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## Pharmacological Potential of *Elaeocarpus Ganitrus* Roxb. ( Rudraksha)

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**Abstract:** *Elaeocarpus ganitrus* traditionally known as rudraksha, is a devout plant based on therapeutic religious, spiritual importance in traditional system of medicine. we can call it as king of herbal medicine, which belonging to family Elaeocarpaceae. In india it is found in himalayn region and also in gangatic region. rudraksha has made remarkable position in ayurveda and hinduism. rudraksha is used to get ease from various conditions like hypertension, anxiety, epilepsy, migraine, depression, palpitation, nerve pain, asthma, arthritis and liver disease. By mythological manner and according to ayurvedic medicine system wearing rudraksha reflects a positive effects on heart and nerves. ayurveda also graded rudraksha as thermogenic, sedative, cough alleviator and are useful for the treatment of bronchitis, neuralgia, cephalagia, anorexia, migraine, manic conditions and other brain disorders. The present review is an effort to assemble the pharmacological potential of *Elaeocarpus ganitrus*.

**Keywords:** *Elaeocarpus ganitrus*, Mukhi, Rudraksha.

### INTRODUCTION

*Elaeocarpus ganitrus* traditionally known as rudraksha, is a devout plant based on therapeutic religious, spiritual importance in traditional system of medicine. we can call it as king of herbal medicine, which belonging to family Elaeocarpaceae. In india it is found in himalayn region and also in gangatic region. rudraksha has made remarkable position in ayurveda and hinduism. rudraksha is used to get ease from various conditions like hypertension, anxiety, epilepsy, migraine, depression, palpitation, nerve pain, asthma, arthritis and liver disease. By mythological manner and according to ayurvedic medicine system wearing rudraksha reflects a positive effects on heart and nerves. ayurveda also graded rudraksha as thermogenic, sedative, cough alleviator and are useful for the treatment of bronchitis, neuralgia, cephalagia, anorexia, migraine, manic conditions and other brain disorders. The present review is an effort to assemble the pharmacological potential of *Elaeocarpus ganitrus*<sup>1,2</sup>

**Synonyms of Rudraksha** : *Elaeocarpus ganitrus* is very commonly known as Rudraksha. Following are the synonyms of rudraksha in different languages.

Sanskrit	Chattu sampangi, Rudraksha, Bhutnasan
Hindi	Rudraki, Rudraksha
English	Utrasum Bead Tree , Wooden Begger bead
Gujarati	Rudraksh
Bengali	Rudrakya
Kannada	Rudrakshi mara, Rudraksh
Malayalam	Rudraksha, Rudraksam
Marathi	Rudraksha
Punjabi	Rudraksha
Tamil	Rudraksha, Ruttiratcam
Telgu	Rudraksha, Rudraksi
Assam	Rudrai, Ludrok,Udrok
Other	Sivaksha, Sarwaksh, Paawan, Nilkanthaksha, Haraksha,Sivpriye

**Botanical classification :**

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Oxalidales
Family	Elaeocarpaceae
Genus	Elaeocarpus
Species	E. Ganitrus
Binomial name	<i>Elaeocarpus ganitrus</i> (Roxb.)

**Traditional use rudraksha associated with no. of mukhi's.**

**1 Mukhi Rudraksha :**



The ruling god of one mukhi rudraksha is *lord shiva*. which is a useful medicament on the disease like mental anxiety, eye related problems, tuberculosis, and also for the patient who are suffering from paralysis. it also illuminate super conciousness and helps to enhance the power of minds like concentration and confidence. Furthermore person who wants to get rid of bad habits or addition can also use this rudraksha.<sup>8</sup>

**2 Mukhi Rudraksha :**



The ruling god of 2 mukhi rudraksha is *Ardhmarishwara* blesses with UNITY to the person who wears it. it is widely used in treatment of ailment or complaint like chronic asthma, renal failure, impotency, stress, anxiety, depression, eye problems, negative thinking, mental chaos, lack of concentration, hysteria, intestinal disorder. while taking an account with respect to astrological use, these 2 mukhi rudraksha is used for having good,healthy,happy,prosperous family life.<sup>6</sup>

### 3 Mukhi Rudraksha:



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The ruling god of 3 mukhi rudraksha is *Agni*.It is a doubtless medicine for problems like depression, jaundice, schizophrenia, blood pressure, jaundice, mental disability, fever or weakness, menstrual stress.it is a sure shot remedy for conditions like mood-swing. The two mukhi rudraksha is idealfor the person who suffer from inferior complexes, subjective fear, guilt and depression <sup>9</sup>

