

An overview on clinical significance of *ERANDAMOOOLA (Ricinus communis Linn)* and its application.

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Abstract

Research is the unveiling of facts about a particular object or thing substantiated by current available scientific tools. Drug research, which is an integral part of *Ayurveda*, is one of the important divisions in the field of research, which is ever progressing without frontiers. Now, the total world is seeing at our herbal drug to get relief from incurable ailments. People are gradually budging towards *Ayurvedic herbal* drugs because of their enduring effect and relative safety compared to modern synthetic drugs. Now, the developed countries are recognizing the efficacy of the herbal drugs and segregating different active principles from a single drug to get beneficial effects in dreadful diseases. In *Agryasamgrahaniya Charaka* quoted, "*ERANDAMOOOLA VRUSYA VATAHARANAM*". This is the chapter where he took or explained the highly efficacious therapeutic drugs, *pathya-apathya dravya* and *karma* after repeated observations and examinations. As, this chapter stands very important in many ways for a physician or a research scholar, we had taken the *Erandamoola* for the study.

Introduction –

In Ayurveda, Ayu (life) is defined as conjunction of body, soul, mind, and senses. Each has been given due importance in the maintenance of health and prevention and cure of disease. Ayurveda is the science in which the appropriate and inappropriate, happy or sorrowful conditions of living, what is auspicious or inauspicious for longevity as well as measure of life itself are mentioned. Ayurveda, which literally means "The science of life", is the natural healing system of India, it is the traditional medicinal science from the time of Vedas.

The history of herbal medicine is as old as human civilization. Vedas are the oldest record of human civilization and we can find description of many plants used as medicines in the Vedas.

About 3,35,000 species of plants are known all over the globe to be used by man in one way or the other, but a very small number of them are actively used as a medicine. Recent studies have shown that the demand for herbal products is increasing all over the world, because of increasing adverse effects of synthetic products.

Increasing demand of Ayurvedic medicines all over the world. This has created a great stress over our natural herbal depots. Hence it is an need of time to study available plants with newer aspect. In *Agryasamgrahaniya Charaka* quoted, “*ERANDAMOOOLA VRUSHYA VATAHARANAM*”.

As, this chapter stands very important in many ways for a physician or a research scholar, so the *Erandamoola* is taken for the study.

AIMS AND OBJECTS

- 1) To review up to date classical and scientific literature regarding *ERANDMOOLA*
- 2) The study the pharmacognosy and phytochemistry of *ERANDMOOLA*.
- 3)To carry out the pharmacological study of the *ERANDMOOLA*.
- 4)To assess the efficacy of drug clinically.

HISTORICAL ASPECT-

ERANDA

HISTORY:

- *Veda*: In the foremost ever written document of knowledge, we cannot trace any reference regarding the drug *Eranda*.
- *Charaka Samhita*: In *Sutrasthana* twenty-fifth chapter under *Agrasangrahaniya*, it explains *Erandamoola's Vrushya* property. (*Cha.Su.* 25/76). Also includes *Erandamoola* in different *Vrusya basti*. (*Cha.si.* 12/16-2; *Cha.si.* 12/16-6) Total 53 reference of *Eranda* were traced.
- *Susruta Samhita*: The *Shalya Pradhana Grantha* have 28 references regarding the drug. But it mentions *Eranda Taila's Vrushya* property instead of *Erandamoola* (*Su.Su.*45/114).
- *Astanga Samgraha*: This *Samhita* has numerous reference of *Eranda*, also explained *Erandamoola's Vrushya* property same as *Charaka*. (*A.S.Su.* 13/3).
- *Astanga Hrudaya*: *Vagbhata* had not mentioned *Erandamoola's* property, although 32 references of the drug is available in different contexts.
- *Sarngadhara Samhita*: This text had given *Eranda Taila's Vrushya* property.
- *Dhanvantari Nighantu*: It is claimed to be first *Nighantu*, which also reveals *Erandamoola's Vrushya* property along with other synonyms. (*Guducyadi varga.* 29/98)
- *Madanapala Nighantu*: *Acharya Madanpala* includes it under *Abhayadi varga*, he had given different synonyms of the *Eranda*.
- *Kaiyadeva Nighantu*: mentions the *Vrushya* property of *Eranda*. (*Ausadhipvarga* 32/24)
- *Bhavaprakasa Nighantu*: Under *Guducyadi varga* describes *Eranda* along with its *Vrushya* karma, types and synonyms.
- *Raja Nighantu*: *Acharya Narahari* explained *Rasayana* property of *Eranda*. (*Salmalyadi varga* /50)
- *Saligram Nighantu*, *Nighantu Ratnakara*, *Nighantu SaRasamgraha*, *Nighantu Siromani* explains the *Vrushya* property of *Eranda* along with other synonyms.
- *Adhunika Kala*: *Vd.Yadavji*, *Vd.Bapalalji* and *Vd.P.V.Sharma* have described *Eranda* with its *Vrushya* property.

