BLACK TURMERIC (*Curcuma caesia* Roxb.): AN ENDANGERED HIGH VALUE MEDICINAL PLANT

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Among the species of Curcuma, one endangered species is black turmeric (*Curcuma caesia* Roxb.) with high medicinal properties. Black turmeric is an erect rhizomatous herb belonging to Zingiberaceae family consisting of bluish-black rhizome that is why it is known as black turmeric. It has an intense camphoraceous odor and many medicinal properties and is used in pharmaceutical industries. Black turmeric is diploid in nature consisting of 42 numbers of chromosomes. It is distributed widely in different parts of India, China, Nepal, Malaysia, Thailand and Indonesia. In India, it is indigenous to North-East Hill region and also found in the West Godavari, Papi Hills of East Godavari district of Andhra Pradesh, Khammam district of Telengana, Madhya Pradesh, West Bengal, Orissa, Chattisgarh and Uttar Pradesh.

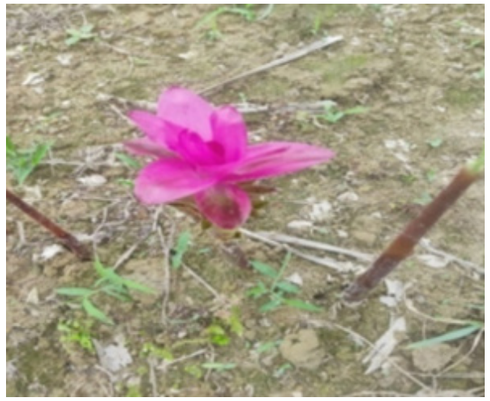
In different parts of India, black turmeric is known by different vernacular names like Kali haldi in Hindi, Kola halodhi in Assamese, Shyrmitiong in Khasi, Aihang in Mizo, Yaingangamuba in Manipuri, Yakanekeloti by Adi tribe of Arunachal Pradesh, Homen by Khamti tribe of Arunachal Pradesh, Kala haldi in Bengali, Nallapasupu in Telugu, Kariarishina in Kannada and black turmeric in English signifying its bluish-black rhizome. Black turmeric is used as folklore medicines since ancient times. Rhizome of black turmeric has bitter taste and is used in the treatment of leucoderma (loss of melanin pigmentation) and piles. Its paste is applied for the treatment of sprains and bruises and rheumatic pains. It is also used in treating cough, dysentery, cancer treatment, for the recovery of different wounds. Tribal women use it in menstrual disorders and it is traditionally used by the tribal people for the treatment of fever, vomiting, diarrhea, tumors and for the treatment of secondary sexual diseases, inflammation, etc. The Adi tribe of Arunachal Pradesh uses rhizome of black turmeric as anti diarrhoetic whereas the Khamti tribe belonging to Lohit district of Arunachal Pradesh uses the paste of fresh black turmeric rhizome for treating scorpion and snake bite. Its rhizome is also used as a muscle relaxant and it possesses anti-asthmatic activity.

Black turmeric is usually erect and grows between 0.5 and 1.0 m in height with short stem. The plant bears pale yellow colored, long, tubular flowers, with reddish border, which is smaller than bracts. It is characterized by the presence of a large underground-ovoid bluish-black rhizome. The leaves of black turmeric grow in a bunch of 10–20 leaves, which is characterized by a deep violet patch that runs throughout the leaf lamina. The petiole is ivory in color and encircles each other. They have parallel venation. The rhizome is usually 2–6 cm in diameter and has camphoraceous odor. The characteristic pungent smell of the rhizome is due to the presence of the essential oil which is rich in eucalyptol (16.43%), camphor (11.56%), starch etc. The shape and size vary with the external surface bearing root scars, adventitious type root, and warts. Moreover, the rhizomes are characterized by longitudinal circular wrinkles on the surface giving rise to nodal and inter nodal zones. The rhizome is the propagation material of the plant and it grows in subtropical to temperate region, in sandy loam, acidic soils of pH 4.5–6.5. The plant takes about 9 months to mature.

Rhizome of black turmeric

Leaves of black turmeric

Inflorescence of black turmeric



Flower of black turmeric

Eucalyptol is the major component of black turmeric rhizome essential oil from North-East India and the essential oil sample possess strong antioxidant, anti inflammatory, antimicrobial activity which is even stronger than the standard drugs used. Nowadays the use of herbal medicines is gaining much importance due to its immense benefits and lesser side effects. Black turmeric has much importance in various medicinal fields, so this plant species is on great demand worldwide. However, the production is not up to the demand because of unavailability of high yielding varieties in the public domain as well as standard cultivation package of practices, especially nutrient management.

In Meghalaya, black turmeric is an important crop. It is cultivated by many farmers but they normally cultivate it without adding any nutrient sources or sometimes apply some household waste and/or farm yard manure (FYM) and therefore get very low rhizome yield with poor quality produce. As North East Hill region in general and Meghalaya in particular is by default organic in nature and tribal farmers do not use any chemical fertilizers, it became imperative to develop organic nutrient package for black turmeric. The School of Natural Resource Management, College of Post Graduate Studies in Agricultural Sciences, Central Agricultural University, Barapani, Meghalaya has taken a lead in this direction and conducting research trails to develop suitable organic nutrient management package for getting higher yield of black turmeric maintaining better soil health. Under the research trail, different doses of farm yard manure (FYM), vermicompost and poultry manure alone and in combinations are being tested. The data on various parameters like plant height, number of leaves, leaf length and breadth are being recorded whereas clump length, rhizome yield, length and diameter of mother and primary rhizomes will be recorded after harvesting of the crop.

Research trial on developing organic nutrient management package for black turmeric

Hopefully, after developing and recommending specific organic nutrient management package for black turmeric, farmers will able to add required nutrients synchronizing crop demand and will get bumper harvest with quality rhizomes.