ABSTRACT

From a functional perspective, the only essential features of labor are cervical dilation and fetal descent. In cervical dystocia, cervix fails to dilate and it is more common in primi patients. Cervical dystocia if not diagnosed and treated, can lead to maternal/fetal morbidity and even the mother’s mortality. Women who experience dystocia often undergo surgical interventions such as emergency cesareans, vacuum and forceps deliveries, which cause considerable physical problems for mothers, in addition to stress and an economic burden on the family and community. In these situations, there is a scope of Ayurvedic preparations as they can be always used easily, safely, comfortably and are economical also.

KEY WORDS: Kebuk, Cervical dystocia, Labour.

INTRODUCTION

*Kebuka (Costus speciosus)* is commonly known as Crepe ginger. Costus Speciosus is a tropical herbaceous plant from family zingiberacea. C. speciosus differs from the common ginger by having only one row of spirally arranged leaves. The species reproduces vegetatively by rhizome and birds disperse the seeds when they feed on the fruits.

This plant is cultivated in India for its medicinal uses and is cultivated elsewhere as an ornamental. Costus is under cultivation in isolated patches in different part of India it is cultivated as rainy season crop (Kharif). Costus specious is a perennial rhizomatous herb with erect or spiral steam.
Crepe ginger is a tall and dramatic landscape plant with large dark green leaves arranged on the stalk in a spiral. The plant of C. spicicosus can grow to 10 feet tall in frostfree areas but typically grows to about 6 feet tall in cooler regions where it is root hardy but dies back in winter.

**LITERATURE REVIEW**

The literary review of the *Kebuka* was started right from the *Vedas* upto recent research works to obtain thorough knowledge of drug. On comprehensive review of Ayurvedic classics it was found that *kebuka* is described in *Sushruta Samhita, Bhava Prakash Nighantu, Kaidev Nighantu, Dravyaguna Vijnana*.

**Properties of kebuk in Ayurvedic text.**

<table>
<thead>
<tr>
<th>Ayurvedic texts</th>
<th>Rasa</th>
<th>Guna</th>
<th>Virya</th>
<th>Vipaka</th>
<th>Action</th>
<th>Uses</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dravyaguna Vijnana</td>
<td>Tikta</td>
<td>Kashaya</td>
<td>Laghu, Ruksha</td>
<td>Shita</td>
<td>Katu</td>
<td><em>Gharbhhashay a Sankochaka, Kapha, Pitta, Nashaka</em></td>
<td><em>Kushta, Kash Prameha Nashaka</em></td>
</tr>
</tbody>
</table>

**Dosha Karma**

*Kapha-Pitta Shamaka and Vata Vardhak.*

**Sansthanik Karma**

[a] *Deepan Pachan and Krimighna*  
[a] *Rakta-vaha Sansthan: Hridya, Raktashodhak*  
[c] *Swasana Sansthan: Kasahar, swashar*  
[d] *Mutravaha Sansthan: Pramehaghana*  
[e] *Twacha: Kustthaghana*
Botanical Classification

Kingdom: Plantae
Order: Zingiberales
Family: Costaceae
Genus: Cheliocostus
Species: C. speciosus

Vernacular names

Classical Name: Kebuka
English: Crepe ginger
Latin Name: Costus speciosus

Synonyms

Sanskrit: Pushkara, Kashmeera, Kemuka
Hindi: Keu, Kust
Gujrati: Pakarmula
Marathi: Penva, Pinga
Tamil: Kostam
Malyalam: Narum Canna, Cannakkuvva, Cannukkilannu
Telugu: Cengalva Kostu
Sinhala: Thebu
Assame: Jom Lakhuti

Botanical description of Kebuka

Root: Numerous rhizomes present, stock tuberous
Stem: Sub-woody at the base unctuous and astringent

Big in size, simple, smooth persistent, spirally arranged around the trunk. The leaves are sub sessile and appear dark green in colour, elliptic or ovate in shape.

White in colour, 5-6 cm long with a cup shaped labellum and crest yellow stamens. The inflorescence is a spike around 10 cms long with large bracts in subterminal position bracts is ovate or mucronate and bright red in colour. The flower look like crepe paper, thus commonly called crepe ginger. After the flowers fade away, the attractive red cone shape bracts remain. The flowering appears during, middle of Nov. after which the leaves are shed and majority of canes start drying up.
Fruits: Capsule, Red in colour
:Black in colour, five in number with a white fleshy aril.

Habitat
Costus specious is native to the malay peninsula of south-east Asia, but it has naturalized in some tropica; areas including Hawaii. It is listed as a potential invasive plant in the Federated States of Micronesia and Polynesia.

