

Rudraksha (*Elaeocarpus ganitrus* Roxb.) insight of its morphological and ethno-pharmacological aspect

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Abstract- In recent time, the utility of Herbal products has been increased tremendously in the India and other countries of the world. *Elaeocarpus ganitrus* is large evergreen, medium size tree found in Nepal, Bihar, Madhya Pradesh, Maharashtra and Assam. According to Ayurveda, wearing Rudraksha rosary has a positive effect on the heart and nerves and it is used in the hypertension mental disorder, diabetes, gynecological problems and neurological disorder. Furthermore it is retrieve to exhibits diverse pharmacological activities like anti-inflammatory, anti-ulcerogenic, hypoglycemic, analgesic and anti-microbial activity. Rudraksha contain significant amount of phyto-constituents such as palmitic acid, isopalmitic acid, linoleic acid, myristic acid, rudrakine, gallic acid, quercetin, elaeocarpidine and ellagic acid etc. The present review emphasis on vernacular name, classification, morphological and phytochemical information along with pharmacological activities of *Elaeocarpus ganitrus*.

Keywords: Mental disorders, Mukhi, Quercetin, Raktabharsamak, Rudraksha.

INTRODUCTION

Elaeocarpus ganitrus is known as Rudraksha in Ayurveda and belongs to the Eleocapaceae family. There are various other species of the genus *Elaeocarpus* (about 25 species found in India) which are referred as Rudraksha as their drupes or stones are reportedly used as Rudraksha; Some of them are *Elaeocarpus ferrugineus* (Jack Stud.), *E. lancafolius* Roxb., *E. oblongus* Most *E. robustus* Roxb., *E. serratus* Linn. and *E. tuberculatus* Roxb. It is grown in Assam, Nepal, Bihar, Madhya Pradesh and Maharashtra region of India for its noticeable fruit stones and medicinal properties.

^[1] It has a prominent place in Hinduism and in Indian traditional health system. The beads of Rudraksha beads are acquired from the ripe fruit of *Elaeocarpus ganitrus* ^[2]. People of Hindu religion of India wear Rudraksha as a neck rosary and it is also used to count the repetitions of puja ^[3]. Total 21 types of Rudraksha beads are available, which are classified on the number of natural grooves (thin vertical lines) or Mukhi present on the surface of the Rudraksha ^[5]. Its bark, stem and leaves in combination are used as mouthwash and fruits as antiseptic ^[6]. Rudraksha beads are believed to have magnetic and dielectric properties that can bring positive changes in the bio-electrical system of the human body ^[7]. Externally, make a pest of Rudraksha by rubbing it with water and applied on smallpox lesions. Similarly, it is also applied in conditions like burns, boils, measles etc. The bark of rudraksha is especially used in the treatments of malarial Infection ^[8].

Vernacular Names ^[9, 10]

Sanskrit: - Rudraksa, Sivaksa, Sarvaksa, Bhutanasana, Sivapriya, Haraksa, Nilakanthaksa.

Hindi: - Rudraksha, Panch-mukhi.

English: - Ultrasum Bead Tree.

Assam: - Rudrai, Sohalangskai.

Bengali: - Rudrakya.

Gujrati: - Rudraksh, Rudrakhsa.

Kannada: - Rudrakshi mara.

Malayalam: - Rudraksha.

Marathi: - Rudraksha.

Punjabi: - Rudraksha.

Tamil: - Rudraksha.

Telugu: - Rudrasha.

Taxonomical classification ^[11]

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliophyta
Order	Oxilidales
Family	Elaeocarpaceae
Genus	Elaeocarpus
Species	Ganitrus/Sphaericus

Rudraksha and Hindu Mythology

All the legends related to the origin of Rudraksha describe it as the tears of Lord Shiva. According to a story, Once Lord Shiva went into a deep state of meditation for mankind, when he came out of this state and opened his eyes, the deep happiness and peace he felt came out in the form of tears. The Rudraksha tree was born from the tears that flowed from his cheeks and fell on the earth.

The word Rudraksha is made up of two Sanskrit words. – ‘rudra’, a synonym for Lord Shiva and ‘aksha’ meaning eyes. ^[12]

Classical Categorization

Nighantu	Varga
Raj nighantu	Amraadi phala varga

Morphological Characteristics ^[13-18]

Habit- It is a large evergreen, moderate size tree having a large leaf.

Leaves- are simple, greasy or glabrous in touch, size oblong-lanceolate, margin sub-entire or irregularly crenate and apex are acute or acuminate.

Flowers- are white or yellow in colour, occur in the form of dense racemes and mostly from axils of fallen leaves, fringed petals and the anthers are linear. They are appearing in April-May month

Fruits- Fruit drupe, deep or bluish-purple, globes or ovoid (0.5-1.0 in. dia.), enclosing a hard, longitudinally grooved, tubercle, normally 5-celled stone, seeds.

Endocarp- Hard, globular, strongly tubercle, marked with longitudinal tubercle and are reddish brown in color.

Flowering and Fruiting - Flowers are visible in the month of August-February and after wards fruiting.

