

REVIEW ARTICLE

**UPDATE AND REVIEW ON  
ELAEOCARPUS: ITS BOTANICAL,  
MEDICINAL, PHARMACOLOGICAL  
AND THERAPEUTIC PROFILE**

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**ABSTRACT**

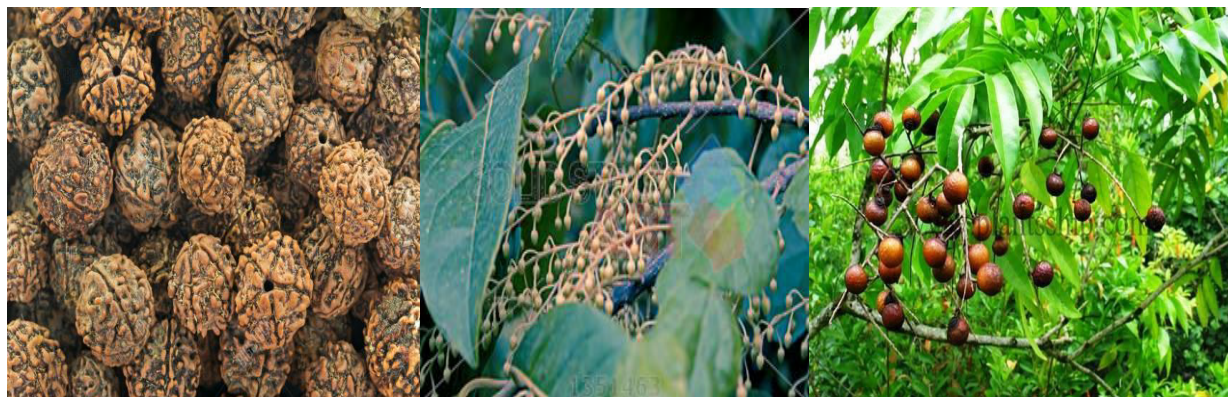
Elaeocarpus is a genus of evergreen broad-leaved trees and shrubs widely distributed in warm regions belonging to family Elaeocarpaceae. In traditional system of medicine, different parts (beads, bark, leaves and outer shell of beads) of rudraksha are taken for the alleviation of various health problems such as mental disorders, headache, fever, skin diseases, and for healing the wounds. Ayurvedic texts categorise rudraksha fruits as thermogenic, sedative, cough alleviator and are useful for the treatment of bronchitis, neuralgia, cephalgia, anorexia, migraine, manic conditions and other brain disorders. Present review has been attempting to make to collect the botanical, ethnomedicinal, pharmacological information and therapeutic utility of Elaeocarpus species on the basis of current science.

## INTRODUCTION

The seed of medicinal plant *Elaeocarpus*, commonly known as Rudraksha, belongs to the *Elaeocarpaceae* family and grows in the Himalayan region of India.<sup>[1]</sup> The word Rudraksha, literally derived from two Sanskrit words – ‘rudra’, a synonym for Lord Shiva and ‘aksha’ meaning eyes.<sup>[2]</sup> It is also called blueberry beads as; beads are covered by an outer shell of blue color on fully ripening.<sup>[3]</sup> According to Hindu mythology, Rudraksha bead bears a great religious, spiritual, and materialistic significance and is used in Indian Folk Remedies & ayurvedic

medicines for a wide range of diseases. The Hindu mythology considers Rudraksha as a symbol of link between earth and heaven. It is believed that it contains the secrets of evolution of entire cosmos within itself.<sup>[4]</sup>

In the present review, an attempt has been made to congregate the botanical, phytochemical, ethno medicinal, pharmacological information on *Elaeocarpus* belongs to family *Elaeocarpaceae*.



