World Journal of Pharmaceutical and Life Sciences
WJPLS
www.wjpls.org
SJIF Impact Factor: 4.223

AKSHOTAKA HERB USED IN ANCIENT INDIAN MEDICINE- LITERARY AND PHARMACOLOGICAL REVIEW

Gupta Chandni*[1], Upadhayaya Ashwani[2], Sharma Navneet[3] and Srivastava Rashmi[4]

[1]Lecturer, P. G. Deptt. of Dravyaguna, R.G.G.P.G. AYU. College, Paprola.
[2]Professor and H.O.D., P. G. Deptt. of Dravyaguna, R.G.G.P.G. AYU. College, Paprola.
[3]Reader, P. G. Deptt. of Dravyaguna, R.G.G.P.G.AYU. College, Paprola.
[4]Sr. Lecturer, P. G. Deptt. of Dravyaguna, R.G.G.P.G.AYU. College, Paprola.

***Corresponding Author: Gupta Chandni**
Lecturer, P. G. Deptt. of Dravyaguna, R.G.G.P.G.AYU.College, Paprola.

Article Received on 27/06/2017 **Article Revised on 17/07/2017** **Article Accepted on 07/08/2017**

ABSTRACT

The traditional Indian system of medicines like Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy mainly uses medicinal plants for the management of diseases. As herbal products are natural products and are safe, recognition of herbal medicines is gradually increasing in the world. One such medicinal plant is Juglans regia **(**Juglandaceae**),** which is commonly known as walnut. All parts of plant are important viz. bark, leaves, flowers, seed, oil etc. Most of the people consider it as a dry fruit only, they are usually not aware about its medicinal properties. Present paper is an attempts to highlight various Ayurvedic uses as well as it literary and pharmacological reports on Juglans regia Linn.

KEYWORDS: walnuts, strength, history, pharmacology.

INTRODUCTION

The traditional Indian system of medicines like Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy considers man as an integral part of Mother Nature. These systems of medicine uses plants for the management of diseases. As herbal products are natural products and are safe, recognition of herbal medicines is gradually increasing in the world. One such medicinal plant is Juglans regia (Juglandaceae), which is commonly known as walnut. Walnuts are the oldest tree food known to man, dating back to 7000 B.C. The Romans called walnuts Juglans regia, "Jupiter's royal acorn".[1,2] Early history indicates that English walnuts came from ancient Persia, where they were reserved for royalty. Thus, the walnut is often known as the "Persian Walnut." Walnuts were traded along the Silk Road route between Asia and the Middle East. Walnuts considered utmost important among the dry fruits. Not only its fruit, all the other parts of plant are important viz. bark, leaves, flowers, seed, oil etc. Extensive research has been carried out on medicinal plants attracting many more scholars to devote themselves for further study. Juglans regia Linn. (Akshotaka) is one of the important herbal drug used for treating many diseases, as described in Ayurvedic literature. It is rich in chemical constituents.

A review on some Ayurvedic uses as well as it literary and pharmacological reports on Juglans regia Linn. are presented in this paper.

MATERIALS AND METHODS

Etymology[3]

Etymologically, the word walnut derives from the Germanic wal - and Old English wealhhnutu, literally "foreign nut", wealth meaning "foreign".

Taxonomical classification[4]

- Kingdom – Plantae
- Phylum – Magnoliophyta
- Class – Magnoliopsida
- Order – Fagales
- Family – Juglandaceae
- Genus – Juglans
- Species – Regia (Linn.)

