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Review Article

A COMPREHENSIVE REVIEW ON ERANDA THAILA (RICINUS COMMUNIS LINN.)

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ABSTRACT

Ayurveda is the oldest of all remedial sciences in the world. Eranda (Ricinus Communis Linn.) commonly known as Castor plant is widespread throughout Tropical region. It is one of the important *Ayurvedic* herb used for centuries and oil has wide range of therapeutic properties. Castor oil has a multitude of uses in both the health and industrial sectors. Eranda thaila is one of the main drugs used for Virechana karma (purgative therapy) and Snehana karma (Oleation therapy) under Panchakarama therapy. It pacifies Vata, the aggravation of which is the root cause of all diseases. Among Chatusnehas (four types of unctuous materials), Thaila (oil) is the best for the management of *Vatavvadh*i (diseases of *Vata*) as it possess opposite Gunas (properties) of Vata. In Vatika vikaras (disorders caused by *Vata*) *Sneha virechana* (purgation by oil) is advised, as it clears obstruction in the Srotas (body channels) and relieves Vata vitiation subsequently. Eranda thaila (Castor oil) is one of widely used oil in Avuryedic disease management both internally and externally. In Samhitas it is mentioned to be Vata Kaphahara and Adhobhaga doshahara (disorders of lower parts of the body) and has been praised for its Amvathahara (rheumatoid arthritis) property. It is also administered as adjuvant for various formulations. Eranda thaila (Castor oil) is a wonderful drug which can also rejuvenate the body and can be administered in many ways. Even though it has various medicinal properties, inappropriate usage causes adverse effects such as dizziness, abdominal cramps, diarrhoea; etc. Castor oil mainly consists of Ricinoleic acid.

INTRODUCTION

Thailas are used in Ayurveda for enema therapy, drinking in oleation therapy, nasal medication, filling the ears and along with foods and drinks for the purpose of mitigating aggravation of Vata. Eranda thaila obtained from the seed of castor plant is widely used traditionally and herb ally as a medicine. Based on origin Eranda thaila comes under Sthavara sneha (vegetable origin) which can be used both Abhyantara and Bahya. It is one of the widely used medicines in Snehana and Virechana therapy Panchakarma. It can of also administered as vehicle for various Ayurvedic formulations. Eranda thaila is widely used in traditional medicine for chronic backache, sciatica, constipation, abdominal disorders, muscle aches, arthritis, bilharziasis, chronic headache, expulsion

of placenta, gallbladder pain, menstrual cramps, rheumatism and insomnia.^[1] It is used in the management for scrotocele, lumbago, coxalgia, intermittent fever, colonitis, coxitis, ^[2] occupational eczema and skin disorders. ^[3]

Description

Castor plants, belonging to Euphorbiaceous family has great industrial importance besides used in medicine. *Ricinus communis* is said to be very variable species.^[4] Castor plants are soft wooded, bushy and perennial. Leaves are palmately lobed, with seven or more serrate lobes. Flowers are monoecious in terminal paniculate racemes. Fruits when young is green and covered with fleshy prickles and are globose, explosively dehiscent, 3 seeded capsules. Seeds oblong with smooth, hard

mottled crustaceous testa, enclosing oily and fleshy endosperm. [5]

Two varieties of castor plants are known: A perennial bushy plant with large fruits and large red seeds which yield about 40% of oil. A much smaller annual shrub with small grey (white) seeds having brown spots and yielding 37% of oil. [6]

Parts used

Moola, Twak, Patra, Beeja, Thaila. [7]

Seeds are best collected from May to August. [8]

Dosage of Thaila

20 g to 40 g. [9]

10-15ml oil from seeds along with warm water in empty stomach in the morning for purgation. [10] For acute constipation or as a laxative against worms, at least 5 (x2g) or 10 (x1g) capsules must be taken. [11]

In Ayurvedic literatures

Two varieties of *Eranda* are described in *Samhitas. Sweta eranda* and *Rakta eranda*.

Synonyms

Sweta eranda

Synonyms: Gandharvahasthaka, Panchangula, Amanda, Citra, Vardhamana, Dirghadanda, Vyadambaka, Vatari, Taruna and Rubuka.