In India the plant naturalizes in Sub-Himalayan tract, in parts of central India and in the western ghats of Maharastra, Karnataka and Kerala. It is found plentifully in Bengal and Kashmir at the height of 4000 feet. And also found in roadside ditches and low lying areas in the forest.

Plants parts used
Rhizome: root stem and leaves

INDICATIONS
- According to Doshas- Kapha, Pittaj diseases
- Agnimand, Grahani, Krimi Roga
- Swasa, Kasa, Hridya, Rakta Vikaras
- Kashta Prasava- Stimulation of uterine muscles and helps in easy labour.

Chemical composition
The rhizomes are the major source of diosgenin. The major chemical constituents are diosgenin, curcumin and curcuminoids. Tubers and roots of Costus contain 5α-stigmasterol-3b-ol, sitosterol-β-D-glucoside, dioscin, prosapogenins A and B of dioscin, gracillin and quinines. Saponins were also reported from rhizomes, including seeds and roots. Saponin isolated from seeds was reported to posseses hypotensive and spasmylytic effect. Tigogenin and diosgenin (2.6%) have been isolated from rhizomes. Various compounds like α-amyrinisterate, β-amyrin and lupeol Palmitates was isolated from leaves. Two new quinones, dihydrophytylplastoquinone and its 6-methyl derivatives and α-tocopherol isolated from seeds. Five new compounds-tetradecyl 13-methylpentadecanoate, tetradecyl 11-methyltridecanoate, 14-oxotricosanoic acid, 14-oxoheptacosanoic acid and 15-oxoocctacosanoic acid- isolated from rhizomes. Seed oil (6.0%) consists of palmitic acid (55.97%), oleic acid (23.75%), linoleic, stearic, myristic and lauric acids. Defatted seeds
contained diosgenin, glucose, galactose and rhamnose. From the roots, 31-norocyloartenone, cycloartanol, cycloartenol and cyclolaudenol were isolated. Methyl 3-(4-hydroxyphenyl)-2E propenoate was isolated from rhizomes.

MEDICINAL PROPERTIES
The rhizomes are bitter and show anthelmintic, astringent, expectorant properties. The rhizome extract is used as tonic and useful in relieving burning sensation, constipation, leprosy, asthma, bronchitis, anaemia and other skin ailments. Rhizomes of Costus are used as herbal remedy for fever.

1. Hepatoprotective activity
There is a progressive increase in incidence of hepatic damage mainly due to the viral infection, hepatic chemicals (alcohol), and peroxides, toxin in food, pharmaceuticals, environmental pollutants and xenobiotics. There is hardly any remedy available in the modern system of medicine, including corticosteroids and immunosuppressive agents which bring about symptomatic relief supporting only the process of healing or liver regeneration. Hence increasing attention is being given to plant recommended for the treatment of hepatic disorders in the traditional system of medicine. The rhizome of C. speciosus has hepatoprotective properties.

2. Antidiabetic activity & hypolipidemic activity
Diabetes mellitus is a chronic disease characterized by high blood glucose levels due to absolute or relative deficiency of circulating insulin levels. Diabetes mellitus is a chronic metabolic disorder affecting approximately 4% population worldwide and is expected to increase to 5.4% in 2025. Epidemologic studies and clinical trials strongly support the notion that hyperglycemia is the main cause of complications such as coronaryartery disease, cerebrovascular disease, renal failure, blindness, limb amputation, neurological complications and premature death. The hexane crude extract of C. specious rhizome was effective in decreasing the serum glucose level and normalizing other biochemical parameters in diabetic rats. Aqueous extract and methanolic extracts of C. speciosus were highly effective in bringing down the blood glucose level.

The Leaves also possess hypoglycemic properties and insulin potentiating action in addition to decreasing blood glucose.
The leaves and rhizomes of C. speciosus have been reported to possess steroid-diosgenin, which is anti-diabetic in nature.

3. Antioxidant activity
The antioxidant activity of chloroform extract of Costus speciosus leaves for its free radical scavenging activity.

4. Antifertility activity
P. V. Tewari et al. (1973) proved that the saponin mixture showed antifertility activity in rats. A mixture of saponin isolated from the rhizomes of Costus speciosus effectively protected against pregnancy in rats, when fed at 5-500 µg/100 g body wt. for 15 days.

5. Oestrogenic activity
S. Singh et al. (1972) explained that saponins showed oestrogenic activity in sprayed rats, significantly increased uterine weight and uterine glycogen concentration and produced proliferative changes in uterus.

P. V. Tewari et al. (1973) reported the estrogenic activity of 1600 µg diosgenin (I) [512-04-9] isolated from C. speciosus was approx. equal to that of 150 µg neoclinestrol.