Varnacular names[5]

Assam	:	Akalbasing
Bengali	:	Aakhrotu
English	:	Walnut
Gujrati	:	Akharoda
Malayalam	:	Akrottu
Marathi	:	Akrod
Oriya	:	Akhrot

Punjabi	:	Akharota
Tamil	:	Akrotu
Telugu	:	Akrotu
Urdu	:	Akhrot
Kashmir	:	Akhor
Pees	:	Charmaghz

Botanical Description

Habitat[2]

Juglans regia is native to the mountain ranges of Central Asia, extending from Xinjiang province of western China, parts of Kazakhstan, Uzbekistan and southern Kirghizia and from lower ranges of mountains in Nepal, Bhutan, Tibet, northern India, Pakistan and Sri Lanka, through Afghanistan, Turkmenistan and Iran to portions of Azerbaijan, Armenia, Georgia and eastern Turkey. In these countries, there is a great genetic diversity, in particular ancestral forms with lateral fruiting. During its migration to Western Europe, the common walnut lost this character and became large trees with terminal fruiting. A small remnant population of these J. regia trees have survived the last glacial period in Southern Europe, but the bulk of the wild germplasm found in the Balkan peninsula and much of Turkey was most likely introduced from eastern Turkey by commerce and settlement several thousand years ago.

Habit[6]

It is a large deciduous tree; bark on old stems marked by parallel vertical furrows, grey; young shoots tomentose. Leaves 15-38cm. long, imparipinnate, more or less tomentose when quite young. Leaflets 5-9 (-13) the terminal largest, 7.5 -20 by 3.8-10 cm., variable from elliptic to oblong – lanceolate, acute or acuminate, usually entire, glabrous or pubescent along the nerves beneath, the lateral leaflets opposite or sub-opposite, sessile or subsessile. Male flowers spikes lateral on the shoots of the previous year, 5-12.5 cm. long often 2 superposed to one leaf scar, bracts stipitate and stamens 10-20, apiculate. Female flowers 1-3 sessile, in a short terminal spike; calyx tube 6mm. long, ovoid, densely tomentose, limb minute, obscurely 4- toothed; petals green, linear- lanceolate, usually minute. Fruit a drupe , 5 cm. long, ellipsoid, green, pericarp(composed in part of the calyx –tube) leathery, aromatic nut externally distinctly 2-valved corresponding to the 2 carpels of which the ovary is composed, rugose, internally incompletely divided by 2 coriaceous dissepiments one separating the 2 cotyledons the other dividing them into 2 lobes.

Useful parts[2]

Fruits, leaves, barks, seed and oil.

Phytochemistry[7]

The seeds yield a fixed oil 40-45%. A 0.013 mg in 100g seeds, nucin or juglandic acid and a resin is obtained. The kernel also contains oil. The fruits contain oxalic acid and an alkaloid barium. Synthesis of juglone, estradiol and stigmasterol isolated from pollens. A new α- tetralone, juglone, butilinic acid and sitosterol are also isolated. 21 monoterpenes, 2 sesquiterpenes, 23 hydrocarbons along with eugenol and geranic acid are isolated from leaves. Juglone isolated and characterized as 5- hydroxyl-1, 4-napthquinone. Berberine (0.008%) isolated from stem bark, cyclotrijuglone is isolatedfrom roots, along with beta sitosterol and juglne. New compounds 3-3 bisjuglone and cyclojuglone are also isolated.

Strength as per Ayurvedic Pharmacopoiea of India[5]

The physico-chemical parameters of Akshotaka Majja as per the standard protocol, API-.

Table-1.

Sr. No.	Physicochemical parameters	Standards as per API
1.	Foreign matter	< 5 %
2.	pH	- (not defined)
3.	Total ash	< 2%
4.	Acid insoluble ash	< 0.5 %
5.	Water soluble extractive	> 10 %
6.	Alcohol soluble extractive	> 7 %

History

History is a guideline for development in any field of the life. Historical glance enables us to understand what steps should be taken in an impending situation with which we have encountered in the past. It also helps to shape our future planning on that basis. Ongoing into the history of present study drug "Akshotaka" the Kala can be divided into

i. Vedic Kala
ii. Samhita Kala
iii. Nighantu Kala

i) Vedic Kala

The earliest known documentation of plant in Indian literature is found in Vedas, the sacred literature of Hindus. No reference of Akshotaka could be traced in Veda.