**Fig. 1. *Elaeocarpus* seed and plant**

**Botanical classification (plant taxonomy)** <sup>[5,6,7,8]</sup>

**Table.1 Botanical classification of *Elaeocarpus***

<b>Kingdom</b>	Plantae
<b>Sub-Kingdom</b>	Viridiplantae
<b>Infra Kingdom</b>	Streptophyta (Land Plants)
<b>Super Division</b>	Embryophyta

<b>Division</b>	Tracheophyta (Tracheophytes or Vascular Plants)
<b>Sub Division</b>	Spermatophytina (Spermatophytes or Seed Plants)
<b>Class</b>	Magnoliopsida
<b>Super Order</b>	Rosanae
<b>Order</b>	Oxalidales
<b>Family</b>	Elaeocarpaceae
<b>Genus</b>	Elaeocarpus L (Dicera)
<b>Species</b>	Elaeocarpus Ganitrus (Rudraksha)
<b>Common Name</b>	Rudraksha
<b>Type</b>	E. Serratus Linn, E. Ganitrus Roxb, Etc
<b>Habit</b>	Tree

### Elaeocarpus species [7,9]

Elaeocarpus is a genus belonging to family Elaeocarpaceae contains tropical and subtropical evergreen trees and shrubs. Nearly 360 species of Elaeocarpus trees are found in different parts of the world. It is widely distributed from Madagascar in the west through India,

Southeast Asia, Malaysia, Southern China and Japan, through Australia to New Zealand, Fiji, and Hawaii in the east with its approximately 350 species. [6,9,10] Some common species with their occurrence are as follows:

**Table.2 Elaeocarpus plant species and its distribution<sup>[9,11]</sup>**

Sr. No.	Species of Elaeocarpus	Occurrence
1	<i>Elaeocarpus aberrans</i>	New Guinea
2	<i>Elaeocarpus acuminatus</i>	India
3	<i>Elaeocarpus amoenus</i>	Sri Lanka
4	<i>Elaeocarpus angustifolius</i>	Queensl and Australia
5	<i>Elaeocarpus apiculatus</i>	China, Indonesia, Malaysia, Philippines
6	<i>Elaeocarpus blascoi</i>	India. Endangered
7	<i>Elaeocarpus coorangooloo</i>	Queensland (Australia)
8	<i>Elaeocarpus coriaceus</i>	Sri Lanka
9	<i>Elaeocarpus crassus</i>	New Guinea
10	<i>Elaeocarpus dentatus</i>	New Guinea
11	<i>Elaeocarpus eumundii</i>	Australia
12	<i>Elaeocarpus ganitrus rudraksh</i>	India, South-East Asia, Indonesia, New Guinea

	<i>tree</i>	
13	<i>Elaeocarpus gaussenii</i>	Southern India. Endangered
14	<i>Elaeocarpus grandiflorus</i>	India, Indo-China, Malesia
15	<i>Elaeocarpus hartleyi</i>	New Guinea
16	<i>Elaeocarpus hedyosmus</i>	Sri Lanka
17	<i>Elaeocarpus hookerianus</i>	Pokaka. New Zealand
18	<i>Elaeocarpus holopetalus</i>	New South Wales, Victoria (Australia)
19	<i>Elaeocarpus williamsianus</i>	NSW, Australia
20	<i>Elaeocarpus variabilis</i>	Southern India
21	<i>Elaeocarpus timikensis</i>	New guinea
22	<i>Elaeocarpus taprobanicus</i>	Sri lanka
23	<i>Elaeocarpus sylvestris</i>	Japan, Taiwan, China, Indochina
24	<i>Elaeocarpus stipularis</i>	Indochina, malasia
25	<i>Elaeocarpus sikkimensis</i>	India, Bhutan
26	<i>Elaeocarpus serratus</i>	South asia
27	<i>Elaeocarpus robustus</i>	India, Bangladesh
28	<i>Elaeocarpus obovatus</i>	Australia
29	<i>Elaeocarpus neobritannicus</i>	New Guinea
30	<i>Elaeocarpus photiniaefolius</i>	Ogasawara island
31	<i>Elaeocarpus montanus</i>	Sri lanka
32	<i>Elaeocarpus miegei</i>	New Guinea
33	<i>Elaeocarpus lanceifolius</i>	South Asia
34	<i>Elaeocarpus kirtonii</i>	Australia

**Rudraksha health care by 4-fold method** [12,13]

1. For Health maintenance
2. Preventive (Resistance against diseases)
3. Curative and
4. Yoga Sadhana.

- a. By wearing Rudraksha Mala
- b. By doing Japam with Rudraksha mala
- c. By Rudraksha Dhoopam
- d. Rubbing on Rudraksha Plates (Acupressure) having magnets inside.

