

**A COMPARATIVE PHARMACOGNOSTICAL AND
PHYSICOCHEMICAL STUDY OF LEAVES OF *SHWETA VASA*
(*ADHATODA VASICA* NEES) AND *KRISHNA VASA* (*JUSTICIA*
GENDARUSSA BURM)**

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ABSTRACT

Ayurveda is a traditional system of medicine that has its roots in ancient India, dating back over 5,000 years. This holistic system of medicine aims to achieve balance and harmony within the body, mind, and spirit to promote overall health and well-being. Herbs play a significant role in diverse aspects of human life, contributing to culinary, medicinal, aromatic, and ornamental experiences. *Shweta Vasa* (*Adhatoda vasica* Nees), commonly called Malabar Nut is a very familiar and broadly used herb in *Ayurveda* and is a chief ingredient in various *ayurvedic* formulations designed for *Kasa*, *Shwasa*, *Raktapitta*. Moreover, it is a well-known expectorant drug. *Justicia gendarussa* is mentioned as one of the type of *Vasa*. Though, its reference is not available in ancient classics of *Ayurveda* including *Nighantu* but, Dr. V. G. Desai in his book *Aushadhi samgraha* has mentioned this plant as *Krishna Vasa* which is further quoted by Dr. K. C. Chuneekar in

hindi commentary of *Bhavaprakasha*. Also, Dr P.V. Sharma has quoted the reference of *Krishna vasa*. The present study aims to study Pharmacognostical and Physicochemical study of leaves of *Shweta vasa* (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm).

KEYWORDS: Ayurveda, Herbs, *Shweta vasa*, *Krishna vasa*.

AIMS AND OBJECTIVES

- a) To study literary review of *Shweta vasa* (*Adhatoda vasica* Nees) and *Krishna vasa* (*Justicia gendarussa* Burm).
- b) To review pharmacognostical features of selected herbs.
- c) Physicochemical evaluation of *Shweta vasa* (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm).
- d) To distinguish between two varieties of selected herbs.

INTRODUCTION

Ayurveda is recognized amongst upveda of Atharva veda. It deals with the science of life and the natural medicine system of India. The Vedas are historic compilations of knowledge and ceremonial sacrifice. It is a fundamental branch of spiritual science that offers a thorough comprehension of the complete system of matter, mind, and consciousness. Ayurveda is the unique section of Vedic science designated for treating both body and mind disorders. Ayurveda encompasses not only herbal medicines but also include dietetics, surgical procedures, psychological, and spiritual measures to treat disorders. Vedic science also includes yoga, meditation, mantra, and astrology. Ayurveda is currently in a different stage of growth, reaching out to the west and addressing contemporary concerns.^[1] Historically, medicinal plants have played a significant role in the nation's sociocultural, spiritual, and medical spheres. Diseases with a rising prevalence and unmet medical needs are among the global focus areas for medications derived from medicinal plants. As people become more aware that plant-based medicines are natural, non-narcotic, free of side effects, and readily available at reasonable rates, demand for them is rising in both developing and wealthy nations. It has been explicitly stated in the Rigveda that the existence of medicinal plants precedes the existence of deities. The oldest known source of record i.e. Rigveda, where the nomenclature of medicinal plants first appeared and explained 67 plants and 1028 shlokas. Yajur-veda described 81 medicinal plants and later Atharva-veda mentioned 293 medicinally useful plants. The number of medications used in the Atharvaveda and later in Nighantu-kala gave relevant synonyms for drugs that has been increased with the time.^[2] Plants have served as an inspiration for new medicinal molecules, and people have been employing unprocessed plants as medicine since the Vedic era. An astonishing impact of herbal therapy leads to a rise in demand for herbal medicine across the world.^[3] *Vasa* (*Adhatoda vasica* Nees) is a very familiar and broadly used herb in Ayurveda. It is commonly called as Malabar nut. *Adhatoda vasica* Nees belongs to the family Acanthaceae, generally recognized as *Adosa*. The name

Vasa itself means that the plant cures many diseases and restores the health. The word “Adhatoda” is derived from its Malabar name ‘Adalodaka’ and ‘vasica’ indicates its fragrance. Shweta *Vasa* is found abundantly throughout India and is one of the most useful herb ever found.

Shweta Vasa has been mentioned as one of the main contents of various ayurvedic compound advised for the treatment of *Kasa*, *Kshaya* and *Raktapitta* in various classics of *Ayurveda*.^[4] It is a well-known expectorant drug. The leaf of the *Vasaka* plant (*Vasa Swarasa*) is used in the production of many products which include *Vasarishta*, *Mahatikataghrita*, *Triphalaghrita*, *Vasavaleha*, *Vasakasava*, *Mahatriphalaghrita*, *Panchatiktaghritaguggulu* and *Panchatikta ghrita*.^[5] *Justicia gendarussa* is mentioned as one of the type of *Vasa*. Its reference is not available in ancient classical texts of *Samhitas* or *Nighantu* but recent *Acharyas* like Dr V G Desai in his book *Aushadhisamgraha* has mentioned about this type of *Vasa* and is quoted by Dr. K. C. Chuneekar in hindi commentary of *Bhavaprakasha*, Dr P.V. Sharma have given the reference of *Krishna vasa*.^[6]