ii) Samhita Kala

In Samhita Granthas of Brihatrayi and Laghutrayi description of Akshotaka is available at few places, for different purposes by different synonyms which are given below:

Charaka Samhita

Charaka has mentioned the Akshotaka drug in Sathavar Sneha Ashaya with other drugs like Tila , Priyala, Abhishuka etc.[8] Also he has explained that Akshotaka has Ushna Veerya, Guru and Snigdha Guna, Madhura Rasa, Kapha – Pitta Vardhaka, Vatta Shamaka, Balakarka, Mams – Shukara Vardhaka.[8]

Table-2.

Sr. No.	Formulations[9]	Indication
Akshotaka		
1.	Amritprash ghrita	Kshtakshina
2.	Mahamayur ghrita	Shirorog
3.	Jivaniya ghrita	Vatrakta
4.	Sukumark tail	Vatrakta

Sushruta Samhita[10]

Acharya Sushruta has explained Akshota in Taila Varga where the Akshotak Taila possess Madhura Vipaka, Sheeta Veerya and Vata Pitta Nashaka properties. He has also explained that Akshotaka has Mutra Utsarga and Agni Avsadaka properties. He has also explained drug Akshotaka in Phalavarga.

Table-3.

Ashtanga Hridya			
1.	Amritprash ghrita	Kasa	Chi.3/39
2.	Mahamayur ghrita	Shirorog	Chi. 24/54

Classification of Akshotaka in Nighantus[12-17]

Dhanvantari Nighantu	Amraadi varga
Madanpal Nighantu	Phala varga
Kaiyadeva Nighantu	Aaushadi varga
Bhavaprakasha Nighantu	Amraadi varga
Raj Nighantu	Amraadi varga
Priya Nighantu	Phala varga

Synonyms[12-17]

In the olden days, the prevailing system of description of a medicinal plant was through various synonyms which are indicative of its physical characters, properties, actions, habitat, therapeutic uses, specific natural characteristic, etc. So the knowledge of synonyms of the drugs has much importance in Dravyaguna Vigyana. Synonyms of Akshotaka mentioned in Nighantu Granthas are described as follows.

Table 4: Synonyms in different Nighantus.

Sr. No.	Synonyms	D.N.	M.P.N.	K.N.	B.P.N.	R.N.	M.N.
1.	Akshota	+	+	+	+	-	+
2.	Karparala	+	+	+	+	-	-
3.	Kiresta	+	+	+	+	+	+
4.	Gudashreya	+	+	+	+	+	+
5.	Parvatiya	+	+	-	-	+	+
6.	Parvatpeelu	+	+	+	-	-	+
7.	Prthucchada	+	-	-	-	-	-
8.	Phalsneha	+	-	+	-	-	+
9.	Vrittaphala	+	+	+	-	+	+
10.	Svadumajja	+	+	+	+	+	+
11.	Kandrala	+	+	+	+	+	+
12.	Rekhaphala	+	+	+	-	+	+

Table 5: Rasapanchaka of Akshotaka.[12-17]

Text	Rasa	Guna	Veerya	Vipaka
Dhanvantari Nighantu	Madhura	Guru	Ushna	Madhura
Madanpal Nighantu	Madhura	Guru , Sara	Ushna	-
Kaideva Nighantu	Madhura	Guru, Sara, Snigdha	Ushana	Madhura
Bhavaprakasha Nighantu	Madhura	Snigdha	Ushana	-
Raj Nighantu	Madhura	Snigdha	Ushna	-
Priya Nighantu	Madhura	Guru	Ushna	Madhura
API Part 1, Vol. II	Madhura	Gura, Sara, Snigdha	Ushna	Madhura

Table 6: Panchamahabhautika Sangathan of Akshotaka.