Rakta rubuka (red variety)

Synonyms: *Urubuka, Rubu, Cancu* and *Uttanapatraka*^[12] *Vyaghrapuccha vatari*.^[13]

Sthulairanda

Synonyms: *Mahairanda*, *Mahapancangula*. It is better in *Rasa*, *Virya* and *Vipaka*.^[14]

Table 1. Types of Eranda mentioned in Samhitas

Types	Reference
1. Sveta eranda	Raj nighantu ^[15]
2. Rakta eranda	
3. Sthulairanda	
1. Sukla eranda	Bhava prakasha ^[16]
2. Rakta eranda	Ashtanga Hridaya ^[17]

Table 2. Pharmacological Classification

Classification	Ayurvedic text
Madhya-panchamulaka	Rajnighantu ^[18]
Vidarigandhadi gana	Susrutha Samhita ^[19]

Vidaryadi gana	Ashtanga Hridaya ^[20]
Anga marda prasamana daseimani, Swedopagaani daseimani	Caraka Samhita ^[21]
Virechana (adhobhagahara) dravya	Susrutha Samhita ^[22]
Guducyadi varga Taila varga	Bhava prakasha ^{[23,} 24]
Salmalyadi varga	Raj nighantu ^[25]
Thaila rasayana	Yoga ratnakara ^[26]

Eranda thaila murchana

Murchana is the process which removes Ama dosa of Thaila/Ghrta and provides good color and fragrance. Murchana process is to be followed before any *Sneha* preparation^[27]. Following drugs are used for Erandathaila murchana: Bikasaa (Maniishta). Musthaka. Dhanva. Triphala, Vaijayantika (Agnimantha), Hrivera, Vanakarjura, Vata sringa, Haridra, Daruharidra, Nalika, Bhesajam (Sunthi), Kethaki, Dadhi and Kanchikam^[28]. Take the ingredients (Kalka dravyas) in the composition (each 12 g), dry, powder and pass through sieve number 85. Transfer the powdered ingredients to wet grinder, grind with sufficient quantity of water to prepare Kalka. Take Eranda thaila (768ml) in a stainless steel vessel and heat it mildly. Add ingredients of Kalka. Add Dadhi (1.536ml) and Kanji (1.536ml) in the specified ratio and stir thoroughly. Continue heating till the mixture becomes moisture free. Filter while hot through a musln cloth and allow it to cool. [29]

As Shodhana dravya

In Rasashatra, Eranda thaila along with Matulangambu is used for Swarna makshika Shodhana. [30]

Properties of *Eranda phala majja*

Its marrow /pulp (Majja) is similar in properties causes purgation (Vidbhedi) cures abdominal enlargement caused by Vata and Kapha (Vata sleshma udarapaha) [31]. As per Dhanwanthari nighantu, seeds have Madhura, Ksharayuktha rasa, Laghu guna, Ushnaveerya, Mala bhedana property and pacifies Vata.[32] Its Majja is Vidbhedi, pacifies Vata and Kapha and cures Udara. [33, 34]

Table 3. Pharmacological properties mentioned in Samhitas

					Madhura	As Vatahara	As Pittahara	As	On Kapha
	Madhura	Tikta	Katu	Kashaya	vipaka			Pittaprakopa	
A. H	$\sqrt{}$		-	-	-	√ (VK hara)	-	-	$\sqrt{(VK hara)}$
B. P	$\sqrt{}$	$\sqrt{(ET)}$	(in seeds	√ (ET)	√ (ET)		-	-	
	$\sqrt{(ET)}$) √ (ET)	Anurasa		(Erandapatra			
						and seeds)			
Ra. Ni	$\sqrt{(ET)}$	$\sqrt{(SE)}$	$\sqrt{(SE)}$	-	-	√ (ET)		$\sqrt{(ET)}$	