**Rudraksha Therapy Treatment Methods Darshan:** (By looking like Thrataka in Yoga) **Sparshan:** (By touch and inhalation)

**Sevana:** Rudraksha Churan; rudraksha Hima (Cold infusion), Rudraksha decoction for Gargling; Rudraksha Milk; Rudraksha Bhasma; Rudraksha Vibhuti;

Rudraksha Oil; Rudraksha Lehyam; Rudraksha eye drops and Rudraksha Paste.



**Yoga Sadhana:** Rudraksha Mandap; Rudraksha Kireetam; Rudraksha wearing below waist (in Yantra – Manthra – Thanthra – Kshudra Prayogas)







Rudraksha medicines are most effective as preventive and curative but one must use them for not less than 40 days or a mandalam. As any other Ayurvedic herbs this also works from the root levels of the diseases to eradicate the diseases.







## TYPES OF RUDRAKSHA <sup>[5,6,14]</sup>








There are many types of Rudraksha beads are listed depending on the number of “mukhi’s” – the clefts and furrows – they have on the surface. The scriptures state of 1 to 38 mukhi’s, but Rudraksha of 1 to 14 mukhis are usually bring to light. <sup>[1,15,16]</sup> Five faceted or Punch mukhi Rudraksha bead is most commonly found. The higher mukhi’s or faces are very rare. The traditional scriptures sort out and mark the value and importance to different mukhi seeds according to the number or type of mukha (faces) the seed has. <sup>[17-20]</sup>

**Table 4: Different Type of Rudraksha with their Major benefits & Astrological Uses <sup>[1,15-18]</sup>**



Type of Rudraksha		Major benefits	Astrological uses
One Mukhi (1 Face)		Chronic asthma heart Problems, T.B, mental anxiety, paralysis, eye problem stroke, bone pain and head ache	Enlightens the super consciousness, provides improved concentration and mental structure changes specific to renunciation form Worldly affairs. The wearer enjoys all comforts at his command but still remains unattached
Two Mukhi (2 Face)		Impotency, renal failure, stress, anxiety, lack of concentration, mental chaos, depression, eye problems, negative thinking, hysteria and intestinal disorder	Blesses the wearer with 'UNITY'. It could be related to guru-shishya, parents-children, husband-wife or friends. Maintaining oneness is its Peculiarity

Three Mukhi (3 Face)		Depression, directive of menstrual cycle/ menstrual stress, blood pressure, schizophrenia, weakness multifarious, fixation/guilt induced complexes, mood swings, fever/weakness, jaundice and mental disability.	The wearer gets free from sins or wrongs from his life and returns to Purity. Ideal for those who suffer from inferior complexes, subjective fear, guilt and depression
Four Mukhi (4 Face)		Blood circulation, cough and brain linked illness, asthma, hesitate, memory lapse and respiratory strip problems.	The wearer gains power of creativity when blessed. Increases memory power and intelligence
Five Mukhi (5 Face)		Blood pressure, heart problems, stress, mental disability, fatness, anger management, diabetics, piles, neurotic and mal adjustment problems.	Wearer gains health and peace. It increases memory also
Six Mukhi (6 Face)		Epilepsy and gynecological problems	Saves from the emotional trauma of worldly sorrows and gives learning, wisdom and knowledge. Affects understanding and appreciation of love, sexual pleasure, music and personal relationships
Seven Mukhi (7 Face)		Asthma, impotency, pharyngitis, foot related disease, respiratory and Confusion.	It should be worn by those who are suffering from miseries pertaining to body, finance and mental set-up. By wearing this man can progress in business and service and spends his life happily
Eight Mukhi (8 Face)		Stomach ache, stress, skin diseases and anxiety.	Removes all obstacles and brings success in all undertakings. It gives the wearer all kinds of attainments-Riddhies and Siddhies. His opponents are finished i.e. the minds or intentions of his opponents