Microscopic Characteristics

Seed coat are multilayered, having oval to polygonal stone cells, with thin-walled parenchymatous cells, filled with reddish-brown substance, the middle 2 or 3 layers' endosperm consists of oval to polygonal, thin-walled, parenchymatous cells; calcium oxalate crystals and oil globule; embryo slightly. ^[19]

Types of Rudraksha- Rudraksha can be classified in different types on the basis of presence of number of “faces” (Mukha).

Types of Rudraksha	Major Benefits ^[20]
1 Mukhi	Enlightens the super consciousness, provides improved concentration and mental structure changes.
2 Mukhi	Gives a feeling of 'positivity' to the wearer. It may relate to Guru- Shishya, parent-child or friends.
3 Mukhi	The wearer is freed from sins or mistakes in his life and returns to purity. Ideal for those who suffer from guilt and depression.
4 Mukhi	The wearer gains power of creativity when blessed increase memory power and intelligence.
5 Mukhi	Wearer gains health and peace, increase memory also.

6 Mukhi	Protects from emotional trauma of worldly sorrows and provide knowledge and wisdom.
7 Mukhi	It should be worn by those who are suffering from financial and mental conditions.
8 Mukhi	Removes all obstacles and bring success in all undertakings.
9 Mukhi	The Wearer is get lot of energy, powers, dynamisms and fearlessness which are essential for successful life.
10 Mulhi	It acts like a shield on the body and drives away evils.
11 Mukhi	It blesses the wearer with knowledge, right decisions, fearlessness and success.
12 Mukhi	The wearer gets the quality of ruling like the Sun and moving continuously with brightness, shine and strength.
13 Mukhi	It gives respect and fulfills all the possible desire. It is also helpful in meditation.
14 Mukhi	It wakes the sixth sense which gives the wearer an idea of future happiness.

Ayurvedic Property ^[21]

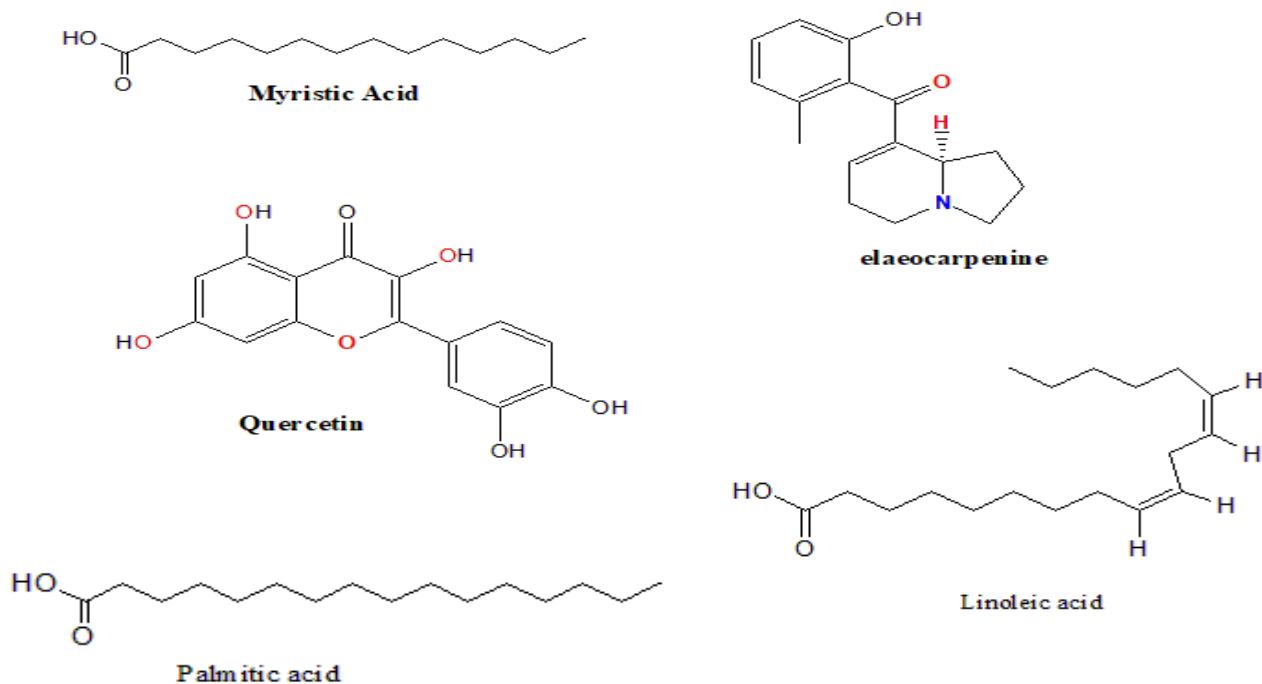
Guna	Guru, Snigdha
Rasa	Madhur
Vipaka	Madhur
Virya	Shita

Ayurvedic action

Raktabharasamaka (Anti-hypertensive)
Mastiskaasmaka-aksephara (Sedative and Anti-convulsant)
Vednasthapana (Analgesic)
Jvaraghna (Anti-pyretic)
Sirah sulahara (remove headache)
Vataghna (Pacify Vata dosh)
Kaphanasana (Pacify Kapha Dosh)

Chemical constituent ^[22]

- Active constituents of the Rudraksha namely elaeocarpidine, elaeocarpine, rudrakine, flavonoids quercetin.
- In the Extract Rudraksha Phytosterols, Fat, Alkaloids, Flavonoids, Carbohydrates, Proteins, Tannin, Gallic acid and Ellagic acid are present.
- In fruits contains Palmitic acid, isopalmitic acid, linoleic acid and myristic acid.
- And it is also containing 50.03 % carbon, 0.95 % nitrogen, 17.89 % hydrogen, and 30.53 % oxygen.