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Dha. Ni	$\sqrt{\text{(in seeds)}}$	$\sqrt{}$	-	-	-		√ (Eranda	-	-
	also along						yugalam		
	with Kshara						pittavatah		
	rasa)						ara)		
K. N	$\sqrt{(ET)}$	$\sqrt{(ET)}$	$\sqrt{(ET)}$	√ (ET)	Madhura	$\sqrt{\text{(ET)}(Vk)}$	-	-	(ET) (Kurute
				Anurasa	(ET)	hara)			kevala kapha
Su. Sa		-			$\sqrt{}$	-	-	-	√ (Vata
			(Anurasa)	(Anurasa)					kaphahara)
Sali. Ni	-	-	-	-	-		-		-

Table 4. Pharmacological properties mentioned in Samhitas

			-0 - F - F			
	Saram	Guru	Laghu	Teekhsna	Ushna	
A. H	\checkmark	$\sqrt{}$	- $\sqrt{\text{(more in RE)}}$ $\text{(more in In$		√ (more in RE)	
B. P	√ (ET)	$\sqrt{\sqrt{(ET)}}$			$\sqrt{\text{(more in } Erandaphala)}$	
					√ (ET)	
Ra. Ni	-	-	$\sqrt{(RE)}$	-	$\sqrt{(SE)}$	
Dha. Ni		$\sqrt{}$	√ (seeds)	-	√ (seeds also)	
K. N	$\sqrt{(ET)}$	√ (ET)	-	$\sqrt{\rm (ET)}$ more in RE	$\sqrt{\rm (ET)}$ more in RE	
Su. Sa	-	-	-			

Table 5. Pharmacological properties mentioned in Samhitas

	Table 3. Filai macological properties mentioned in Summitus								
	Pichila	Visram	Sookshma	Sroto-	Vaya-	Twachyam	Yonisukla	Medha kanti bala	
				visodhanam	sthapanam		visodhanam	arogya smriti sukla	
					_			vivardhanam	
A. H	$\sqrt{\text{(more in)}}$	√ (more	-	-	-	-	-	-	
	RE)	in RE)							
B. P	$\sqrt{(ET)}$	$\sqrt{(ET)}$	√ (ET)	-	$\sqrt{(ET)}$	√ (ET)	$\sqrt{(ET)}$	$\sqrt{(ET)}$	
Ra. Ni	-	-	-	-		-	1	•	
Dha. Ni	-	-	-	81		-	-	-	
K. N	$\sqrt{(ET)}$	√ (ET)	√ (ET)	$\sqrt{(ET)}$	√ (ET)	√ (ET)	$\sqrt{(ET)}$	$\sqrt{(ET)}$	
	more in RE				TAM N	13			
Sar. Sa	-	-	√ (ET)	PIFE		-	-	-	
Su. Sa	-	-		V	V			_	

Table 6. Pharmacological properties mentioned in Samhitas.

	Visra	Deepanam	Vidbhedi	Sonithavikarahara	Vrishya	Rasayana	Rasarh (useful in process of mercury)
A. H	-	-	-	The same	-	-	-
B. P	√ (ET)	√ (seeds)√ (ET)	$\sqrt{(Phalamajja)}$ $\sqrt{(ET)}$	-	√(ET)	-	-
Ra. Ni	-	√ (ET)	-	$\sqrt{(RE)}$	-	√ (ET)	$\sqrt{(ET)}$
Dha. Ni	-	-	√ (Phala)			-	-
K. N	√ (ET)	√ (ET)	$\sqrt{\text{(ET)}}$ (Vibandhahara)	-	-	-	-
Sali. Ni	-	-	-	-	-		-
	-	-	-	-	-	-	-

Table 7. Therapeutic Indications of Eranda

	Vridhi	Gulma	Udaram	Jwara	Kate guhya kostha prishta ruk and sopha
A. H			$\sqrt{}$	√ (Visama)	
В. Р	√√ (ET)	√ (seeds also) √ (ET)	√ (seeds esp. in Yakrit pleehodara) Phalamajja in Vata sleshmodara √ (ET)in Vatodaram	√ √ (ET)in Visama jwara	$\sqrt{(Vastisirapida \text{ also})}$ $\sqrt{(ET)}$
Ra. Ni	-	-	-		-
Dha. Ni	√ (Andhravridhi)	√	√ (Pliha hara)	-	√ (Vastisulahara)
K. N	√ (ET)	√ (ET)	√ (ET) (<i>Pliha hara</i>)	√ (ET) (Visama)	√ (ET)