			are changed
Nine Mukhi (9 Face)		Work as mysterious medicine for treating strange diseases.	Wearer is blessed with lot of energy, powers, Dynamism and fearlessness, which are useful to live a life of success
Ten Mukhi (10 Face)		mental insecurity and whooping cough, Hormonal inequality in the body,	This contains the influence of ten incarnations and the ten directions. It works like a shield on one's body and drives evils away
Eleven Mukhi (11 Face)		Body pain, backache, chronic alcoholism and liver diseases.	Blesses wearer with wisdom, right judgment, powerful vocabulary, adventurous life, fearlessness and success. Above all, it also protects from accidental death. It also helps in Meditation and removes the problems of yogic practices
Twelve Mukhi (12 Face)		Bone diseases, rickets, osteoporosi, mental disability and anxiety.	Wearer gets the quality of the sun - to rule and to move continuously with brilliant radiance and strength. Good for ministers, politicians, administrators, businessmen and executives. Removes worry, suspicion and fear. Increases self image and motivation
Thirteen Mukhi (13 Face)		Muscular dystrophies	Showers all possible comforts of life one can ever desire. It gives riches and honor and fulfills all the earthly desires and gives eight accomplishments (Siddhies), and the god cupid (Kamadeva) pleases with the man who wears it. It is helpful for meditation and spiritual and materialistic attainments
Fourteen Mukhi (14 Face)		Brain related and many other types of disease.	Most precious divine gem - Deva Mani. It awakens the sixth sense organ by which the wearer foresees the future happenings. Its wearer never fails in his decisions. Its wearer gets rid of all the calamities, miseries, worries. It protects from ghosts, evil spirits and black magic. It provides the wearer safety, security and riches and self power

Fifteen Mukhi (15 face)		Skin diseases, still birth and recurring miscarriage. It is measured as a blessing for women who are incapable to imagine and in such case both the partner should wear it for fruitfulness	This represents Lord Pashupati and is especially beneficial for economic progress. Its possessor is neither bereft of wealth nor inflicted by any kinds of skin diseases
Sixteen Mukhi (16 face)		Leprosy, lung diseases & tuberculosis.	It represents victory and the possessor is never affected by heat or cold. It is especially useful for the saints living in jungles. The house in which it is kept is free from fire, theft or robbery
Seventeen Mukhi (17 Face)		Memory lapse and body functional disorders	Regarded the best for peace and comfort in the family. If a man worships Gauri Shankar at his worshipping place, the pain and suffering and other earthly obstacles are destroyed and the peace and pleasure of family are increased
Eighteen Mukhi (18 Face)		Mental harmonization and loss of power	It represents the mother earth. The Possessor remains happy and healthy. It is especially beneficial for the pregnant women in protecting their child
Nineteen Mukhi (19 face)		Blood disorder and spinal disorder	It represents Lord Narayana. The possessor is bestowed with all worldly pleasures. There is no scarcity in their life
Twenty Mukhi (20 face)		It has energies of the nine planets, Eight Dikpals (Indra, Varun, Yama, Kuber, Agni, Vayu, Nirti and Ishan) and Tridevas (Brahma, Vishnu, Mahesh).	It is used as medical cure for eyesight problem and snake bites.
Twenty one Mukhi (21 face)		Helps in the spiritual growth of the wearer and opens the third eye chakra and gives him sixth sense and clairvoyance abilities.	Those who wear this rudraksha gets benefits of all 1-21 mukhi rudraksha. Only twenty one Mukhi Rudraksha has deep-rooted medical healing and it eliminates every form of diseases.



Gauri Shanker		Sexual and behavioral disorders.	Regarded the best for peace and comfort in the family. If a man worships Gauri Shankar at his place, the pain and suffering and other earthly obstacles are destroyed and the peace and pleasure of family are increased
Ganesh Rudraksha		Gynecological disorders	For women wanting to have children. Her motherhood gains perfection
Trijuti / tribhagi		Internal and external body disorders	Wearer becomes invisible
Ekamukhi Gol-Dhana Rudraksh	-	-	If a lucky person receives it, he must have been blessed by Lord Shiva for many previous lifetimes.
Eka-vimshati Rudraksha	-	-	Even more rare. The wearer is blessed with immense prosperity and fulfillment of pleasures and materialistic desires.
Nirakar Rudraksha	-	-	The wearer feels complete and whole and the wearers' charisma increases day by day making people more receptive and acceptive to the wearer naturally.
Ekamukhi Rudraksh	-	-	Removes any worries from the mind on wealth and relationships.
Rudraksha with Shivalingam	-	-	Beneficial for professions where confidence, charisma, stability and long term business or people to people relationship is required.
Rudraksha with OM	-	Epilepsy and gynecological problems	Gives the wearer immense protection from any kind of tantra and malefics.
Sapta-vimshati Rudraksha	-	-	-

