



A LITERATURE REVIEW OF ANTICOAGULANT ACTIVITY OF KATU RASATMAK DRAVYA VACHA

¹Vd.Ashutosh Raju Kundalwal, ²Vd Pankaj P Surve,

¹B.A.M.S.,M.D.Dravyaguna Department,CSMSS's Ayurved Mahavidhyalaya and
Rugnalaya,Chh.Sambhajinagar.

kundalwalashutosh@gmail.com

²B.A.M.S.,M.D.Dravyaguna Department,CSMSS's Ayurved Mahavidhyalaya and
Rugnalaya,Chh.Sambhajinagar.

drpankajps@gmail.com

ABSTRACT

Ayurveda, a natural system of medicine, originated in India more than 3,000 years ago. Ayurveda gives certain lifestyle interventions and natural therapies to regain a balance between the body, mind, spirit and the environment. According to WHO (2015) about 17.5 million people died from cardiovascular diseases in 2012. In these cases anticoagulating drugs are routinely prescribed to avoid the further progression of cardiopathies. Vacha is herbaceous perennial belonging to family Araceae. Vacha is Katu Rasatmak dravya with katu ras, ushna veerya and tikshna Guna and it is pramathi Dravya. It contains some phytoconstituents that works as anticoagulant.

KEY WORDS: Anticoagulant, Araceae family, Phytoconstituents,

INTRODUCTION

Ayurveda, a natural system of medicine, originated in India more than 3,000 years ago¹. The Ayurveda is said that, it is a Upaveda of Atharvaveda². The term Ayurveda is the Sanskrit word and formed by words Ayur (life) and Veda (science or knowledge). Hence, Ayurveda means to knowledge of life³. Ayurveda gives certain lifestyle interventions and natural therapies to regain a balance between the body, mind, spirit and the environment⁴.

According to WHO about 17.5 million people died from cardiovascular diseases in 2012 which is about 31.7% of all global death out⁵. The patients with cardiovascular disease are at high cardiovascular risk such pulmonary embolism, deep vein thrombosis, hyperlipidemia etc. The anticoagulant drugs are routinely prescribed to avoid the further progression of cardiopathies so they are most important factors in the treatment of cardiovascular diseases. Many effective drugs have been routinely used but there are various restrictions and limitations for their use. These drugs are also observed to cause various side effect such as passing of blood in urine, severe bruising prolonged nose bleeds, bleeding gums, vomiting blood or coughing up blood and heavy menstruations in women⁶.

Vacha is herbaceous perennial belonging to family Araceae⁷. Vacha is Katu rasatmak dravya with katu ras, ushna veerya and tikshna Guna and it is pramathi Dravya⁸. It contains some phytoconstituents that works as anticoagulant.

AIM

To review of anticoagulant activity of katu rasatmak dravya Vacha

OBJECTIVES

- To study the literature on vacha from ayurvedic and modern texts.
- To study the literature on anticoagulant activity from Samhita, Nighantu.
- To prepare review as per obtained data.

SYNONYMS⁹

Uragandha, Shadagrantha, Golomi, Shatparvika, Kshudrapatri, Manglya, Jatila, Ugra, Lomsha, Rakshoghnee, Vijaya, Bhadra, Vach, Shatparvnya, Hemvati, Shatparva, Pararuna, Yogvati.

Taxonomy of *Acorus calamus* L.¹⁰

Kingdom	Plantae
Division	Tracheophyta
Class	Magnoliopsida
Order	Acorales
Family	Acoraceae
Genus	<i>Acorus</i>
Species	<i>calamus</i>
Binomial name	<i>Acorus calamus</i> L.

VERNACULAR NAMES¹¹

Hindi: Vach, Ghodbach, Ghorvach, Marathi: Vekhand, English: Sweet flag, Tamil: Vashambu, Telgu: Vasa, Vas, Punjabi and Sindha: Bari Boj

MORPHOLOG OF ACORUS CALAMUS L.¹²

Acorus calamus L. is an erect aromatic marshy herb.

Leaves: The leaves are simple leaf, has no stalk and without stipule, growing only at the base of the plant, leaf blade is linear (very narrow with more or less parallel sides). Upper side of leaf is uniform in color.