MATERIAL AND METHODS

1. Literary review of Shweta *Vasa* (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm).

<i>Rasa Panchaka</i>	<i>Shweta Vasa</i> (<i>Adhatoda vasica</i> Nees).^[7]	<i>Krishna Vasa</i> (<i>Justicia gendarussa</i> Burm.)
<i>Rasa</i>	<i>Tikta, katu</i>	-
<i>Guna</i>	<i>Laghu, Ruksha, Grahi</i>	<i>Ruksha</i> ^[8]
<i>Veerya</i>	<i>Sheeta</i>	<i>Ushna</i> ^[9]
<i>Vipaka</i>	<i>Katu</i>	-
<i>Doshaghanta</i>	<i>Kapha-pitta shamaka</i>	<i>Kaphanissarak</i>
<i>Karma</i>	<i>Rasayana, Kusthagna</i> (useful in skin disorders), <i>Jwarahara</i> (antipyretic), <i>Pramehaghana</i> (diabetic friendly), <i>Swasa-kasa hara</i> (useful in respiratory tract disorders)	<i>Jwaraghana</i> (antipyretic), <i>vamaka</i> (emetic), <i>virechak</i> (purgative)

2. (a) Pharmacognostical characteristics of *Shweta vasa* (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm).

Shweta vasa (*Adhatoda vasica* Nees)



Krishna vasa (*Justicia gendarussa* Burm)



Morphological Characteristics	<i>Shweta vasa</i> (<i>Adhatoda vasica</i> Nees.)	<i>Krishna vasa</i> (<i>Justicia gendarussa</i> Burm.)
Leaves	simple, opposite, lanceolate or oblong-lanceolate in shape.	Simple, opposite, whorled, lanceolate or elliptic in shape
Flowers	The flowers are arranged in dense spikes. Each flower is tubular and whitish in color. The inflorescence is a terminal spike.	The flowers are usually axillary, solitary, or in small clusters. The flower color may vary but is often white or pale lavender.
Fruits	The fruit is a capsule. Capsules are small, subglobose, and contain several seeds.	The fruit is a capsule. Capsules are usually small and contain seeds.
Habit	It is a shrub with a woody stem. The plant has a strong, unpleasant odor.	It can be a shrub or a small tree.
Distribution	<i>Adhatoda vasica</i> is native to South Asia, particularly in India and Sri Lanka.	<i>Justicia gendarussa</i> is found in tropical and subtropical regions of Asia and Australia.

2. (b) Organoleptical characteristics of *Shweta vasa* (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm.).

Organoleptic characters	<i>Shweta vasa</i> (<i>Adhatoda vasica</i> Nees.)	<i>Krishna vasa</i> (<i>Justicia gendarussa</i> Burm.)
Colour	Light green	Dark green
Odour	Characteristic	Characteristic
Taste	Bitter	Bitter

3. Evaluation of Physicochemical parameters of *Shweta vasa* (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm.).

Sr. No.	PARAMETERS (%w/w)	SHWETA VASA (<i>Adhatoda vasica</i> Nees.)	KRISHNA VASA (<i>Justicia gendarussa</i> Burm.)	REFERENCE RANGE
1.	FOREIGN MATTER	Nil	Nil	Not more than 2 %
2.	TOTAL ASH VALUE	9.80%	7.83%	Not more than 21%
3.	ACID INSOLUBLE ASH	1.06%	0.94%	Not more than 1%
4.	ALCOHOL SOLUBLE EXTRACTIVE	14.96%	14.56%	Not less than 3%
5.	WATER SOLUBLE EXTRACTIVE	51.36%	55.84%	Not less than 22%
6.	LOSS ON DRYING	10.06%	11.06%	Not more than 12%

RESULTS AND OBSERVATION

Shweta vasa (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm.) possess *Ruksha guna* which alleviates *Kapha dosha* and is useful in *jwara* (pyrexia). Among morphological characters, leaves of both *Shweta vasa* and *Krishna vasa* are simple, opposite, lanceolate in shape. Flowers of both are white in color. Moreover, fruits of both herbs are capsule which contains several seeds. The habit of both *Shweta vasa* and *Krishna vasa* is shrub with a woody stem. In organoleptical characteristics, odour and taste of both *Shweta vasa* and *Krishna vasa* is characteristic and bitter. As seen in physicochemical parameters, ash value and extractive values are higher in *Shweta vasa* (*Adhatoda vasica* Nees.) as compared to *Krishna vasa* (*Justicia gendarussa* Burm.), indicating a higher mineral content in *Shweta vasa*. The moisture content of *Shweta vasa* (*Adhatoda vasica* Nees.) is lower than that of *Krishna vasa* (*Justicia gendarussa* Burm.), which increases its viability for use in various

medicinal preparations. Therefore, *Shweta vasa* (*Adhatoda vasica* Nees.) has a better life expectancy as compared to *Krishna vasa* (*Justicia gendarussa* Burm.) making it a more suitable option for medicinal preparations.

DISCUSSION AND CONCLUSION

Both the *Shweta vasa* and *krishna vasa* are having *ruksha guna* which alleviates kapha dosha and are having jwarghana karma (Anti-pyretic action) but *Shweta vasa* possess *sheeta veerya* and *krishna vasa* have *Ushna veerya*. Though, both *Shweta vasa* (*Adhatoda vasica* Nees.) and *Krishna vasa* (*Justicia gendarussa* Burm.) bears different morphological features but falls in same family i.e. Acanthaceae. Also, on the basis of pharmacognostical study, it is concluded that *Krishna vasa* (*Justicia gendarussa* Burm.) possess dark green color while *Shweta vasa* (*Adhatoda vasica* Nees.) had a dull brownish-green color. Both samples had distinct smells and were bitter. Thus, it can be claimed that *Shweta vasa* (*Adhatoda vasica* Nees.) has a longer life expectancy than *Krishna vasa* (*Justicia gendarussa* Burm.) based on physio-chemical factors, making it a superior choice for medicinal formulations as been narrated by ancient ayurvedic literature.

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