Pancha-Parameshvar Rudraksha	-	-	-
Gauri Shankar Savar Rudraksha	-	-	Lord Shiva wears a cobra around his neck, therefore this snakes are venerated.

**Phytoconstituents of elaeocarpus species**  
[6, 9, 21]

Various Phytochemical investigations shows that the common Phytochemical present in Elaeocarpus sps are Elaeocarpine,

**A. Alkaloids<sup>[6]</sup>**

**Table 3. Major alkaloids content of Elaeocarpus species**

1.	Elaeocarpine
2.	Isoelaecarpine
3.	Elaeocarpidine
4.	Epiiisoelaecarpiline
5.	Epiialloelaecarpiline
6.	Alloelaecarpiline
7.	Pseudoepiisoelaecarpiline
8.	Rudrakine
9.	Elaeokanine A, B, C, D, E
10.	Elaeokanidine A
11.	Grandisines C, D, E, F & G
12.	Isoelaecarpiline
13.	Elaeocarpidine
14.	15, 16 dihydroelaecarpine
15.	Elaeocarpenine
16.	Isoelaecarpicine

It also contains minerals, vitamins, steroids, flavanoids. Aqueous extract of leaves.

**PHYSICO-CHEMICAL PROPERTIES OF LEAVES<sup>[13]</sup>**

Loss on drying: 8.55 ± 0.45 % w/w

Water soluble extractive: 12 ± 1.05 % w/w

Isoelaecarpine, Epiiisoelaecarpiline, Myricitrin, Mearnsetin 3-O-β-D-glucopyranoside cucurbitacins and Ellagic acid derivatives.

**B. Flavonoids<sup>[9]</sup>**

**Table 4. Major flavonoids content of Elaeocarpus species**

1.	Myricitrin
2.	Mearnsetin 3-O-β-Dglucopyranoside
3.	Mearnsitrin
4.	Tamarixetin 3-O-α-Lrhamnopyranoside
5.	4'-Methylmyricetin
6.	Myricetin and its 3-O-rhamnoside
7.	Quercetin

contains glycosides also. Ethanolic extract of leaves contains gallic acid, ellagic acid and quercetin.<sup>[14]</sup>

Alcohol soluble extractive: 16 ± 0.90 % w/w

Foreign matter: 0.04 % w/w

Total Ash: 2.7 ± 0.98 % w/w

Water soluble ash: 1.6 % w/w

Acid insoluble ash:  $1.9 \pm 0.56$  % w/w

Sulphate ash:  $0.7 \pm 0.04$  % w/w

## PROPERTIES OF RUDRAKSHA

### A. Ayurvedic Properties <sup>[5,6]</sup>

**Table 5. Ayurvedic properties of Elaeocarpus species**

1.	Sexual power improvement
2.	Nullifying poisonous effects caused by bites of insects
3.	For curing Piles
4.	Burn Pox or Marks alleviator
5.	Rectifier of chicken pox or small pox
6.	For getting good sleep
7.	Curing breathing problems or cough
8.	Sure shot remedy for conceiving baby
9.	Alleviator of heaviness, tongue cracks and
10.	Tastelessness
11.	For Hysteria and Coma
12.	To Ward off evil spirits and omens
13.	For all brain diseases
14.	As a blood purifier
15.	As antibacterial
16.	For curing liver related problems, jaundice, and Stomachache
17.	For controlling epilepsy
18.	For improving memory power
19.	For blood pressure
20.	As Cosmetic product