### 4 Mukhi Rudraksha:



The ruling god of 4 mukhi rudraksha is *Bramha*. This 4 mukhi rudraksha is used for having good blood circulation, also used to get relief from cough respiratory strip problems, brain linked illness, asthma, memory lapse. it is best medication for enhancement of memory power, and intelligence<sup>2,4</sup>

### 5 Mukhi Rudraksha :



The ruling god of 5 mukhi rudraksha is *kalaagni*. Person who suffers from blood pressure, diabetes, piles, stress, displeasure, mental disability, as well as neurotic, heart and maladjustment problems can wear 5 mukhi rudraksha to get relief from above conditions. It is also used to increase memory power. the wearer person gains health and peace by this 5 mukhi rudraksha <sup>2</sup>

### 6 Mukhi Rudraksha :



The ruling god of 6 mukhi rudraksha is *Kartikeya*. The six mukhi rudraksha saves the wearer from emotional trauma of worldly sorrows and gives learning, wisdom and knowledge. It is a good medication for conditions like Epilepsy and gynecological problem. this rudraksha shows a good effect on understanding and appreciation of love, sexual pleasure, music and personal relationships <sup>1</sup>

### 7 Mukhi Rudraksha :



The ruling god of 7 mukhi rudraksha is goddesses *mahalaxmi*. It is especially resultfull in treatment of asthma, impotency, pharyngitis, respiratory confusion, foot related diseases, pains and aches etc.as we mention aboved that the ruling god of this rudraksha is mahalaxmi, therefore the person who is suffering from financial crisis and mental disturbance and also to get progress in business and service, can wear it <sup>12</sup>

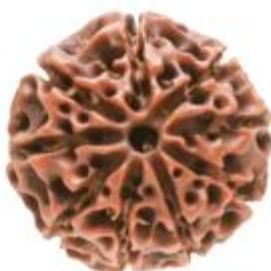
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### 8 Mukhi Rudraksha:



Works as a mystical therapeutic agent for treating medical condition like Stomach ache, stress, skin diseases and anxiety. The ruling god of 8 mukhi rudraksha is *Ganesh*.it helps to get the success all undertakings. It gives the wearer all kinds of attainments <sup>8,14</sup>

### 9 Mukhi Rudraksha :



Provides cures for treating strange diseases . The ruling god of 9 mukhi rudraksha is *Durga*. the person who wear 9 mukhi rudraksha gets lots of energy, power. fearlessness, dynamism which helps him/her to live a life of success <sup>12,13</sup>

#### 10 Mukhi Rudraksha :



The ruling god of 10 mukhi rudraksha *vishnu*.The 10 mukhi rudraksha is used to normalize the discomforting conditions such as Hormonal inequality in the body, mental insecurity and whooping cough.to get secure from evil it is acts as a sheild to one's body <sup>15</sup>

#### 11 Mukhi Rudraksha:



To get releif from body pain, liver disease and to get rid from chronic alcoholism we can use 11 mukhi rudraksha.the ruling god of 11 mukhi rudraksha is *hanuman*. this rudraksha showers the wearer with wisdom, right judgment, powerful vocabulary, adventurous life, fearlessness and success.it also protect the wearer from accidental death. it helps to concentrate in meditation <sup>19</sup>

#### 12 Mukhi Rudraksha :



The ruling god of 12 mukhi rudraksha is *sun*. While taking a look at medicinal use,this 12 mukhi rudraksha is used for Bone diseases, rickets, osteoporosis, mental disability, anxiety etc. The wearer person get the strengh, quality, power of like the sun to rule and move contineously with brilliant radiance and strength, that's why it is useful for the politicians administrators, businessmen and executives to wear this 12 mukhi rudraksha <sup>14</sup>

#### 13 Mukhi Rudraksha :



The ruling god of 13 mukhi rudraksha is *Indra*. Medically it is more valuable for ameliorating discomforts of muscle dystrophies. The wearer person gets all the possible and desired comforts of life. It fulfills all the earthly desires. The 13 mukhi rudraksha gives the wearer person *The Eight siddhies*, and the blessing of *Kamdeva*, the god of cupid <sup>19</sup>

#### 14 Mukhi Rudraksha :



The ruling god of 14 mukhi rudraksha is lord *Hanuman*. This 14 mukhi rudraksha helps or cures the wearer person from brain related and many more types of disease. It arouse the sixth sense organ by which the wearer person anticipate the future happenings. The wearer person never fails in his decisions. This 14 mukhi rudraksha makes a protective shield, i.e. it protects the person from ghosts, evil spirits and black magic<sup>14</sup>

#### 15 Mukhi Rudraksha :



The womens who suffer from recurring miscarriage and still birth, in such cases both the partners can wear this 15 mukhi rudraksha to get great result. also who is suffering from any kind skin disease can also wear it. It is especially beneficial for economic progress.

