WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
Coden USA: WJPRAP Impact Factor 8.453
Volume 14, Issue 22, 1175-1184. Review Article ISSN 2277–7105

LITERARY REVIEW ON *KEBUKA* [*COSTUS SPECIOSUS* (J.KOENIG) SM.]

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Article Received on 20 Oct. 2025,
Article Revised on 10 Nov. 2025,
Article Published on 15 Nov. 2025,

https://doi.org/10.5281/zenodo.17637589

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How to cite this Article: Priyanka Gosavi*, Suvarna Sonawane, Sanjay Lungare. (2025). LITERARY REVIEW ON KEBUKA [COSTUS SPECIOSUS (J.KOENIG) SM.]. World Journal of Pharmaceutical Research, 14(22), 1175–1184.

ABSTRACT

Kebuka (Costus speciosus (J. König) Sm.) is a perennial herb that holds an important place in traditional Indian systems of medicine. It is also widely recognized and used in various folk medicinal practices around the world. In Ayurveda, *Kebuka* is categorized under *Shaka Varga* (the group of vegetables), which forms a sub-group of *Ahara Varga* (the group of edible substances) as described in classical Ayurvedic texts.

KEYWORDS: *Ayurveda, Kebuka, Costus speciosus, Spiral flag, ethnomedicin.*

INTRODUCTION

Medicinal plants have always played a vital role in maintaining human health and fulfilling healthcare needs. The healing potential of traditional herbal medicines has been recognized since ancient times. Even today, about 65% of the world's population continues to rely on traditional systems of medicine and local knowledge of medicinal plants for their primary healthcare needs.

India, with its rich biodiversity, is home to an estimated 7,500 species of medicinal plants that thrive across 16 agro-climatic zones and approximately 63.7 million hectares of forest area.[1] With the growing global preference for natural and holistic healthcare, the demand for medicinal plants as raw materials has significantly increased. As a result, medicinal herbs are steadily transitioning from the fringes of traditional use to mainstream healthcare, offering safer alternatives to synthetic drugs and their associated side effects.[2]

METHODOLOGY

Literary references were collected from Ayurveda classics, commentaries, modern literatures, research journals available in institute library, online portals like Pubmed central, Ayush research portal, Google scholar, E-books and analyzed to frame conceptual work.

REVIEW OF LITERATURE

DRUG REVIEW- AYURVEDIC LITERATURE

SYNONYMS: Synonyms[3,4]

Kemuka, Kembuka, Peculā, Pelu, Peluni, Dalashālini, Kebuka, Kevuka, Kesura[5]

CLASSICAL CATEGARIZATION: IN SAMHITA AND NIGHANTUS[6]

Charaka Samhita	*Krimighna - Su. 4/15 Tikta Skandha - Vi. 8/143 Shāka Varga - Su. 27/96*
Sushruta Samhita	*Tikta Shāka Dravya - Su. 46/263*
Ashtanga Hrdaya	*Tikta Shāka Dravya - Su. 6/79*
Ashtanga Sangraha	*Tikta Shāka Dravya - Su. 7/105 Krimighna Mahakashaya - Su. 15/20*
Bhava Prakash Ni.	*Shāka Varga*
Kaiyadeva Ni.	*Aushadhi Varga*
Siddhamantra	*Kaphapittaghna Vātala Varga*
Rāja Vallabha Ni.	*Madhyāhnika paricheda*
Shodhala Nighantu	*Lakshmanādi Varga*
Hrdaya Deepika	*Eka nāma varga*
Priya Nighantu	*Shatapushpadi Varga Shāka Varga*
Abhidhana Manjari	*Shāka Varga*

RASA PANCHAKA

	Ch.[7]	**Su.**[8]	**A.H & A.S.**[9-10]	**B.P.N.**[3]	**K.N.**[4]	**P.V.S.[**[11]	**API**[12]
Rasa	*Tikta*			*Tikta, Katu*	*Tikta, Katu, Madhura*	*Tikta Kashaya*	*Tikta*
Guna	-	*Laghu*	-	*Laghu*		*Laghu, Ruksha*	
Vīrya	*Shita*	-	*Shita*				
Vipāka	*Katu*	-	*Katu*				
Doshaghnata	*K-P hara*	*R-P hara*	*K-P hara V-kara*			*K-P hara*	
K=Kapha, P=Pitta, V=Vata, R=Rakta							

Prabhava: Garbhāshaya Sankochaka[11] KARMA[3,4] [9-13]

Dipana (stomachic), *Pāchana* (digestive) *Rochana* (appetizer), *Hrdya* (cardiotonic),

Grāhi (absorbent), *Vrishya* (aphrodisiac).

