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A REVIEW ON CULTIVATION OF TRADITIONAL MEDICINAL PLANTS IN OUR PERIPHERY AND THEIR IMPORTANCE IN DAILY LIFE

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ABSTRACT

Medicinal plants have been utilized as a part of essentially all societies as a wellspring of medicine. Medicinal plants have been used in virtually all cultures as a source of medicine. Assurance of the safety, quality, and efficacy of medicinal plants and herbal products has now become a key issue in industrialized and in developing countries. The widespread use of herbal remedies and healthcare preparations is described in the Vedas and the Bible .Medicinal Plants have been used for thousands of years to flavor and conserve food, to treat health disorders and to prevent diseases including epidemics. The knowledge of their healing properties has been transmitted over the centuries within and among human communities. Active compounds produced during secondary metabolism are usually responsible for the biological properties of plant species used throughout the globe for various purposes, including treatment of infectious diseases.

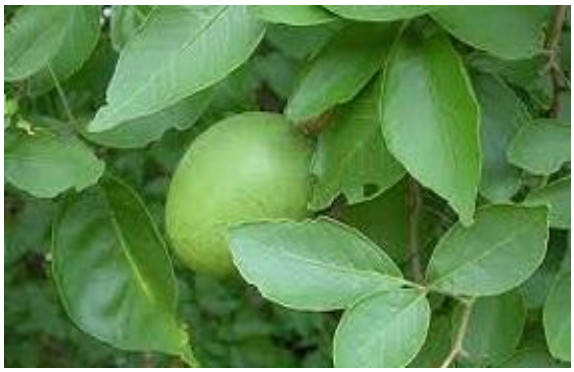
KEYWORDS: Medicinal Plants, Traditional Medicine, Phytomedicines, Antioxidant Potential.

INTRODUCTION

About Medicinal Plants: Indian medicinal plants or the herbs in Ayurveda have age old benefits. Various parts of plants like leaves, flowers, roots and bark have served to cure wide range of heath related issues. Sometimes products from herbal plants like gum, resins, metabolites and latex have been used to cure physical problems. Their products are commercialized today in the form of powders, pills, oils, tablets, creams, etc.[1]

Medicinal plants are widely used in non-industrialized societies, mainly because they are readily available and cheaper than modern medicines. **Medicinal plants**, also called **medicinal herbs**, have been discovered and used in traditional medicine practices since prehistoric times. Plants synthesise hundreds of chemical compounds for functions including defence against insects, fungi, diseases, and herbivorous mammals. Numerous phytochemicals with potential or established biological activity have been identified. However, since a single plant contains widely diverse phytochemicals, the effects of using a whole plant as medicine are uncertain.[2-4]

Further, the phytochemical content and pharmacological actions, if any, of many plants having medicinal potential remain unassessed by rigorous scientific research to define efficacy and safety. In the United States over the period 1999 to 2012, despite several hundred applications for new drug status, only two botanical drug candidates had sufficient evidence of medicinal value to be approved by the Food and Drug Administration.[5-9]



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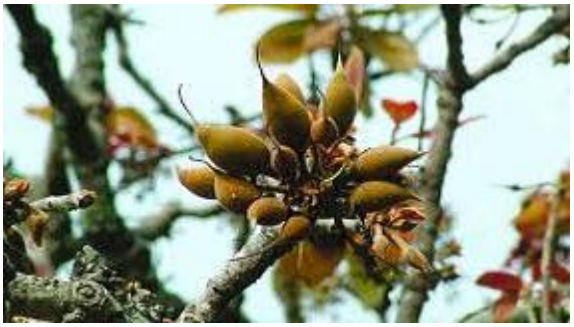

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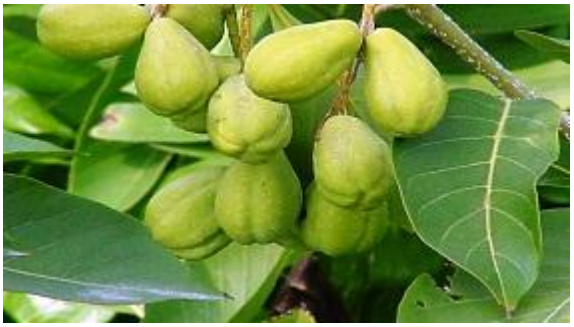