4. Other Uses
a. In south-East Asia C. speciosus are used as a food plant. Tender young shoots, fruits and rhizome are used as vegetables.
b. The rhizome possesses antifertility, anticholinesterase, anti-inflammatory, antipyretic and antihelminthic activities.
c. In Southeast Asia it is used to treat boils, constipation, diarrhoea, dizziness, headache, ear, eye, and nose pain, and to stop vomiting.
d. Japanese used the rhizome extract in control of syphilis.
e. Spasmolytic activity -R. Banerji et al. (1982) proved that all the extracts exhibited a moderate degree of nonspecific spasmolytic activity when tested on guinea pig ileum, although the activity was weak compared with that of papaverine.
f. It is one of the constituent of indigenous drug “amber mezhugu” useful in rheumatisms.
g. Steroid saponins and sapogenins from C. speciosus exhibited antifungal activity.
i. Pharmacological studies showed that the rhizomes of C. Speciosus possess cardiotonic, hydrochloretic, diuretic and CNS depressant activity.
j. Rhizome paste is used for treating boils and also to make sexual hormones and contraceptives.

k. Rhizome extract is used for treating snake bites.

L. *speciosus* is traditionally used as a medicinal herb mainly for its stimulant, carminative, diuretic, digestive and antiseptic properties. The rhizome is used internally in the treatment of abdominal pain, liver problems, jaundice, gall bladder pain etc.

**RECENT RESEARCHES**

**Genetic studies of *C.speciosus***

1. In situ estimation of DNA in the different population of *C. speciosus* released a 1, 6 fold variation in the amount. Quantitative estimation of diosgenin content in 9 selected population by TLC revealed a considerable interpopulation variation as well. However, the variation in amount of diosgenin could not be correlated with the amount of 4C DNA.

A detailed karyomorphology of costus speciosus 2n = 36 has been studied along with *C.malorieanus*, 2n=18. Their karyotypes were found to be fairly symmetrical and unspecialized. Though costus speciosus exists as a species complex with three cytological races such as diploid, triploid and tetraploid. The tetraploid forms posses very comparable karyotype as that of the diploid species *C.malortieanus*.

2. N. Verma, R. L. Khosa. (2009) evaluated the hepatoprotective activity of the ethanolic extract of the rhizomes of Costus speciosus (Koenig) Sm. was studied on carbon tetrachloride treated rats. The extract registered a significant fall in the levels of serum glutamyl oxaloacetic acid transaminase (SGOT), serum glutamyl pyruvate transaminase (SGPT), alkaline phosphatase (ALKP), serum bilirubin (SBLN) and liver inflammation supported by histopathological studies on liver, thus exhibited a significant hepatoprotective activity.

3. The ethanolic extracts provide significant protection against the toxic effects of CCL4 on liver.

**Antibacterial activity**

R. B. Malabadi (2005) explained that the hexane, methanol and aqueous extracts of leaf and rhizomes of *C. speciosus* were used by Indian traditional healers for treating skin diseases, diabetes, jaundice, snake bites and/or anti-inflammatory properties and was screened for in
vitro antibacterial activities against pathogens isolated from infected burn patients (Shigella, Staphylococcus aureus, Escherichia coli, Klebsiella pneumoniae, Pseudomonas, Bacillus subtilis and Salmonella). No antibacterial activity was recorded with water extracts. The disc-diffusion method showed significant zone of lysis against all the pathogens studied.

CONCLUSION
On comprehensive review of Ayurvedic classics it was found that Kebuka is described in Vedas, Sushruta Samhita and various Nighantus. Kebuka (Costus speciosus), Family costaceae is commonly known as Crepe ginger, is a traditional Ayurvedic medicine has been used from centuries for smooth and easy vaginal delivery. Kebuka has tikta-katu rasa, laghu guna, katu vipaka, kapha-pitta nasaka and vata vardhak properties. Kebuka due to its tikta-kashaya property, aggravate vata. But, according to Acharya Charak, some drugs act by Rasa, some by Guna, virya, vipaka and some by Prabhawa. Kebuka act through its Prabhava. Due to its garbhashaya sankochak prabhava Kebuka helps in easy delivery because one of the most common cause of garbhasanga is inadequate uterine contraction. Kebuka is a potent uterine stimulant by its prabhaw and tikta-kshaya properties. In this way kebuka increases uterine contraction which cause dilatation of cervix. One of the main cause of cervical dystocia is inadequate uterine contraction Kebuka rhizomes are rich in diosgenin starch which is hygroscopic in nature .Due to this hygroscopic nature it absorbs water and soften the cervix. By virtue of these qualities, drug medicated taila shows good results in facilitating smooth vaginal delivery.

REFERENCES
8. Gupta A.K, Tondon N, Sharma M, Quality Standards of Indian Medicinal Plants, Medicinal Plants Unit, Published by Indian Council of Medical Research, 2008; VII: 48.