers Delhi.
11. DhanvantariNighantu- By Prof PriyaVratsharma, Published by ChaukhambhaOrientalia, Varanasi, Reprint Edition 2016. p.42
12. Dravyaguna (DravyagunaSamgraha) – Chakradutt, trnshated by Pundit jwalaprasadmisra, printed and published by gangavishnushrikrishnadass, lashmiVenkateswar press, Kalyan (1925).p. 26.
13. SodhalaNighantu- Edited by prof. PriyaVrat Sharma, Published by Oriental Institute Baroda, First Edition (1978).
14. MADANPAL NIGHANTU - By Prof (Dr) GyanendraPandey Published by ChaukhambhaOrientalia , Varanasi, First Edition (2012).p.140,141.
15. KaiyadevaNighantuh - Edited and Translated by Prof. Priyavrat Sharma,



Published by ChaukhambhaOrientalia, Varanasi. First Edition (1979). P. 638.

16. BhavprakasNighantu - Bhavamisra, Commentary by K.C. Chunekar, edited by late Dr.G.S.Pandey, Published by Chaukhambhabharati academy, Varanasi, Reprint 2015.

17. Raj Nighantu - By, Dr. IndradeoTripathi, Second edition, published by Krishnadas Academy, Varanasi (1998).

18. AbhidhanaManjari of Bhishagarya - Published by The Proprietor, Vaidyasarathv press, Kottayam (1952).p. 45, 46.

19. AbhidhanaRatnamala (Sadrasanighntu) – Edited by Prof. Priyavrat Sharma, Published by ChaukhambhaOrientalia, Varanasi. First Edition (1977). P. 4.

20. MadhavaDravyagunah (BhavaSwabhavaVadah) - Edited by Prof. Priyavrat Sharma, Published by ChaukhambhaVidyabhawan, Varanasi. First Edition (1973). P. 55.

21. ShalighramNighantuBhusanam – by Shalighram, Edited by Kkemrajshrikrasna dash, published by Venkateswar press, Mumbai, (1953).p. 381.

22. *Ayurvedic* Dictionary, <http://www.nia.nic.in/?ref=40&from=4000>

23. Puerariatuberosa DC Extract Improves Androgenesis and Sexual

Behavior via FSH LH Cascade. Nagendra Singh Chauhan, Department of Pharmaceutical Sciences, Dr. H. S. GourVishwavidyalaya, Sagar, Madhya Pradesh 470003, India, Hindawi Publishing Corporation The ScientificWorld Journal Volume 2013, Article ID 780659, 8 pages.

24. Effect of Puerariatuberosa DC. (Indian Kudzu) on blood pressure, fibrinolysis and oxidative stress in patients with stage 1 hypertension. Verma SK1, Jain V, Singh DP. , Indigenous Drug Research Center, Department of Medicine, RNT Medical College, Udaipur-313001, Rajasthan, India. Pak J Biol Sci. 2012 Aug 1;15(15):742-7., <https://www.ncbi.nlm.nih.gov/pubmed/24171260>.

25. Immunomodulatory and antioxidative potential of herb (Puerariatuberosa) in mice using milk as the carrier International Journal of Dairy Technology View issue TOC Volume 66, Issue 2 May 2013 Pages 202–206, PravinDigambarSawale. <http://onlinelibrary.wiley.com/doi/10.1111/1471-0307.12011/abstract>.

26. Protection Against Stress Induced Myocardial Ischemia By Indian Kudzu (Pueraria Tuberosa) – A Case Study. Journal of Herbal Medicine and Toxicology



3 (1) 59-63 (2009) ISSN: 0973-4643. S. K. Verm, Indigenous Drug Research Center, Department of Medicine, RNT Medical College and Society for Microvita Research and Integrated Medicine (SMRIM), Udaipur, Rajasthan.

27. Wound healing and anti-inflammatory activity of *Puerariatuberosa* (Roxb Ex wild) DC. Author(s): Kambhoja, S.; Murthy, K. R. K. Author Affiliation: Krupanidhi College of Pharmacy, Koramangala, Bangalore - 560 034, India. Journal article: Biomed 2007 Vol.2 No.2 pp.229-232 ref.5. <https://www.cabdirect.org/cabdirect/abstract/20093181620>.

28. NagawaniSantosh, Kumar Mohan, Singh Royana, Tripathi B Yamini, Hepatotoxicity of tubers of Indian Kudzu (*Puerariatuberosa*) in rats, Food and Chemical Toxicology, Volume 48, Issue 4, April 2010, Pages 1066-1071 <https://doi.org/10.1016/j.fct.2010.01.026>