Identification method of original Rudraksha ^[23, 24]

There are 3 methods reported for identifying the original Rudraksha.

These are following –

- **Cut Test:** - When we cut the Rudraksha rosary, segments equal to the number of lines are shown horizontally. The disadvantage of this method is that the beads get destroyed.
- **Copper Coin Test:** - In this method, when Rudraksha beads are placed in between two copper coins, it will rotate slightly in either a clockwise or anti-clockwise. This quality is due to the physical and magnetic properties of Rudraksha.
- **Eye Test:** - Sometimes fake or artificial Rudraksha may look similar to the original but the aspects of fake Rudraksha may not be as realistic as those present in genuine *Elaeocarpus sphaericus*. Rudraksha facet is a natural split on Rudraksha which is like closed lips with dark natural, by looking at these dark lining (facets) with the help of a magnifying glass one can easily recognize the real *Elaeocarpus sphaericus*.

Pharmacological activity

1. **Anti-hypertensive activity:** - Rudraksha is the best medicine for Raktabharadhikya (hypertension). Generally, used their Heem kalpana (infusion), but sometimes Kwatha (decoction), Churna (powder) are also used. ^[25]
2. **Antioxidant:** - The research has revealed that different extracts of *Elaeocarpus ganitrus* contain constituents like flavonoids, polyphenols, bi-flavones, tannins and phenolic compounds etc. Total antioxidant property of rudraksha was found to be 24.18 mg ascorbic acid equivalents at 500 µg/ml extract concentration. ^[26]
3. **Antidepressant activity:** - It has been observed that low dose of *E. ganitrus* fruit extract shows anti-depressant activity, whereas high dose of *E. ganitrus* fruit extract showed sedative effect. ^[27, 29]
4. **Bi-electrical Property:** - Rudraksha bead have been possess bioelectrical property. It showed the maximum property of resistance, however unlike woody structure; it is not a complete insulator it also possess partial capacitance and inductance activities. ^[28]
5. **Brain Tonic:** Taking Rudraksha with milk improves memory power and is used in the treatment of brain related diseases like meningitis, epilepsy etc. ^[30]
6. **Anti-inflammatory:** - The benzene, chloroform, acetone and ethanol extracts of *Elaeocarpus sphaericus* fruits extract at a dose of 50-200 or 200 mg/kg, ip, or 200 mg/kg, po of dried *Elaeocarpus sphaericus* fruits, showed anti-inflammatory and analgesic activity. All the extracts defend to guinea-pigs against bronchospasm induced by histamine and acetylcholine aerosols. ^[31]
7. **Antimicrobial activity:** - The acetone extracts of dried fruits of *E. sphaericus* fruit showed antimicrobial activity against gram positive and gram negative bacteria while Benzene extract against *Morganella morganii* and *Salmonella typhimurium* and ethanol extract against the *Shigella flexnerri* and *Plesiomonas shigelloides*, and the leaves of *Elaeocarpus serratus* also possess antibacterial activity against some pathogenic bacteria. ^[32]

8. **Anticancer activity:** - Chloroform extract of bark of *Elaeocarpus mastersil* shown excellence cytotoxic activity against human cancerous cell. In the analysis of Phytochemical declared the presence of ellagic acid and curarbitacin in rudraksha bark which have an effective cytotoxicity against tumor cells. ^[33]
9. **Blood purifier:** - Rudraksha shall found useful in the purification of blood. ^[34]
10. **Anti-asthmatic activity:** - Various extracts of *E. sphaericus* are reported to have a protective role in bronchial asthma. The fruit extracts *E. sphaericus* have shown mesenteric mast cells stabilizing activities in rat in an experimental study. ^[35]
11. **Anti-diabetics:** - Extract of rudraksh has been reported to have an anti-hyperglycemic activity in a manner of dose dependent in streptozotocin induced hyperglycemic. ^[36]

Conclusion

In a review of various texts of the traditional health system of India, it has been observed that Rudraksha is used in various health issues such as Raktabharadhikya (high blood pressure), Shvasrog (cough), Mastishvikara (mental disorders) and Jwara (fever). Published research works have shown that it has various medicinal activities such as anti-hypertensive, anti-diabetic, anti-microbial, anti-cancer, anti-inflammatory and blood purifier activity. More study or research is required to establish these medicinal or biological activity of Rudraksha.

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