#### 16 Mukhi Rudraksha :



The 16 mukhi rudraksha is a useful remedy from the pateint who is suffering from conditions like Leprosy, cor-pulmonale, tuberculosis and also from lung diseases. The ruling god for this rudraksha are *Hari and Shankar*. This type of rudraksha is a symbol of victory. It is said that the house in which it is kept is always from fire, theft or robbery. The wearer person will never get affected by heat or cold.

#### 17 Mukhi Rudraksha:



The ruling god of 17 mukhi rudraksha is *viswakarma* i.e builder of world. In conditions like Memory lapse and body functional disorders it is used. It is effective for gaining unexpected money and attaining property, and all the physical tangible assets <sup>6</sup>

#### 18 Mukhi Rudraksha :



The ruling god of 18 mukhi rudraksha is *Bhairav*, and it is used from getting relief from conditons of Mental harmonization and loss or power. This rudraksha represents mother earth, so it is especially beneficial for the pregnant women for protecting their baby <sup>8</sup>

#### 19 Mukhi Rudraksha :



The wearer person get relief from blood and spinal disorder. This 19 mukhi rudraksha resembles *lord Narayan*. The wearer person lives a happy, free and life without scarcity.

#### 20 Mukhi Rudraksha:



For problems like snake bite, and problems of eyesight, it is taken as invalidator.

#### 21 Mukhi Rudraksha :



We can call this 21 mukhi rudraksha as master remedy, because it exterminate from all form of disease. The ruling god of 21 mukhi rudraksha is *kuber*. The possesor person gets all types of wealth <sup>8,14</sup>

**Gaurishankar rudraksha :**

The two naturally joined rudraksha is said to be Gaurishankar. It is also called *Ardhanarishwar*. The couple who wishes for child can also wear it. Also it is widely used for the problems like sexual disorder, behavioral disorders. It is used to get comfort and peace in family. <sup>8</sup>

**Trijuti Rudraksha :**

Three naturally joined rudraksha are said to be trijuti rudraksha. When a person wear this trijuti rudraksha, they may experience some kind of weird dreams or things in starting days. The wearer person became invincible/ in destructible. It is used to get rid from all types of external and internal disorders <sup>8,10</sup>

**Savar Rudraksha :**

This savar rudraksha is characterised by two naturally joined rudraksha with one of the bead being one mukhi. It has beneficial for financial and property related problem. Savr rudraksha offers the wearer person good health, elevates pain and librates one from Suffering <sup>8</sup>

**Pharmacological potential****Antimicrobial activity :**

Aqueous extract of *E. Ganitrus* leaves was tested against clinical isolates of bacteria and fungi for antimicrobial activity. For testing antibacterial potential of *Elaeocarpus ganitrus* against 3 gram positive bacteria, which are *B. Cereus*, *S. Aureus*, *M. Luteus* and also for 3 gram negative bacteria i.e *P. Aeruginosa*, *E. coli*, *K. Pneumoniae*, aqueous extract of leaves of *Elaeocarpus ganitrus* is used. The mueller hinton agar and sabourad dextrose agar is used in agar well diffusion to perform the in vitro antimicrobial activity for bacteria and fungal cultures. This agar well diffusion method can be called as minimum inhibitory concentration test, which having values of extract varied from 125-2000 µg/ml, where the minimum value is reported against *B. Cereus a flavus* (125). The relative percentage inhibition of aq. Extract of *E. Ganitrus* is 124.16 which is for *B. Cereus* and 88.26% for *penicillium sp.* For bacteria and fungi respectively. Leaves of *Elaeocarpus ganitrus* is a good candidate for development of antimicrobial compounds<sup>14</sup>