Table 8. Therapeutic Indications of Eranda

	Amavata	Arsas	Udavartam	Sopha/swayathu	Pandu	Arochaka	Ashtila	Hridroga
A. H	-	-	-	-	-	-	-	-
B. P	$\sqrt{\sqrt{(ET)}}$	√ (seeds)	-	√ (ET)	-	-	√ (ET)	√ (ET)
Ra. Ni	-	-	-	$\sqrt{(RE)}$	$\sqrt{(RE)}$	√ (RE)	-	-
Dha. Ni	-	-		-	-	-	-	-
K. N	-	-	-	$\sqrt{(ET)}$	-	-	√ (ET)	√ (ET)

Table 9. Therapeutic Indications of eranda

	Vidradhi	Vatasonitam	Swasa	Anaha	Kasa	Kushta	Krimidosha
A. H	-	-	-	-	-	-	-
B. H	$\sqrt{(ET)}$ In <i>Ama</i> stage	$\sqrt{(ET)}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	-
				√ (ET)			
Ra. Ni	-	-	$\sqrt{(RE)}$	-	$\sqrt{(SE)}$	$\sqrt{(ET)}$	$\sqrt{(ET)}$
Dha. Ni	-	-	-	-	-	-	-
K. N	$\sqrt{\text{(ET)}}$	$\sqrt{(ET)}$	-	$\sqrt{(ET)}$	1	•	-
Sal. Ni	-	-	-	-	-		-

Note

B. P Bhavaprakasha[35, 36] A. H Ashtanga Hrdaya [37] Su. Sa Susrutha Samhita [38] Dha. Ni Dhanwantari Nighantu [39] Sal. Ni Saligrama Nighantu [40] Ra. Ni Raja Nighantu [41] K. N Kayvadeva Nighantu [42] Present in *Eranda* $\sqrt{(ET)}$ Present in *Eranda Thaila* $\sqrt{(SE)}$ Present in Sweta Eranda $\sqrt{(RE)}$ Present in Raktha Eranda

Classification of Indications.

In Neurological and Musculoskeletal Disorders

In Yogaratnakara, in the management of Gridhrasi, extensive use of Vasthi and Pana by medicated Eranda thaila with Vajeegandhadi drugs is recommended. [43] It is also advised to take Eranda thaila with Gomutra for one month for Gridhrasi. [44] In Katisula, of different origin Eranda thaila should be taken along with Dasamoolee kashaya or Nagara ambu. [45] Haritaki together with Eranda thaila should be consumed daily by the patient of Amavatha, Grdhrasi, Vrddhi etc adhering to the proper procedure. To win over the mighty elephant called Amavatha roaming all over the body; only one lion called Eranda thaila is enough (Aamavatha gajendrasya sarira vana charina, Eka eka nihantyashu eranda thaila kesari). [46]

In GastroIntestinal Disorders

While describing management of *Vata gulma*, there is description stating that *Eranda thaila* can be administered orally along with *Varunimanda*, or with milk.^[47] In *Vata udara, Eranda thaila* can be used orally along with *Dasamoola* or *Gomutra* or with *Triphala churna*. ^[48] In *Udara roga samanya vidhi*, there is description suggesting that *Eranda thaila should* be taken along with *Ksheera* or with *mutra*.^[49] *Eranda thaila* is advised as *Pathya* for *Udara roga*.^[50] In *Vatodara*

chikitsa, decoction of Dasamula added with Eranda thaila consumed daily cure abdominal enlargement due to Vata, dropsy and colic.^[51] In Udara roga management, Eranda thaila should be consumed either with milk or cows urine frequently for purification.^[52] In Susrtutha samhita, it is described that hot water taken after licking a compound consisting of Eranda oil saturated with powdered Kushta and Trikatus, acts as a good purgative. Castor oil taken with a decoction of Triphalas double/thrice its own measure, or with milk or extract of meat (Rasa), acts as a good purgative, which should be prescribed for infants, old men, or persons debilitated from the effects of ulcer, cachexia, or of delicate constitution. ^[53]