Sr. No.	Raspanchaka		Panchamahabuta Constitution
1.	Rasa	Madhura	Parthvi + Jala
2.	Guna	Guru	Parthvi + Jala
		Sara	Jala
		Snigdha	Jala
3.	Veerya	Ushana	Agani
4.	Vipaka	Madhura	Parthvi + Jala

Karmukta of Akshotaka

Table 7: According to different Nighantus.

Doshakarma	D.N.	M.P.N.	K.N.	B.P..N.	R.N.	P.N.
Vata Shamaka	-	+	+	_	+	+
Kapha Vardhaka	+	_	+	+	+	+
Pitta Vardhaka	+	_	+	+	_	+
Pitta Shamaka	_	_	_	_	+	-

Table 8: Vividhakarma.

Vividhakarma	D.N.	M.P.N.	K.N.	B.P..N.	R.N.	P.N.
Balya	+	+	+	-	+	+
Pushtikarka	+	-	-	-	-	-
Bringhana	+	-	+	-	-	-
Vrishya	-	-	+	+	-	+
Bhedana	-	-	-	-	-	-
Rochana	-	-	+	-	-	-
Vishtambhi	-	-	+	-	-	-
Hridya	-	-	+	-	-	-
Kshyanashak	-	-	+	-	-	-

Dose Fixation

Dose is not fixed for everyone. It changes from person to person according to his Prakriti, Kala, Desha, Sara, Samhanana etc. So, average dose has been selected for trial. Knowledge of proper dose is very important to achieve the desired results because high dose may cause side effects and low dose will not be effective. Hence the dose must be so regulated that the drug produces the desired effect but is not harmful to the tissues.

Ancient authorities have stressed the need of considering Doshas, Agni, Bala, Vaya, Vyadhi, Dravya and Koshtha while fixing the dose.[18]

The dose of Akshotaka Majja.[5]
As per API Part I Vol 2: 10-25 gm

Medicinal Uses[7]

The plant is used both, internally as well as externally. The paste of its fruit is effective in reducing the pain and swelling, especially in glandular swelling like cervical adenitis. It augments the complexion of the skin and ameliorates the depigmentation in skin diseases. Akshotaka, for this purpose is benevolent particularly in vata type of skin diseases. As the leaves have astringent property, along with them the skin of plant is salutary for cleansing the teeth and to strengthen the gums and arrest the bleeding from them. Many preparations of tooth powders contain it as one of the ingredient. The oil of Akshotaka massaged to the scalp, induces sound sleep.

Internally, though very useful Akshotaka is not widely used as medicine. It has the most marked effect in vata diseases and is a restorative for conditions of nervine and sexual debility. The fruits are used as general tonic in tuberculosis, debility and general weakness. To increase the body weight as it is anabolic to adipose tissue, Akshotaka is strongly recommended. Daily 2-3 fruits should be consumed by executives, who undergo mental stress. It works well as a nervine, general tonic a well as an aphrodisiac. It is beneficial in heart and blood disorders, and also in gout. To augment the breast milk, it is a valuable galactogogue for lactating mothers. The frequency of micturition and spermatorrhoea are well controlled when the fruits are given with ghee and honey. The properties of Akshotaka are similar to those of badama. But Akshotaka is more potent aphrodiasic. The Akshotaka oil has similar properties to those of castor oil. It is gentle in laxative action than castor oil and does not cause weakness. Its oil in large dose, eliminates tape worm. Those who experience giddiness, light headedness or vertigo like symptoms, should consume 3-4 fruits daily. It also improves the health of the hair. The roasted fruits serve to relieve the dry cough. There are no medicinal preparations of Akshotaka except its oil, Akshotaka taila.

Toxicology

Drug has been used since ancient time so the proper administration of this herb in appropriate in appropriate doses not cause harm.