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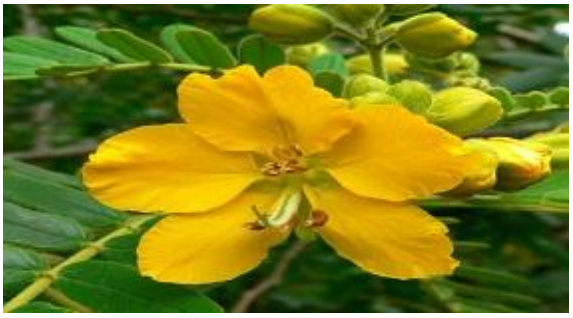

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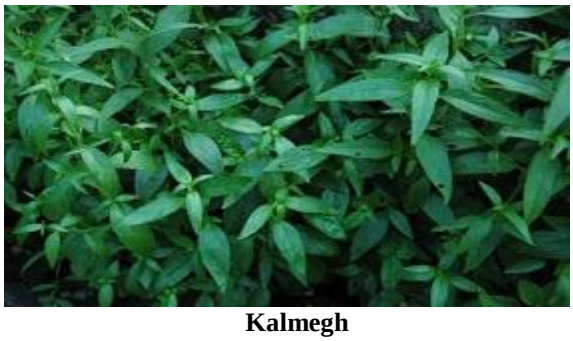

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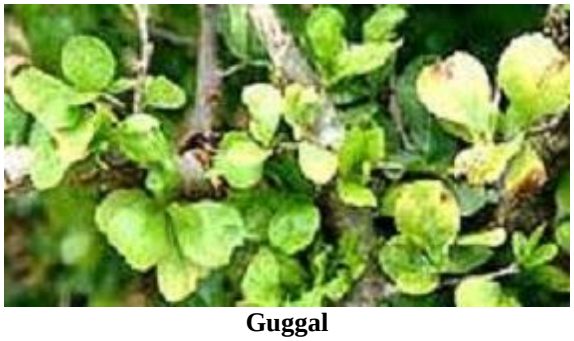

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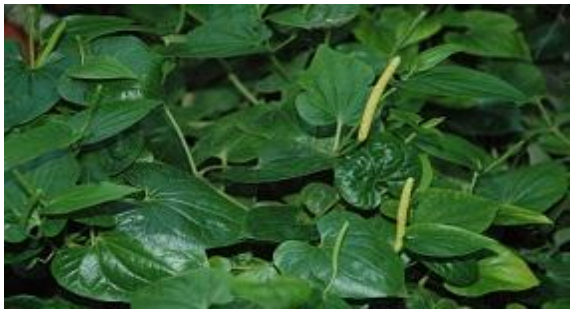

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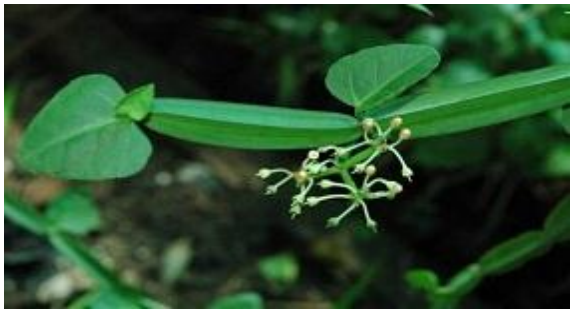

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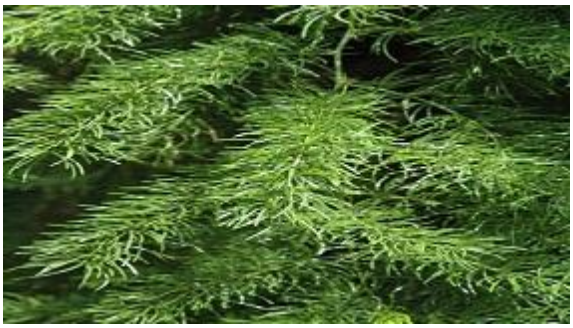

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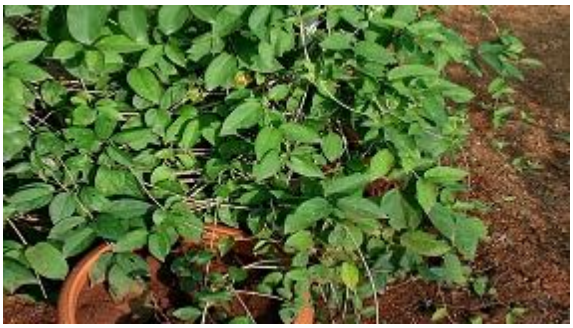