In Genito Urinary Disorders

Eranda thaila added with Yavakshara and consumed relieves dysuria; in case of pain in the waist in (Eranda thaila) should be consumed either with decoction of Dasamula or of Nagara. [54] In scrotal enlargement due to Vata the patient should be administered oleation therapy first, followed by purgation, drink Eranda thaila mixed with milk for one month. Guggulu and Eranda thaila consumed along with Gomutra; this cures scrotal enlargement of Vata origin quickly, though persisting for a long time. [55] Eranda thaila cooked with decoction of Bala

and consumed suitably cures *Antra vriddhi* (scrotal hernia) associated with flatulence and pain in the abdomen.^[56] Paste of *Abhaya* is fried in *Eranda thaila* and then added with powder of *Krsna and Saindhava* and consumed daily is best to cure *Bradhna roga*. ^[57]

In Vector Borne Disorders

The patient of *Slipada* (Filariasis) who consumes *Haritaki*, fried in *Gandharva hasta thaila* (*Eranda thaila*) along with *Gomutra*, everyday gets cured of *Slipada* within seven days.^[58] It is regarded as *Pathya* for *Vriddhi vardhma roga*.^[59] It is regarded as *Pathya* for *Slipada*. ^[60]

In Saligrama nighantu, it is described as Anala shodhana. [61] Eranda taila and Nimba taila are Rasyanas and prevent diseases. [62] Eranda taila cooked with the juice of Prasarini and consumed mitigates all the Dosas and best to cure diseases arising from Kapha. [63]

Eranda taila as Anupana

Cakradutta indicates it in back ache with *nagara* and *Sunthi*. [64]

Amavatari rasa – Erandathaila as Anupana indicated for Amavatha. [65]

Rasnadi choornam- application mixed with erandathaila indicated for Sirasthoda. [66]

Vijaya choornam- Eranda thaila as Anupana indicated for Kasa, [67]

Madhyama rasnadi kwatha- as Anupana eranda thaila. [68]

Maharasnadi kashayam II- Anupana erandathaila indicated for Sarvangakampa. [69]

Rasnadi pancha dasa kwatha- Eranda thaila as Anupana indicated for Amavatha. [70]

Satavaryadi kashaya- Anupana eranda thaila, indicated for Vata asheethi vinashananam. [71]

Erandadi kashaya- Anupana eranda thaila, indicated for Ashteela. [72]

Table 10: Formulations of Eranda thaila

Sl. No.	Formulations
1	Vataghnalep ^[73]
2	Gudabhallatak [74]
3	Brhat saindhavadi thaila ^[75]
4	Hingutriguna thaila [76]
5	Misraka sneha ^[77]
6	Sukumara ghrita ^[78]
7	Swasarithailam [79]
8	Sarivadi thailam [80]
9	Erandadi kashaya [81]

10	Punernavadighrtm [82]
11	Punarnava guggulu [83]
12	Vatari guggulu ^[84]

Methods of oil extraction

Oil from the perennial types is used for illumination and lubrication while that from the annual types is preferred for medicinal use. [84] Purification of the oil is by treating the oil with animal charcoal in the proportion of four to one by weight. Impurities are absorbed by the charcoal and on filtering, refined oil is obtained. [86]

Chief constituents of Eranda thaila (castor oil)

Castor oil consists of up to 90% ricinoleic. Linoleic, Oleic, Stearic, and Dihydroxystearic acids are also present. $^{[87]}$

Toxic principles in castor beans

The principal toxic substance is the albumin, ricin.