**Analgesic and anti-inflammatory effect:**

The leaves as well as fruits of *E. Ganitrus* are responsible for analgesic activity. For leaves aq. Extract is taken and for fruits, its ethanolic extract is taken for testing analgesic activity. For testing analgesic and anti-inflammatory potential by performing carrageenan induced paw edema in rats and tail flick test in



mice, by taking various extracts like petroleum ether, methanol, chloroform. And aqueous extract of *Elaeocarpus ganitrus* leaves is taken. The water and methanol is pulled out from *Elaeocarpus sphaericus* leaves where the extract at all doses i.e 50,100,200 mg/kg showed notable percentage inhibition of swelling at 3 hrs of treatment, when compared to control group. For both extract, the maximum percentage inhibition of the inflammation is at dose of 200mg/kg having percentage 46.21% and 41.60% respectively. While looking at analgesic activity, the methanol and aq. Extract of *E. Ganitrus* leaves at dose of 100mg/kg gives remarkable growth in tail flick response. For inhibitory effect on carrageenan induced inflammation, the methanolic and aq. Extract of *E. Sphaericus* leaves, the dose given is 200mg/kg. [18] It is happened due to inhibition of *cyclooxygenase* promoting inhibition of *prostaglandin* synthesis. Prostaglandin results in development of second phase of inflammatory reaction, measured at 3 hrs [19]. For study in rat paw oedema taking different inflammation causing agent i.e inflammogens, various extract of *Elaeocarpus sphaericus* leaves such as petroleum ether, benzene, chloroform, acetone and ethanol is taken at dose of 200mg/kg. petroleum ether and ethanol are the positive and effective extract of *E. Ganitrus* leaves against carrageenan, bradykinin and pGE. White chloroform extract gives remarkable activity against histamine and for inhibition of histamine, ethanol extract is also used. The chloroform extract largely shows result in 5HT induced inflammation. All extract without petroleum ether and ethanol results in lowering the swim stress immobility in mice, showing some kind of antidepressant potential. All the extracts save guinea pig from bronchospasm caused by histamine and acetyl choline aerosols. While performing phytochemical tests, all the extracts display presence of glycosides, steroids, alkaloids & flavonoids<sup>22</sup>

#### **Antioxidant:**

an antioxidant potential of ethanolic extract of *Elaeocarpus ganitrus* leaves was studied for their complete antioxidant capacity, metal chelating, reducing power, hydroxyl radical scavenging, (2, 2-azino-bis-(3-ethylbenzothiazoline-6-sulphonate) i.e ABTS, radical hunting activity. 76.10% which is the maximum iron chelating activity was noticed at 500µg/ml extract concentration as well as hunting of ABTS+ radical 55.77% at common concentration. The extract gives only middling hydroxyl radical hunting activity which is 13.43%. the complete antioxidant potential of *Elaeocarpus ganitrus* was found to be 24.18mg, ascorbic acid comparable at 500 µg/ml of the extract concentration. The total phenolic content and antioxidant potential has a positive connection which is  $R^2=0.8547$ , whereas correlation of antioxidant potential with flavonoids was discovered to be  $R^2=0.8413$ . the result determines that phenolic and flavonoids content in leaves of the plant are responsible for fundamental antioxidant activity<sup>30</sup>

#### **Antifungal activity:**

*Elaeocarpus ganitrus* shows impactful results in antifungal field. The extract i.e petroleum ether, chloroform, ethanol and water extract which is pulled out from dried fruit of *Elaeocarpus ganitrus* were inspected for *in vitro* antifungal activity by performing disk diffusion assay and broth dilution test. Chloroform and ethanol shows elevated antifungal activity against *candida albicans*. For taking an account at inhibitory concentration in terms of mg/ml for various fungal strains of *Aspergillus niger*, *candidum geotrichum*, *candida albicans*, *C. glabrata* and *C. tropicalis* turbidimetry method is used. Whereas for moderate inhibition against *Aspergillus niger*, chloroform, ethanol, and water are resultful. Even at high range of concentration by various extract *C. glabrata* and *G. candidum* gives no motion of inhibition. That's why chloroform and ethanol were termed to be potential antifungals<sup>13</sup>

#### **Antidepressant activity:**

The water portion of 90% of extract of ethanol of fruits of *Elaeocarpus ganitrus* gives important central nervous system effects, which may be characterised by typical behavioral action, increasing hexobarbitone hypnosis and morphine analgesia, anticonvulsant and mood altering drugs i.e called as anti-amphetamines. The fruit plant is used in treatment of mental disease, epilepsy, hypertension, asthma and liver related disease. Furthermore the extract gives cardio stimulant depressor, smooth muscle relaxant and hydrochloretic activities<sup>15</sup>

**Antihypertensive :**

Rudraksha is a good candidate for the antihypertension activity. The evaluation is done of aqueous extract of *Elaeocarpus ganitrus* seed powder for hypertensive activity, renal artery acculated hypertensive rat. The aqueous extract of *Elaeocarpus ganitrus* was given to male wistar rat ranging in weight from 80-200g for 6 week. Hypertension was prevailed in rats by protecting the renal artery with renal building clamp for 4h. Ischemia of the kidney counts elevation of blood pressure by activating renin angiotensin system.