- In the modern botanical texts and various flora, the drug is identified as *Ricinus communis* Linn.
- Modern texts, authors like, Hooker J.D., Kirtikar and Basu and Nadkarni gave a brief description of the plant morphology with its various properties, but none explanation could be of the traced regarding *Erandamoola's Vrushya* property.

SYNONYMS OF ERANDA

The method of nomenclature adopted in olden days were 'multinominal' with each plant being described with a unique set of names. Each name characterise a perticular feature of the plant. When interpreted and composed together the names gives the complete profile of the plant. All those synonyms of Eranda are collected below.

Interpretation of Synonyms:

Basonym: *Eranda*

Apprearance: *Amanda, Amando*

These synonyms indicates a beautiful look of *Eranda* tree.

Leaves: *Pancangula, Gandharvahastaka, Katapatra*

Leaves pattern of *Eranda* is told by above names.

Flowers: *Vyaghra, Vyaghra-puspa, Vyaghra-dala*

The status of flower is indicated by these *paryayas*.

Seeds: *Citra, Citra bija*

Both the names are related with the seeds external feature. Properties:

Vatahara properties of *Eranda* is indicated by above names. *Sulasatru, Vardhamana*. These synonyms indicates analgesic activity of *Eranda*. While *Vyadambaka* reveals its *mala-bhedaka* property.

Taxonomic position:

Kingdom : Plant

Division : Spermetophyta

Sub-division : Angiospermae

Class : Dicotyledonae

Sub-Class : Monochlamydae

Series : Unisexuales

Family : Euphorbiaceae

Genus : Ricinus

Species : Communis

The botanical name of Eranda is *Ricinus communis* Linn.

DISTRIBUTION AND HABITAT

Eranda is considered probably a native of Africa, is found throughout the hotter parts of India, from sea level to about 2500 ft. altitude, cultivated in the fields and gardens and also frequently found run wild near habitations by roadsides and on wasteland. It grows on any type of soil and tolerates a wide range of climatic conditions.

HABIT AND GENERAL FEATURES (MORPHOLOGY)

Ricinus communis Linn is a tall glabrous glaucous branched shrub or almost a small tree, 2-4 metres or more high. Leaves : Alternate, long-petiole, stipulate, peltate, palmately veined, broad, nearly orbicular, seven to ten or more lobed; lobes membranous, oblong to linear, acute or acuminate, gland serrated. The number of lobes correspond to the number of veins. They vary from 4-20 cm. in length and 2.5-7.5 cm. in breadth. The petioles vary from 10-20 cm. in length. Stipules : 1-1.5 cm. Long and 0.5-1 cm. wide & caducous, they leave an annual scar on falling.

Inflorescence: Stout erect sub-panicled racemes that terminate the main axis and branches. Flowers : Fairly large, monoecious, apetalous; the staminate flowers are usually located in the distal or upper half of the inflorescence in a crowded manner and the pistillate at the basal part. The plant is in flowers most part of the year.

Staminate Flower: About 1 cm. or less in diameter perianth calycine membranous splitting into three to five valvate segments at time of anthesis. Another-cells distinct, distant, subglobose and divergent as the rather large connective. Pistillate Flower: Larger, perianth spathaceous, nearly, as long as that of the male flowers caducous. Ovary-superior, three chambered with one ovule in each chamber; styles three, short or long spreading often very large and brightly or highly coloured; stigma-feathery or papillose.

Fruit : A globose or globular-oblong explosively dehiscent three seeded capsule 1.2-2 cm. long, septicidally dehiscent or splitting into three two valved cocci. The fruit when young, is green and usually covered with short or long fleshy prickles. Seeds: Carunculate, oblong, 1-1.5 cm. long, with smooth hard mottled crustaceous testa and oily or fleshy endosperm. Embryo thin, with flat broad cotyledons.

Officinal part: Root. Present study is regarded to the root only, but other parts like leaves, flowers, seed and oil are also used.

TYPES OF ERANDA

Since classics to the present era two type of *Eranda* plants were mentioned & also commonly seen. Viz.

1. *Shweta* (white) and

2. Rakta (red).

These varieties are described according to the colour of the plant. Properties of both the varieties are commonly explained but given different synonyms. According to life of the plant further two types are explained as Annual and perennial.

For the present study 'Shweta' (white) *Eranda* was taken.

RASAPANCHAKA

Ayurvedic pharmacology the drug is based on *Rasapanchaka*. viz. *Rasa*, *Guna*, *Virya*, *Vipaka* & *Prabhava*. In *Brahatrasyi Acharya's* stated that some of the drugs act in accordance with their taste, some with properties, some with potency, some with post digestive effect and some with specific action. (*Cha.Su.26/17; Su.Su.40/17; AS.Su.17/30*) further, *Vagbhata* stated that though *Rasadi* are antagonist to each other, they act on different *doshas* and *dushtyas* without interfering the other properties. (*A.S.Su.17/34*).

Taste of *Eranda* mentioned by most of the authors lead us to a conclusion that the plant is having predominantly *Madhura Rasa*. But *Katu* & *Tikta Rasa* are also mentioned by some of the *Acharyas*. *Kashaya Rasa* is explained only by *Sushruta*.