Fatal dose

Fatal dose of seeds -2. 5 - 6. [88]

Ricin

Ricin toxin (RT) is a water-soluble glycoprotein that does not partition into the oil extract on phase separation. [89]

Pharmacokinetics

Eranda thaila is an Irritant/stimulant laxative. [90] In the small intestine ricinoleic acid causes increased water secretion. [91]

Onset of purgation: 2-6 hr [92]

Pharmacological study of castor oil Wound healing activity

The comparison study of two different concentrations (5%w/w and 10%w/w) of castor oil was resulted that the 10 % w/w Castor oil ointment possesses better wound-healing property. The study resulted that the Castor oil reduced the epithelisation time in excision wound model and reduced the scar area showing wound healing activity. [93]

Larvicidal and adult emergence inhibition activity

In the present communication, the R. communis extract caused 100% mortality against An. stephensi and Ae. albopictus mosquitoes at 64 ug/mL, and against Cx. quinquefasciatus at 32 µ g/mL. The seed extract. in the present communication, demonstrated excellent larvicidal and adult emergence inhibition activity against An. stephensi, Cx. quinquefasciatus and Ae. albopictus mosquitoes; has been found to possess no toxicity to fish, O. niloticus, and such activity may be due to the synergistic activity of the mixture of bioactive constituents present in the extract. [94]

Antioxidant activity

Ricinus communis seed at low concentration shows high antioxidant activity that it could be very useful for the treatment of disease resulting from oxidative stress. The responsible chemical constituents are methyl ricinoleate, ricinoleic acid, 12-octadecadienoic acid and methyl ester, which produce antioxidant activity. [95]

Antiulcer activity

The castor oil at a dose of 500 mg/kg and 1000 mg/kg possess significant antiulcer properties, but at the dose 1000 mg/kg was more potent against the ulceration caused by pylorus ligation, aspirin and ethanol in rats. The antiulcer activity is due to the cytoprotective action of the drug or strengthening of gastric mucosa and thus enhancing the mucosal defence. [96]

Clinical studies

Castor oil induces laxation and uterus contraction: Ricinoleic acid is a selective agonist of EP3 and EP4 receptors. Normal intestinal transit time is shown by mice lacking either EP3 (*Ptger3*-/-; EP3-/-) or EP4 (*Ptger4*-/-; EP4-/-). Wild type mice responded with strong diarrhoea when given castor oil, starting about 30 min after application and for about 2 h the laxative effect lasted. [97]

Identification test of castor oil

About 5 ml of light petroleum (50° to 60°) when mixed with 10 ml of castor oil 15. 5° shows a clear solution, but the mixture becomes turbid, if the amount of light petroleum is increased to 15 ml. This test is not shown by other oils. [98]

Adverse effect of castor oil (frequency not defined)

Adverse effect includes dizziness, abdominal cramps, diarrhoea, nausea, electrolyte disturbance, hypotension and pelvic congestion. [99]

Contraindications of castor oil

Hypersensitivity, GI obstruction or perforation, severe impaction, symptoms of appendicitis or acute surgical abdomen, ulcerative colitis, rectal fissures. [100]

DISCUSSION

Eranda is highly useful in the treatment of a variety of common and chronic disorders. Moreover, the plant is very common and can be seen wildly growing in forests. Eranda thaila being a simple harmless purgative can be prescribed after considering the strength of the disease, digestive fire and strength of the body of the patient. Eranda due its Teekshna and Ushna guna possess Agneya property (predominant of qualities of Tejas bhuta).

Ushna and Snigdha guna mitigates Vata. whereas Teekshna, Ruksha, and Ushna guna mitigates Kapha. Due to its Sookshma guna it can enter into minute pores, and Srotovishodhana property enables it to cleanse the channels. It enhances Medha kanti bala arogya smriti sukla (improve cognitive and memory functions and augment general health and heartiness). Eranda thaila possess rasayana property also.

CONCLUSION

Eranda is found throughout India and it has been used since ages as medicine. Ricinus communis or castor plant is a widely traditionally used and potent medicinal plant amongst all the thousands of medicinal plants. More scientifically based studies on its property and various ways of administration has to carry out. A systematic review of Eranda thaila provides information about its usage, dosage, adverse reactions etc. Srotorodha is a main cause for disease generation. It has wide range of indications and is an ingredient in various potent formulations. It is a conventional laxative with less adverse effect and is inexpensive. It pacifies Vata and Kapha dosa, is Sookshma, Srotosodhsana and Rasayana in property. The therapeutic value of Eranda taila is much more and can be given in various conditions.

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