When aqueous extract of *Elaeocarpus ganitrus* at different doses which are 20, 50, 100 mg/kg was get treated with rat, a considerable fall was observed in elevated blood pressure of rat. Captopril, angiotensin converitng enzyme at dose of 1mg/kg gives remarkable reduction innelevated blood pressure. The action on renin- angiotensin system may be responsible for antihypertensive potential of aqueous extract of *Elaeocarpus ganitrus*<sup>28,30</sup>

**Antidiabetic activity :**

The antidiabetic effect of *Elaeocarpus ganitrus* was studied in rats, and the study was done at three graded dose level which are 250, 500, 1000 mg/kg respectively. At same time antihyperglycemic activity also assessed at same dose level in streptozotocin effected rats while during the 30 days treatment time. 500mg/kg dose of metformin was given as a preference drug. Acute oral toxicty of the extract was processed out in swiss albino rat. And the process gives the conclusion that *Elaeocarpus ganitrus* seed has antidiabetic activity<sup>21</sup>

**Antianxiety :**

Antianxiety, which is also known as anxiolytic effect was screened in mice. Immoderate, uncontrollable, and unnecessary worry about everday things that is not in proportion to actual source of worry, which is identified as generalized anxiety disorder(GAD). The petroleum ether, chlorofom, water and ethanol extract *centaurea behen* and *Elaeocarpus ganitrus* were made and tested for antianxiety activity in mice using elevated plus maize model. The result is concluded when gets compared with diazepam using open feild test and passive avoidance apparatus. The extract of *centaurea behen* and *Elaeocarpus ganitrus* indicates the presence of phytosterol, fat, alkaloids, flavonoids, carbohydrates, proteins and tannins. Both the plant are good member for antianxiety potential activity<sup>23</sup>

**Anti-asthmatic:**

Asthama is a condition in which airways becomes inflammed, narrows, swells and secretes nexcessive mucus results in difficulty in breathing. While performing study on rat, nmesenteric mast cell, *Elaeocarpus sphaericus* fruits established to have mast cell stabilizing potential proves the efficacy of *Elaeocarpus sphaericus* againts bronchial asthma<sup>26</sup>

**Antiulcerogenic:**

Antiulcerogenic activity of *Elaeocarpus sphaericus* was studied on mice. Petroleum ether, benzene, chloroform, acetone, ethanol extract of dried fruit of *Elaeocarpus sphaericus* are responsible for antiulcerogenic activity<sup>29</sup>

**Stimulation of immune mediators :**

*Elaeocarpus ganitrus* seed along with alkaloidal fraction have been studied on murine cells for discharge immune mediators and cells proliferation alkaloidal fraction (EGAF) was noticed in between range of 6.5-832 µg/ml of concentration. The discharge mediators, nitric oxide, superoxide, lysosomal and mycloperoxide elevated from peritoneal exudates cells.<sup>9</sup>

**Other activities:**

Along with the all of the activities the ethanolic extract makes their presence in sedative, hypnotic, tranquilizing, antiepileptic, anticonvulsive activities<sup>19,26</sup>

**Conclusion:**

*Rudraksha* is very popular and useful plant since time of immorial. *Rudraksha* i.e *Elaeocarpus ganitrus* has known by different names in different regions which are *chattusompangi*, *bhutnason*, *rudraki*, *rudraksya*, *rudraksam* etc. The worldwide investigation of literature shows that *Elaeocarpus ganitrus* *Roxb* is an important basis of number of pharmacologically and medicinally significant chemicals. Various kinds of bioactive extract made up from *Elaeocarpus ganitrus* *Roxb*. Displays various kinds of health strengthening effect such as antioxidant, anti-inflammatory, analgesic, antifungal, antimicrobial, antidiabetic, antihypertensive, antianxiety, anti-asthmatics, antidepressant activities. Since ancient times, *Elaeocarpus ganitrus* has been used productively in ayurvedic system of medicine. *Elaeocarpus ganitrus* contains some kind of electric and magnetic field. In these days very low frequency magnetic field is categorised as therapeutic agent and used in medicines.

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