CONCLUSION

The present review article, documents various references of the drug Akshotaka in different Ayurvedic texts. This paper highlights the Ayurvedic as well as pharmacological uses of this plant. As very less work has been done in Ayurveda, on this plant, the present paper proves that this plant is not considered as a source of dry fruit only but its various properties and chemical constituents forces to use this plant as an important herbal remedy for various ailments. Although, further trials in humans are required to determine the efficacy of Akshotaka or its constituents and to establish what, if any, adverse effects are observed.

REFERENCES

1. https://en.wiktionary.org/wiki/walnut, walnut – wicktionary.
2. World journal of Pharmaceutical, Juglans regia Linn: a phytopharmacological Review by Tajamul Islam Shah, by Ekta Ssharma, Gohhar Ahmad, 364-373.
3. walnut - Online Etymology Dictionary (www.etymonline.com/index.php?term=walnut).
4. https://en.m.wikipedia.org> wiki<Juglans, scientific classification.
5. The Ayurvedic Pharmavopoeia of India (API), Published by the Controller of Publications Civil Lines, Delhi, 1st edition 1990, reprinted, 2001; I(2): 3-4.
6. Indian Medicinal Plants; Vol. III, By K. R. Kirtikar and B. D. Basu, 2nd revised edition, 2012: 2347-2348.
7. Indian Medicinal Plants forgotten healers, a guide to Ayurvedic Herbal Medicine by Dr.Prakash Paranjpe, published by Chaukhamba Sanskrit Pratishthan, reprint edition, 2005; 2012; 5-6.
8. Charaka Samhita with chakrapanidatta Hindi Commentary by Harishchandra Kushvaha, Sutra Sthana 13/10 and 27/157, reprint, Varanasi:Chaukambha Orientela, 2012; 256-544.
9. Charaka Samhita with chakrapanidatta Hindi Commentary by Harishchandra Kushvaha, chikitsa Sthana 11/37, 26/171, 29/66 and 29/99 reprint, Varanasi: Chaukambha Orientela, 2012; 344:749: 829: 833.
10. Sushruta Samhita with Ayurveda Tatva, Sandipika Hindi Commentary by Acharya Ambika Datta Shastri. Sutra Sthana 45/120 and 46/187-188 13th edition, Varanasi :Chowkhambha Sanskrit Sansthan, 2002; 231-259
11. Ashtanga Hridaya with Nirmala Hindi Commentary by Brahmanand Tripathi. chikitsa sthana 3/39 and 24/54 reprint, Varanasi :Chaukhambha Sanskrit Prakashan, 2009.
12. Dhanvantari Nighantu, Edited by Prof. P. V. Sharma and translated by Dr. G. P. Sharma, Published by Chaukhambha Orientalia, Varanasi, 2nd edition, Amraadi varga shloka, 1998; 53-54: 158.
13. Madan Pal Nighantu, By Hari prasada Tripathi, Krishan Dass academy Varanasi,Phalavarga shloka, 67: 156.
14. Kaiyadeva Nighantu (Pathyapathya-Vibodhaka), Edited and translated by Prof. P. V. Sharma and Dr. G. P. Sharma, Varanasi, 1st edition, Aushadhi varga shloka, 1979; 507-508: 93.
15. Bhavaprakasha of Sri Bhavamishra, By Prof. Shri Kanthamurthy, Krishan dass academy Varanasi, Amraadi varga shloka, 129: 579.
16. Raj Nighantu of Pt. Narahari, Edited with Dravyaguna Prakashika Hindi commentary by Dr. Indradev Tripathi, Published by Krishnadas Academy, Varanasi, 1st edition, 1982, Amraadi varga shloka, 82: 356.
17. Priya Nighantu, Acharya Priyavrta Sharma, Chaukhamba surbharati Prakashana, Phala varga shloka, 41: 189.
18. Charaka Samhita with chakrapanidatta Hindi Commentary by Harishchandra Kushvaha, Sutra Sthana 2/17, reprint, Varanasi:Chaukambha Orientela, 2012; 54.