### B. Electric Properties <sup>[5, 16]</sup>

**Table 6. Electric properties of Elaeocarpus species**

1.	Confrontation
2.	Capacitance
3.	Inductance

### C. Pharmacological Properties <sup>[5-8, 11]</sup>

**Table 7. Pharmacological properties of Elaeocarpus species**

1.	Antiasthmatic activity
2.	Antidepressant activity
3.	Antianxiety activity
4.	Antidiabetic activity
5.	Anti-inflammatory activity

6.	Antimicrobial activity
7.	Antihypertension activity
8.	Antiulcerogenic activity
9.	Antioxidant activity
10.	Cytotoxic activity
11.	Antifungal activity
12.	Stimulation of Immune Mediators
13.	Central analgesic activity
14.	Antimalarial activity
15.	Anticancer activity
16.	Antibacterial activity
17.	Nephroprotective activity
18.	Mast Cell Stabilizing activity
19.	Hepatoprotective activity
20.	anti-Parkinson activity

#### D. Biomedical Properties<sup>[22]</sup>

The beneficial powers of Rudraksha are by virtue of its Electrical and Magnetic Properties.

**Table 8. Biomedical properties of Elaeocarpus species**

1.	Electrical Properties	Resistance
		Capacitance or the Dielectric Properties
		Inductance
2.	Magnetic Properties	Dynamic Polarity :

#### METHODS FOR IDENTIFICATION

It is very simple to identify a real Elaeocarpus. It is made falsely and the artificial Elaeocarpus are also being sold in market. There are many methods of testing a actual (or fake) Elaeocarpus:

##### Properties Test

This test gives information that whether the beads show properties like inductance, capacitance, conduction of electric current etc.

##### Cut Test

It is most reliable methods and for this cut the Elaeocarpus sphaericus bead horizontally. When it will be cut one can find the same number of section as the number of lines. If it is not then drawback of this method is that bead gets damaged.

##### Eye test

Sometimes the fake or the artificial Elaeocarpus sphaericus may seem same as real one but these fake Elaeocarpus sphaericus facets cannot be made as real as those present on the real Elaeocarpus sphaericus. This is a natural partition on Elaeocarpus sphaericus which just like the closed lips with deep natural. See these deep linings (facets) with the help of a magnifying glass (Lenses) and thus can be easily distinguish a real Elaeocarpus sphaericus.

##### Copper Coin Test

Generally it is believed that when an Elaeocarpus sphaericus bead is placed between two copper coins it will slightly rotate either clockwise or the anticlockwise direction. This phenomenon occurs due to physical and magnetic properties of the Elaeocarpus sphaericus beads.

##### X-Ray

One way is to follow the X-ray technique one can see the internal structure without damaging the beads. This digital X-ray test is done without complication for *Elaeocarpus sphaericus* up to nine Mukhi but higher Mukhi beads may not give 100% accurate results due to overlapping of the internal seeds.

### **Water test**

Some of the rare *Elaeocarpus sphaericus* beads like Gauri Shankar *Elaeocarpus sphaericus* or a trijuti can be made by synthetically joining two or three *Elaeocarpus sphaericus* with help of paste etc. if here is any of hesitation this *Elaeocarpus sphaericus* bead, kept in boiling water for some minutes. A sharp streak will take place at the joint in case of synthetic *Elaeocarpus Sphaericus*.

### **CT scanning**

CT scanning is another method for identification of *Elaeocarpus sphaericus* but it is more expensive than X- ray. It gives much clear results for any *Elaeocarpus sphaericus* than X-ray<sup>[5, 7, 23-26]</sup>

### **CONCLUSION**

After studying all properties and specification it is concluded that different

species of *Elaeocarpus* are very important in the field of medical science due to the presence of their phytochemicals with their high medicinal values. Mainly these chemicals are alkaloids & flavonoids. *Elaeocarpus ganitrus* has been used lucratively in ayurvedic medicine for centuries many investigations are called for to be attempted towards more clinical trials to support its therapeutic use. Various *Elaeocarpus* species have also been widely studied for their various pharmacological activities like antiasthmatic, antidepressant, antianxiety, antidiabetic, antioxidative, antiviral, antitumor and antihypertensive activities. It is also important to recognize that *Elaeocarpus* species may be effective not only in isolation, but may actually have a potentiating effect when given in combination with other herbs or drugs.

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