

## Greater Galanga - An Aromatic Herbal Spice

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Greater galanga, *Alpinia galanga* belongs to the family, Zingiberaceae. It is also known as Bara Kulanjan (Hindi), Kulanjan, Sugandhmula (Sanskrit), Siamese ginger (English), Dhuma rasmi (Kannada), Chittaratha or Kolingi (Malayalam), Koshtkulinjan (Marathi), Kolinjan (Gujarati), Perarathai (Tamil) and Pedda dhumpa (Telugu). It is native to south Asia and Indonesia. It is cultivated in India (Eastern Himalayas and South West India), Bangladesh, China, Surinam, Malaysia, Thailand, Laos and Indonesia. In India, it is found in Gujarat, Maharashtra, Tamil Nadu, Western Ghats, Mysore, Goa and Malabar.

Rhizomes are widely used in Ayurveda, Unani, Siddha, Chinese and Thai folk medicine. Rhizomes are also used in cooking especially in Thai and Indonesian cuisine. Rhizomes are used as a spice to flavor the various dishes in Malaysia, Thailand, Indonesia, China and parts of India. The rhizomes are used in fish recipes in combination with garlic, ginger, chilli and lemon. Consumption of rhizomes improves voice, appetite and blood circulation in the body. In India, rhizome oil of galanga is valued in perfumery.

Greater galanga is a perennial, rhizomatous aromatic herb. Plants grow up to the height of 2 m with long leaves and red fruits. Rhizomes resemble ginger in appearance, cylindrical, branched, ridged with prominent warts, 2-8 cm in diameter, orange - brown peel and pale yellow or white interior. The rhizomes are pungent, fragrant and spicy in taste somewhere between pepper and ginger. The red fruits have cardamom-like flavor which are used in traditional medicine.



**Alpinia galanga**

### Chemical constituents

Rhizomes contain flavonoids and tannins which are used to treat various ailments.

Major constituents : 1, 8-cineole,  $\beta$ -bisabolone,  $\beta$ -selinene, camphor  
(Terpenes)

Minor constituents :  $\alpha$ -selinene, farnesene, germacrene B, , kaempferol, galangin (3, 5, 7-tri hydroxyl flavone), alpinin, quercetin, galangoflavonoside, phthalic acid, pentadecane,  $\alpha$ -fenchyl acetate,  $\beta$  - sitosterol , emodin

The chemical compound responsible for pungency is 1 S - 1-acetoxy chavicol acetate (Galangal acetate) which is having antitumor, antifungal, anti-inflammatory and anti-oxidative activity. Galangin has antibacterial, antiviral, anti-oxidatant and anti-cancer activity. Emodin is a potential agent to reduce the impact of type 2 diabetes.

### Medicinal uses

Rhizomes have antibacterial, antifungal, antiprotozoal, antiamoebic, anti-diabetic, antiulcer, immunostimulant, anti-oxidant, anti-inflammatory, anti-dermatophytic, aphrodisiac, diuretic, carminative and expectorant properties.

Rhizomes are used to treat bronchial catarrh, bad breath, ulcers, whooping colds, throat infections, rheumatoid arthritis, fever, dyspepsia (indigestion), vomiting, head ache, skin diseases, *vata*, colic, enlarged spleen, respiratory diseases, diabetes, diarrhoea, dysentery, mouth and stomach cancer. Research finding revealed that rhizomes have been found to increase the sperm motility and sperm count.

### Cultivation

Greater galangal is cultivated as a spice in many countries. It grows well in fertile sandy or clay soil rich in organic matter with good drainage. It performs well in moderately shady locations. It grows in tropical, sub-tropical and warm temperate regions up to an altitude of 1200 m. It is sensitive to frost, water logging and drought.

It can be planted as pure crop or inter crop in banana. The geographical races such as Koothattukulam, Palghat, Thodupuza, Ponnukkara and Vallanikkara are suitable for cultivation. Thodupuza is reported to give the highest fresh rhizome yield.

Farmyard manure is applied at the rate of 20 tonnes/ha during last ploughing. The plants propagated by rhizomes. Rhizomes can be planted at the depth of 5-10 cm. The optimum spacing is 30-40 x 30 cm. Rhizomes will rot when soil is too wet. During winter,

mulching is essential to protect the rhizomes from low temperature and frost. To increase the rhizome yield, NPK @ 100:50:50 kg/ ha can be applied.

The right stage of harvesting is 3-4 years after planting for obtaining maximum rhizome and oil yield. Shoot portions are cut and the rhizomes and roots are dug out carefully during early winter. After uprooting the rhizomes, they are cleaned. Then, the rhizomes are cut into 5 cm long pieces and dried in the sun for 3-5 days till they reach 10% moisture. Instead of drying, cut rhizomes can also be frozen for extending the shelf life. The rhizome yield is 35-45 tonnes/ha. The oil yield is 50-100 litres/ha with cineole content of 27.1%.



**Harvested rhizome for market**

### **Value added products**

Rhizomes are sold as fresh, frozen, dried or powdered. Rhizome contains oil and oleoresin (4.10-4.91%). The fresh rhizomes yield 0.22% essential oil on steam distillation for 3-5 hours. Pale yellow oil from green rhizomes contains methyl cinnamate (48%), cineole,  $\alpha$ -pinene,  $\beta$ -pinene and camphor. The oil recovery from dried rhizome is 0.93% on dry weight basis.

### **Conclusion**

Greater galanga is an aromatic, rhizomatous, spicy, herbal drug which finds the various applications in the Indian system of medicine. Research needs to be carried out on the effectiveness of different chemical constituents in the treatment of various ailments. Research and awareness programmes have to be done to popularize the commercial cultivation among the farming community. The clinical application through pharmaceutical industries is



essential to revitalize the traditional health practices to overcome new outburst of communicable and non-communicable diseases. Hence, there is a need to explore the maximum potential of greater galanga in the field of pharmaceutical sciences for its novel applications.

