



Black turmeric : A potential medicament

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Black turmeric or kali haldi (*Curcuma caesia* Roxb.) is a perennial herb with bluish-black rhizome, native to North East and Central India. The rhizomes of kali haldi have a high economic importance because of its putative medicinal properties and are used in the treatment of leucoderma, piles, bronchitis, asthma, tumors etc. The detail information about medicinal properties and cultivation practices of black turmeric has been compiled in this article.

Keywords: Black turmeric, Herb, Spice, Curcumin, Pharmaceutical

Introduction : Black turmeric (*Curcuma caesia* Roxb.) is one of the economically important species of the genus *Curcuma* and belongs to family Zingiberaceae. It is commonly known by various local names viz., Kali Haldi (in Hindi), Kalahaldi (in Assamese) and Yaingangamuba (in Manipuri). Black turmeric is a rare perennial herb and sometimes grown as an ornamental plant. The plant has the bluish-black rhizome (the underground portion of the stem) and used widely for numerous medicinal and religious purposes. Black turmeric is an erect rhizomatous herb ranging from 0.5 to 1m in height with ovoid shaped rhizomes, acute at tip and has a bitter, sharp, hot taste and a pleasant odour. The leaves are broadly lanceolate or oblong with a deep violet midrib, arising from the underground stem. Inflorescence is a spike with red or deep pink flower

petals and commonly appears in June or July.

Origin and distribution : Black turmeric is the native of India and South-East Asia. In India, it thrives well in moist deciduous forest, mostly in Bengal, North-East and south India. It is said to be used by many tribal communities in the state of Madhya Pradesh, Maharashtra, Odisha and on the central eastern coast, along the Bay of Bengal. The herb is sold fresh or dried in markets across India and Southeast Asia.

Medicinal value : *C. caesia* contains higher concentrations of 'curcumin' than any other *Curcuma* species. The various phyto-constituents like curcuminoids, flavonoids, phenolics, amino acids, oil content, protein and high alkaloids, present in the rhizome, are responsible for the antimicrobial, antiulcer, antitumor, anti-inflammatory and antioxidant properties. It is laxative in nature and also



Fig. 1 : Cultivation of black turmeric



Fig. 2 : Rhizomes of black turmeric

used as a tonic for the brain and the heart. The rhizome of the plant is aromatic, contains essential oil and used for a variety of medicinal purposes. The characteristic pungent smell of the rhizome is due to the presence of essential oil rich in camphor and starch. The rhizome is traditionally used in the treatment of hemorrhoids, leprosy, asthma, fever, wounds, vomiting, menstrual disorder, gonorrhoeal discharges, enlargement of the spleen and epileptic seizures.

Cultivation practice :

Climate and soil : Black turmeric is a partial shade loving species; however can be grown well in direct or indirect sun under cultivated conditions. The best season to plant turmeric is spring or summer. It requires warm and humid climate to grow. It is grown on different types of soils from light black, ashy loam and clay loam. However, it grows best in a well-drained sandy or clay loam soils of pH 4.5–6.5. Keep the soil moist throughout the growing season from spring to fall and feeding with liquid fertilizer in growing season is ideal.

Nursery techniques : Rhizome is the propagation material. Mature rhizomes are collected in December or just before plantation and longitudinally sliced with one apical bud in each slice. Rhizome pieces are directly planted in the field and no nursery stock is generally raised. Approximately, 1000 kg of rhizomes shall be required per acre for planting at spacing of 30 cm × 30 cm.

Cultural requirements : The land should be prepared well by thorough ploughing, harrowing followed by mixing with farmyard manure @ 5 tonnes per hectare. The fertilizers can be applied at the rate of 33 kg N, 80 kg P and 60 kg K per hectare as basal dose at the time of field preparation. If required, lime (2 tonnes per hectare) may be applied to reduce excessive acidity in soils, at least one month before planting. April is the best time for raising the crop in North-East India, while in other regions; the crop can be successfully cultivated during pre-monsoon period. Black turmeric is propagated vegetatively through rhizomes. The whole or parts of rhizome (each weighing approximately 20 g) should be planted in rows directly in the field during April. Planting at a spacing of 30 cm × 30 cm is found optimum and the rhizomes sprout in about 15-20 days. The fertilizer requirement of the crop depends upon soil type, season and growing region. A fertilizer dose of 100 kg urea, 80 kg single super phosphate and 60 kg potash is to be applied per hectare. One-third of urea (33 kg) and full recommended quantity of single super phosphate and potash are applied at the time of final land preparation. The remaining N is top dressed in two split

doses, first at the time of first earthing-up and the rest at the time of second earthing-up. Earthing-up is carried out at 45 and 60 days after planting. To reduce the crop-weed competition during the early stages of growth, manual weeding at 60, 90, and 120 days after planting is recommended. The crop is usually grown under rain-fed conditions in high rainfall areas of Assam and Kerala. Constant humidity is to be maintained in other areas through regular irrigation. Sprinkler irrigation is the most suitable method.

Harvesting and yield : The crop takes about nine months to mature. Harvesting is done in mid-January. A light irrigation may be given a day before harvesting to facilitate digging of the rhizomes. Crop is harvested manually by uplifting individual plant. Injury to the rhizomes may cause decay of the harvest. After harvesting the green tops are cut and the rhizomes are separated and washed. The rhizomes should be kept under shade for drying. These dried rhizomes should be stored in suitable damp-proof containers. Depending on the season and growing region, the average yield of fresh rhizomes is about 40 tonnes per hectare while dry rhizome yield is about 10 tonnes per hectare.

Conclusion: Black turmeric has been an essential part of cultural ceremonies and medicinal therapies in the rural areas. It has been used by many tribal communities worldwide from centuries as spice, medicine and in spiritual practices. With advancement in technology, kali haldi is gaining importance as a potential source of new drug.

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