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Cultivation and medicinal properties of *Alpinia galangana* (L.) Willd.

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Ashish Kumar*

*CSIR-Central Institute of Medicinal and Aromatic Plants Research Centre, Boduppal, Hyderabad-500092, India

Alpinia galanga (L.) Willd known as greater galangal is a perennial aromatic rhizomatous herb. A moderate shrub mostly referred as galangale or galanga, is a very popular spice in whole South East Asia and especially typical for the cuisine of Thailand. It is also known and used in Malaysia, Indonesia, Cambodia, Vietnam and Southern China. Chinese five spice powder is sometimes enhanced with galangale. In Western countries, however, galanga is not well known, at least in recent days; it has, however, been a valued spice in the early Middle-ages. Galangale is sometimes confused with other spices of the ginger family. Its taste and appearance are, however, characteristic; it cannot be substituted by any other spice. In India, it is growing in Kerala, rhizomes are used for seasoning fish in pickling. Dried rhizomes are used as a food in Tamilnadu.

Introduction

Plants have been one of the important sources of medicines even since the dawn of human civilization. In spite of tremendous development in the field of allopathy during the 20th century, plants still remain one of the major sources of drug in the modern as well as traditional system of medicine throughout the world. *Alpinia galanga* Willd. commonly known as galangal, is an important cultivated medicinal crop of India. It is well known official drug throughout the country as a holistic gift of nature for medicinal, culinary

and cosmetic use. *Alpinia galanga* commonly found in Indonesia, India, China, and Arabic gulf areas, Malaysia, Egypt and Sri Lanka. It grows in open, sunny places, forests and brushwood. It is commonly cultivated in the mid and low country in Sri Lanka. In India the plant is distributed in the Himalaya and Southern region of Western Ghats (Anirban Chouni *et al.*, 2018).

Taxonomy Details

Alpinia galanga belongs to the Tribe Alpinieae of Alpinioideae subfamily under the Zingiberaceae family of Zingiberales order. *Alpinia galanga* is known by several synonyms such as *Amomum galangal*, *Alpinia viridiflora*, *Maranta galangal*, *Languas galangal*, *Languasvulgare*. It is known by several common names such as Kulanjan in Hindi, Dhumarasmi in Kannada, Kulingjan in Bengali, Kulinjan in Gujrati, Arattha in Malayalam, Pera-rattai in Tamil, Dhoomraasmi in Kannad, Pedda-dhumpa in Telugu, Mahabaracach, SugandhaVacha, Rasna in Sanskrit, Greater galangal in English.

Botanical Description

The plant is a rhizomatous, perennial herb, and attains a height of about 1.5–2.5 m. The rhizome is very prominent and aromatic. Externally, it is reddish brown-white and internally reddish-white. Leaves are leathery, about 30–60 cm long and 10–15 cm, glossy on both surfaces, lanceolate and smooth, with white margins. Flowers are greenish-white, about 3 cm long, and occur

in dense panicles. Corolla has distinctly clawed lips. Flowering occurs in May and June, while fruiting occurs in August and September. Fruits are orange-red in colour.

Medicinal Properties of *Alpinia galangana*

The plant bears underground stems called rhizomes which have a strong aromatic smell with conspicuously nodes and internodes. The seed of *A. galanga* is used in emaciation and cleaning of the mouth, it stimulates the digestive power and appetite. It is also used as a purgative. Usually the rhizome is used as a spice and a source of essential oil. Young shoots and flowers are used as vegetable or as spice. The plant is broadly used in dietary intake as well as in the traditional system of medicine viz. Ayurveda, Unani, Chinese and Thai folk medicine. Along with an aromatic ginger like odour, it has a pungent hot and spicy taste. As the rhizome has a characteristic fragrance as well as pungency, it is widely used as a condiment for foods and local medicine in China and Thailand. It has been found to possess various therapeutic activities, viz. immunostimulant, anticancer, antioxidant, antiamoebic, anti-inflammatory, analgesic, antiallergic, antifungal, antidiabetic, antibacterial, antiulcer, antidermatophytic and many more. It can be used as an alcohol enhancer or an alcohol replacer in alcohol and alcohol-free beverages. The stability of galangal acetate was studied under various conditions (Gupta RK., 2010).

Agrotechnology for *Alpinia galangana*

Alpinia galangana is Galangal is best suited for planting in shaded open areas in warmer climates as it's a tropical plant and is extremely sensitive to frost and drought conditions. This plant will rot easily when left exposed to cold, wet conditions. With

adequate irrigation provisions, it can be grown up to an altitude of 1000 m. The soil should be rich in organic matter such as sandy loam. This type of soil provides the thick roots with space to grow while allowing water to properly drain. The land should be prepared with farmyard manure with a combination of green manure as a basal dose just before planting. Well decomposed humus or vermicompost may also be used as manure instead of farmyard manure. It is commonly propagated by rhizome splits. The Rhizomes should be planted in southern India April to May. February to mid-April is the best time for raising the crop in north-eastern hilly tracts. The planting material requirements depends on the duration of crop and spacing. Planting rhizome slices 5.5 tonnes per hectare with a spacing of 30 cm × 30 cm for one-year crop and 3.5 tonnes per hectare with a spacing of 45 cm × 30 cm for two-year duration crop is recommended. Watering is done only during long dry spells. Even though it is best to harvest the remaining *Alpinia galangana* roots during the early winter to prevent rotting, one can leave a few hands, (what the roots are referred to as) in the ground over the winter if one can heavily mulch the entire area to keep them warm and dry. For a 12-month-old crop, yield of fresh rhizome is 23.93 tonnes per hectare, which on drying reduces to 5.65 tonnes per hectare. For 24-month-old crop, yield of fresh rhizomes is 82.91 tonnes per hectare, which gives 22.65 tonnes per hectare of dry rhizome. *Alpinia galangana* can be stored in the vegetable drawer of a refrigerator for two to three weeks. The *Alpinia galangana* should be plastic wrapped preferably, wrap the root first in a damp cloth, then in a plastic bag. Galangal can be frozen without losing any

of its flavor. Raising profitable intercrops is suggested as a viable alternative for the better utilization of resources and increasing income. Growing *Alpinia galangana* is more economic than pure crop. System approach seeks to increase the benefits derived from crop production by efficient utilization of natural resources resulting in sustainable productivity of crops (Yang *et. al.*, 1999).

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Conclusion

Alpinia galangana rhizome extract also acts as a potential source of platelet activating and in the baking trade to flavor cakes, cookies and biscuits. It has definite medicinal uses and a role in the biofuel industry. The evaluation needs to be carried out on *Alpinia galanga* in order to uses and cultivation of the plant in their practical clinical applications, which can be used for the welfare of mankind.