Rogaghnata[3,4],[17-9]

Swāsa (asthma), *Kāsa* (cough), *Arochaka* (anorexia), *Prameha* (diabetes), *Kushtha* (skin diseases), *Jwara* (fever), *Rakta vikāra* (blood disorders), *Rakta pitta* (bleeding), *Bhrama* (giddiness), *Krimi* (helminthiasis), *Shlipada* (filariasis).

CLASSICAL KALPA'S[6]

Yoga	Use
Saptacchadādi Yavāgu/ Kwātha	Kaphaja Mutrakrchra (Ch.Chi.26/57, A.H.Chi.11/12, A.S.Chi.13)
Vyoshādi Saktu	Santarpana vikara (Ch.Su.23/20, A. H.Su.14/25, A.S.Su.24/43)
Krimighna Kashāya	Krimi (Ch. Su. 4/15) (A.S.Su.15/20)
Ayaskriti	Kushtha, Prameha, Sthoulya, Shopha (Su.Chi.10/12, A.S.Chi.21)
Kulathādi Ghritha	Jeerna Jwara (A.S.Chi.2/15)
Khadirādi Vati	Sarva Mukharoga (Su.Ut.26/54)
Shatāvaryādi Uttara Basti	Mutraghāta (Su.Chi.13/16)

MODERN REVIEW

Botanical name: *Costus speciosus*

Family: Costaceae

Botanical classification[14]

Scientific classification- Kingdom - Plantae Subkingdom - Tracheobionta Superdivision - Spermatophyta Division - Magnoliophyta Class - Liliopsida

Subclass - Zingiberidae Order - Zingiberales Family - Costaceae Genus Costus L.

Species - Costus speciosus (J. Koenig) Sm.

Classical names: Kebuka, Kembuka, Kemuka,Kembu

Vernacular names[14]

Bengali - Kevu

English Wild ginger, Crepe ginger, Canereed**,** Spiral flag Hindi - Kebu, Kemuk, Kemuaa, Keu, Vanajardraka Kannada - Chenglavaa-Koshtu, Changalvakoshtu Malayalam - Channakkilannu, Channakkuvva

Marathi Pevaa Tamil Koshtam

Telugu - Chenglavaa-Koshtu

Morphology[15]

An erect plant 1.2-2.7 m. high; rootstock tuberous, insipid; stem sub-woody at the base.

Leaves 15-30 by 5.7-7.5 cm., subsessile, spirally arranged, oblong or oblanceolate-oblong, acute or acuminate, often cuspidate, glabrous above, silkypubescent beneath, base rounded; sheaths coriaceous; ligule 0.

Flowers white, numerous, in very dense spikes 5-12.5 by 3.8-7.5 cm.; bracts 2-3.2 cm. long, ovate, acuminate, often pungently mucronate, bright red; bracteole solitary below the calyx, 16 mm. long.

Calyx 3.2 cm. long; lobes 6 mm. long, deltoid-ovate, cuspidate. **Corolla**-tube as long as the calyx; lobes ovate-oblong, apiculate, the lateral lobes 3.5 by 1.3 cm., the dorsal 4 by 2 cm. Lip suborbicular, white with a yellow centre, 5 cm. and more in diam., concave, plicate, crisped, the margins sometimes meeting in the middle; disk pubescent and with a tuft of hairs at its base. **Stamen** 3.8-4.5 cm. long, with a tuft of hairs at the base of the filament; connective petaloid, 13 mm. broad, pubescent, produced into a glabrous appendage as long as the linear anther-cells. **Style** 3.8 cm. long, slender; stigma with a semilunar ciliate mouth.

Capsules globosely 3-gonous, 2 cm. diam., red. Seeds black, with a white aril.

Habitat[16,17]

The herb is commonly found throughout India up to an altitude of 1200m in moist undergrowth, commonly along roadsides, streams and in wastelands. It is distributed in the Himalayas including Siwalik range, Bihar, Orissa, Uttaranchal, Bengal and in some part of Maharashtra, Gujarat, Rajasthan, Madhya Pradesh, Karnataka, Andhra Pradesh, Kerala etc. Distributed in Indo-Malaysia, Sri Lanka, Malay Islands and China.