Guru Guna of *Eranda* is explained by most of the author there while *Tiksna* & *Suksma Guna* was mentioned by *Sushruta*.

Above table clearly shows the *Ushna Virya* of *Eranda*.

Vipaka of *Eranda* discussed as *Madhura*.

Prabhava of *Eranda* was not highlighted by any of the *Samhita*. The drug action of *Eranda* on *dosas* pointout predominant *vatahara* property followed by *kaphahara* and *pittakara* actions. Regarding *Vrushya karma* there are two opinions noticed. One follows *charakas Eranda Mulam Vrusva* (*Charak. A.H.,D.N.,K.N.,Sa,N.*) while other follows *sushruta as..... Eranda Tailam Vrusyam*. (*Sushruta, Sarngdhare, Nighantu Ratnakar.*)

ROGAGHNATA OF THE PLANT ERANDA

Starting form *Charaka* all the authors of lexicon mentioned the general and specific therapeutic actions of the *Eranda*. They are tabulated below –

Table : *Rogaghnata* of *Eranda*.

<i>Roga</i>	<i>C.S.</i>	<i>S.S.</i>	<i>A.S.</i>	<i>B.N.</i>	<i>R.N.</i>	<i>So.N.</i>	<i>D.N</i>
<i>Amavata</i>	-	-	-	+	-	+	-
<i>Anaha</i>	-	-	-	+	-	+	-
<i>Antravrdhi</i>	-	-	-	-	-	-	+
<i>Arocaka</i>	-	-	-	-	+	-	-

<i>Arsa</i>	+	-	-	+	-	+	-
<i>Grdhrasi</i>	-	-	-	+	-	-	-
<i>Gulma</i>	+	-	-	+	-	+	+
<i>Jvara</i>	+	-	-	+	+	-	-
<i>Krimi</i>	-	-	-	+	-	+	-
<i>Kustha</i>	-	-	-	+	-	-	-
<i>Mutrakriccha</i>	-	-	-	+	-	-	-
<i>Pandu</i>	-	-	-	-	+	-	-
<i>Pliharoga</i>	-	-	-	+	-	-	+
<i>Prameha</i>	-	-	-	-	-	+	-
<i>Pravahika</i>	+	-	-	-	-	-	-
<i>Slipada</i>	-	-	+	-	-	-	-
<i>Sula</i>	-	-	-	+		+	+

SAMANYA KARMA OF THE PLANT *ERANDA*

The plant *Eranda* has several actions when it is administered alone or in combination with other drugs. The different actions mentioned by various authors are tabulated below. It can be clearly observed that the drug *Eranda* has *Bhedana*, *Dipana*, *Vatahara*. *Vrushya* properties.

Table: *Samanya Karmas* of *Eranda*.

<i>Karma</i>	<i>C.S.</i>	<i>S.S.</i>	<i>A.S.</i>	<i>B.N.</i>	<i>R.N.</i>	<i>So.N</i>	<i>D.N.</i>
<i>Bhedana</i>	-	-	-	+	+	-	-
<i>Dipana</i>	-	+	-	-	-	-	-
<i>Grahi</i>	-	-	-	-	-	-	+
<i>Recana</i>	-	-	-	-	-	-	+
<i>Sara</i>	-	-	+	-	-	-	-
<i>Sodhana</i>	-	+	-	-	-	+	-

Vayasthapana	-	+	-	-	-	-	-
Vatahara	+	-	-	-	-	-	-
Vrushya	+	+	+	+	+	+	+

CONCLUSIONS:

Eranda Moola is in use since *Samhita Kala*.

- *Vrushya* property of *Eranda Moola* (*Erandamulo vrsya vataharanam*) was firstly mentioned by *Charaka*. *Vagbhata* and some *Nighantukaras* followed the *Charaka*.
 - Depending upon colour of the plant and seed , drugs have two varieties viz. White and Red.
 - Botanical indentification of *Eranda* is *Ricinus communis* Linn.
 - *The Eranda Moola* has *Madhura pradhana Katu, Tikta Rasa, Madhura Vipaka, Guru, Snigdha Guna and Usna Virya*.
 - *Eranda moola* can be prescribed mainly for *Anaha, Shula, Grudhrasi, Amavata, Sotha, Vatavyadhi* shows its *Vatahara, Dipana, Bhedana ,Vedana sthapana, Sodhana* properties.
 - *Raja Nighantukara* had mentioned *Rasayana* property of the drug *Eranda*.
- In conclusion, it can be inferred that *Erandamoola* possesses a mild anabolic effect .The effect may probably due to enhancement of appetite either through direct effect or indirectly through the release of testosterone. This drugs failed to enhance duration of male sexual activity though weak to moderate shortening of latency of onsets was observed. This indicates lack of aphrodisiac activity. It may be described to enhanced secretion of activity of the sperm motility promoting factors in epididymal secretions. Mild to moderate liver toxicity is the only significant adverse effect observed with the test preparations. Hence they should be administered with caution in persons with impaired liver functions.

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