Flower: Color Green to Brown in and out yellow, Length of petal is 3-4mm, perianth parts are separate, Carpels are fused, Corolla is tube shaped. Flower is radially symmetrical and inflorescence is a spike.

Fruit: The fruit is berry (fleshy, with the wall enclosing one or more with two or more seeds).

Rhizome: The root system consists of shallow, branching rhizomes that are stout and knobby. Tufts of basal leaves occur at intervals along these rhizomes while coarse fibrous roots develop below. The plant multiplies by its rhizomes. Rhizome is long indefinite branched, smooth, pinkish or pale green. Internally the rhizome is whitish pink in color and pleasantly aromatic, smelling of citrus, although it has a bitter taste.



DISTRIBUTION¹³

vacha is an erect aromatic marshy herb. European settlers brought it to India and grew it for medicinal purposes. It propagates readily through spread of the rhizomes, and has spread throughout the eastern India.

CHEMICAL CONSTITUENTS¹⁴

The dried rhizome of *Acorus calamus* contain asarone as a main constituent which contains the small quantity of sesquiterpenes, Choline, Acoradin, Galangin, Acolamone, Isocolamone II.

Aerial parts of plant contain Lutcolin-6, 8 c-diglucoside²⁴³ III. The essential oils of sweet flag: Phenylpropanes, monoterpenes, thermolabile sesquiterpenoids, Methyleugenol, cis-methylisoeugenol, β -asarone, geranylacetate, farnesene, shyobunone, epishyobunone and isoshyobunone

The other chemical components Include α and γ - asarone, calamenene, asaronaldehyde, acorenone, calamenone, n-heptanic acid, calanendiol, numerous sesquiterpenes, and other compounds in the plant. Especially α and β - asarone are high.

AYURVEDIC PROPERTIES WITH ANTICOAGULANT WORK

Vacha has been included in Lekhaniya Gana, Arshoghna Gana, Truptighna Gana, Asthapanopag, Shirovirechan, and Sandnyasthapan Gana and in Sheet Prashaman Gana with its tikshna ushna pramathi gunas by acharya Charak¹⁵.

It is classified in Mustadi, Vachadi, Vatsakadi, Haridradi, Chardan, Niruhan gana by Acharya Vagbhat¹⁶.

Vacha is Katu Rasatmak dravya as well as Vacha has Ushna veerya and tikshna Guna and it is pramathi Dravya, so it exhibits the lekhaniya, chedan, shodhan properties¹⁷ and kapha vata shamak¹⁸.

It has been indicated in disorders like Arsha, Gulma, Jwara, shiroverechan, and pandu, grahani, kushtha Agnimandya, Vaman, lekhan and many other disorders.

Dravya work with its siddhant very potentially in this modernised era also. Our body is made up of three Dosha's and sapta Dhatus. One of which is Rakta Dhatu also called as "Shonit", plays significant role in each activity of body.

Acharya Sushruta said that Shonit is fourth Dosha's in our body¹⁹. Thus disturbance in Shonit (Rakta) can cause many sever pathological effect in our body like – Shonit Sanghat, Raktapitta etc. The concept Shonit Sanghat in Ayurveda is defined as the condition when dushta (vikrut) Shonit is mixed with Kapha and with the help of Vata it circulates in the body.

The pathological condition is seen as per the 'Kha-vaigunya' in the particular organ of the body, For example conditions like myocardial infraction, Deep vein thrombophlebitis, Pulmonary Embolism, Stroke etc.

In Charak Samhita 26th Adhaya and in Astang Sangraha 18th Adhayay it is clearly mentions that Katu Rasa has Shonitsanghat Bhedan property means it also helps Prvention of clot formation^{18 & 20}.

So, due to its Ushna, tikshna and pramathi gunas it causes chedan of raktadhatu sanghat i.e dissolution of clot, thus hampering the shonit sanghat and delays blood coagulation, which can be termed as anticoagulant activity.

Vacha contains active chemical constituents like Choline which is found to show anticoagulation activity in different in vitro and in vivo studies²¹. Vacha also contains flavoninds which shows anticoagulant activity²².

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