Part Used: Root and Rhizome

Flowering and Fruiting: July-February.[16]

Microscopic Description[18]

Root: The young root shows a single layer of epidermis followed by 8 to 9 layers of cortical isodiametric cells. The innermost layer is the endodermis which encloses a single layered pericycle and a polyarch stele. The central part is represented by xylem parenchyma which

gradually becomes thick-walled and lignified. The sclerification start from the centre to the periphery. The cork cambium arises in the third layer of the cortex and forms a thin cork cambium of 3 to 5 layers of cells and the epidermis finally gets ruptured. The endodermis becomes thick-walled at the inner tangential and radial walls. Tracheids are absent. The xylem vessels are elliptical to somewhat circular in T.S. and possess reticulate type of thickening. Some of the vessels have pointed tail like ends. The xylem fibres are slightly thin walled, pointed at both ends, rarely with forked or truncated ends and bear simple pits on their walls. The xylem, parenchyma are rectangular in shape, devoid of pits on their walls.

Rhizome

The T.S. of the young rhizome shows a single layer of epidermis followed by ground parenchyma in which vascular bundles are scattered. The ground parenchyma is filled with starch grains especially in the outer layer and the starch grains do not bear any striations.

With the growth of the rhizome a cork cambium arises in the outer cortical layers which cut off 8 to 10 layers of cork cells. There is a distinct endodermis which limits the extent of cortical parenchyma. Within the endodermis the vascular bundles are more closely scattered in the ground parenchyma. The bundles start the formation of fibres which are slightly thickened and bear simple pits on their walls. All the vascular bundles are of the amphicribal type with phloem encircling the xylem strand.

[Costus speciosus (J.Koenig) Sm.].

Ethnomedicinal use[19,20,21]

The **rhizomes** are rich in starch and fibre, but are cooked and eaten. They are cooked into a syrup or a preserve which is considered wholesome, and fairly nutritious. They are sometimes substituted for ginger, though not as good. The boiled rhizomes are mucilaginous. The **rhizomes** are feebly astringent and considered tonic, anthelmintic, abortifacient, depurative and aphrodisiac. They are given in cold, cough, pneumonia, stomach troubles, rheumatism, dropsy, urinary diseases, and are used as antivermin and maggoticide. The juice of **fresh rhizome** is purgative; mixed with *Acorus calamus* Linn. it is applied in leprosy. In Meghalaya, the decoction of rhizomes and those of *Cyperus rotundus* Linn. and the bark of *Azadirachta indica* A. Juss. is given in jaundice. The **tender shoots**, when boiled in milk, make a good vegetable; they are given as fodder. They can be mixed with other fodders, and can be fed fresh, ensiled and as hay. The **leaves** along with those of *Pueraria lobata* (Willd.) Ohwi and coconut scrapings are ground and boiled and given in mental disorders. The **dried stem** and **leaves** are employed in preparing an *apong* or a rice-beer in Assam. The **bruised leaves** are applied in fevers. A decoction of the **stem** is used in fever. Its juice is given in dysentery and that of **tender shoots** is squeezed into eyes for eye diseases. **Root** is useful in catarrhal fevers, coughs, dyspepsia, worms, skin diseases, and snake bites. **Tuber** is cooked and made into a syrup or preserve which is very wholesome. The **plant** is used in fever, dropsy, cholera, phthisis. puerperal fever, bite of rabid jackal or dog; snake bite; skin diseases, diabetes; bronchitis and asthma; tuberculosis, blood purification, headache; astringent, purgative, tonic; anthelmintic and stimulant. Plant **juice** is used in earache. **Plant** and **rhizome** are used to cure filariasis. The **leaves** are used in scabies and on wounds; in mumps, fever; cough, asthma and for hair growth. The **stem** in used in burning sensation on urination; earache; pus formation, as maggoticide; on wounds; as germicide and for toothache. **Stem juice** is applied on blisters; scalp to cure redness of the eye due to traumatic affliction; on wounds and in eye troubles. **Bark** is used to treat jaundice. **Bark** and **leaf** are used against cholera and in stomach disorders. The **tuber** is used in piles, fever; indigestion; viral hepatitis, rheumatoid arthritis; cold and cough; high fever and severe headache; digestive troubles, constipation; dysentery; as abortifacient and for sterilization. **Tuber** and **stem** are given to cure urinary tract infection. The **rhizome** is used to treat blood in urine; rheumatic pain, as anti-vermin; for abortion; delirium, nausea and vomiting tendency during labour; to expel intestinal worms; in burning acidity; headache; leprosy; muscle cramp and muscle pain; chicken pox, bone disorders, digestion; snake bite; pus formation in ear;

Parkinson's disease; skin diseases; asthma; fever; constipation, dropsy; earache; leukaemia; dysentery; strangury; dyspepsia; scabies, itches, stomach trouble; urinary troubles and to dissolve stones; in rheumatoid arthritis; bone pain; uterine diseases; bronchitis, inflammation, anaemia; filariasis; leucorrhoea; backache; cough; as tonic; astringent, purgative, depurative, stimulant, anthelmintic; lactagogue; hair tonic; on boils; as an antidote for dog bite and has female sexual stimulant property. **Rhizome juice** is used in leprosy; jaundice and filariasis.

The **root** is used in asthma and to check pus formation in earache; in helminthiasis, as aphrodisiac; tonic; purgative; anthelmintic; astringent; in catarrhal fever. cough, dyspepsia, worms, skin diseases; urinary troubles; rheumatism; tonsillitis; snake bite; on wounds; cuts; in cold; fever; skin diseases; jaundice, red urine disease and body pain.

Adulterant and Substitute[16,18]

Mostly the rhizome pieces are found adulterated with stem pieces of same plant in market.

Used as an adulterant of *Langali* (*Gloriosa superba). Kebuka* is considered as source plant for *Kushtha* – *Saussurea lappa* (English - Costus root) in South India.[22]

Posology[23] Juice: 10-20ml Powder: 3-6gm

Toxicity

A study was carried out to study the sub-acute toxicity of the ethanolic extract of *Costus speciosus in male mice.* The research result showed that the administration of CSE at 275-1100 mg/kg/day for 90 d did not show any significant disturbance in all parameters, except for reductions of cholesterol and blood glucose levels of test animals ($p<0.05$). Thus, indicating the safety of Ethanolic extract of *Costus speciosus* as a candidate if standardized herbal medicine for male contraception.[24]

Pharmacological action[16]

Antifertility, abortifacient, ecbolic, oxytocic, estrogenic, antimicrobial, antiviral, antifungal, antiinflammatory, muscle relaxant, anticholinesterase, diuretic, CNS depressant, antiarthritic, hypotensive, cardiotonic, hypoglycemic, spasmolytic, bradycardiac**.**

RESULT AND DISCUSSION

A comprehensive review and analysis of the available classical *Ayurvedic* literature, including the *Brihattrayi* and eight *Ayurveda Nighantus*, reveals extensive information about the drug

Kebuka (Costus speciosus). Across these texts, the plant is referred to by ten different synonyms, among which *Kebuka*, *Kemuka*, and *Kembuka* are the most frequently mentioned.

Kebuka holds significant therapeutic importance in both Ayurvedic and ethnomedicinal practices. Classical references highlight its effectiveness in managing conditions such as *Krimi* (worm infestation), *Shlipada* (filariasis), and *Jwara* (fever), as well as in disorders like *Kasa* (cough), *Shwāsa* (asthma), *Kushtha* (skin diseases), *Mutrakricchra* (urinary disorders), and *Santarpana Vikaras* (diseases caused by over-nourishment). Most of these ailments are associated with *Kapha Dosha* imbalance.

The therapeutic efficacy of *Kebuka* can be attributed to its pharmacodynamic properties - *Tikta* (bitter) and *Katu* (pungent) Rasa (taste), *Sheeta Virya* (cold potency), and *Laghu* (light) and *Ruksha* (dry) *Gunas* (qualities). These characteristics help pacify *Kapha Dosha* and contribute to its effectiveness in the above-mentioned conditions.

However, due to its *Garbhashaya Sankochaka* (uterine-contracting or abortifacient) property, the use of *Kebuka* is contraindicated in pregnant women, as well as in women suffering from infertility or Menorrhagia (excessive menstrual bleeding).

Given its strong anthelmintic and purgative actions, *Kebuka* can be considered a drug of choice in the management of *Krimi Roga Chikitsa* (treatment of worm infestations).

CONCLUSION

In the present era of globalization of Ayurveda and the expanding market for Ayurvedic formulations, one of the major challenges faced by the Ayurvedic community and drug manufacturers is the shortage of authentic raw materials. Apractical solution to this issue lies in promoting awareness and research on lesser-known yet genuine Ayurvedic drugs – those clearly identified botanically, extensively mentioned in classicaltexts, and abundantly available across India.

Kebuka (Costus speciosus), a perennial herb commonly found throughout the Indian subcontinent, is one such valuable medicinal plant. The root and rhizome are its therapeutically active parts, widely recognized for their medicinal potential. Its therapeutic significance is well-documented in classical Ayurvedic literature and further supported by its broad use in traditional and folklore medicine.

Given its clear botanical identity, wide availability, and proven therapeutic potential, *Kebuka* deserves greater focus from the Ayurvedic research community.Future pre-clinical and clinical studies should aim to establish its safety profile, effective dosage,pharmacological actions, and mechanism of activity. Such research will help validate its traditional uses and promote its wider integration into clinical Ayurvedic practice.

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