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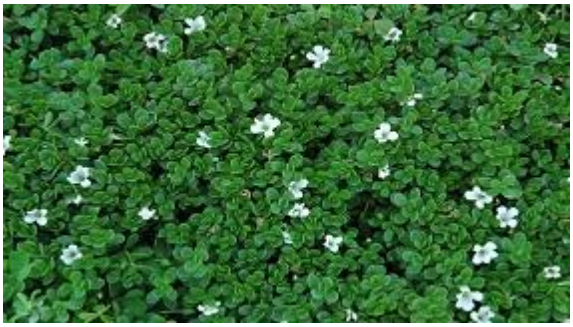

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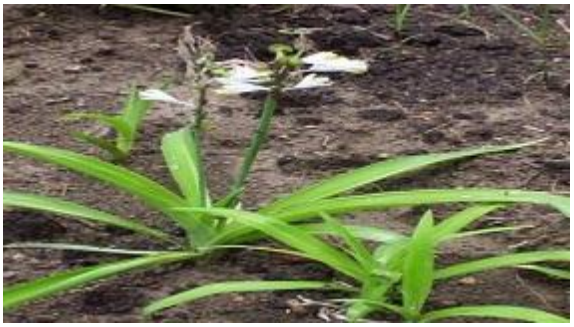

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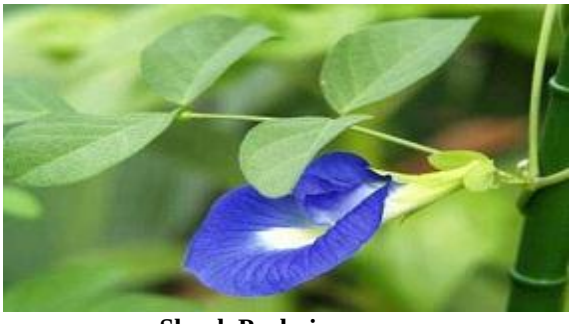

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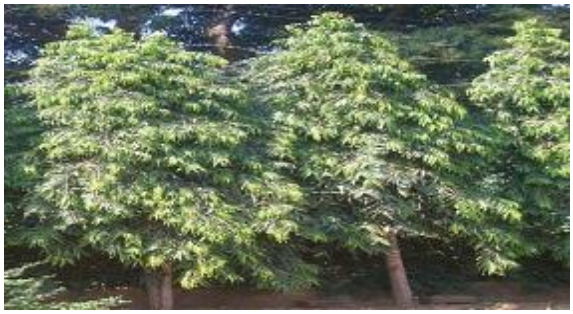

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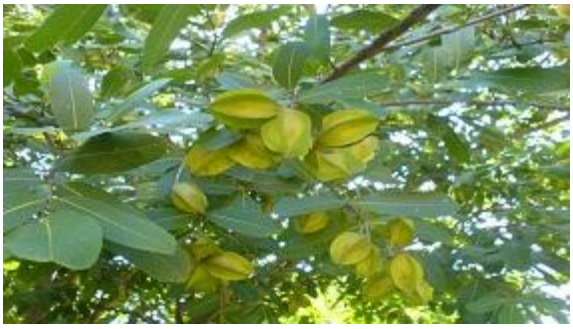

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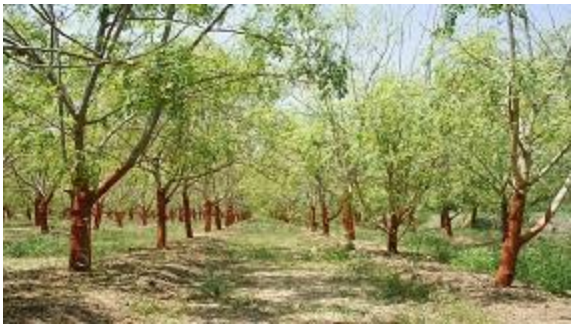

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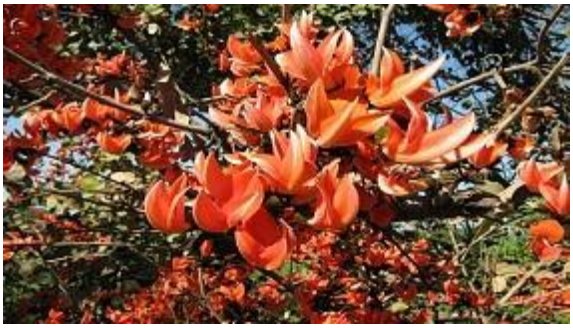

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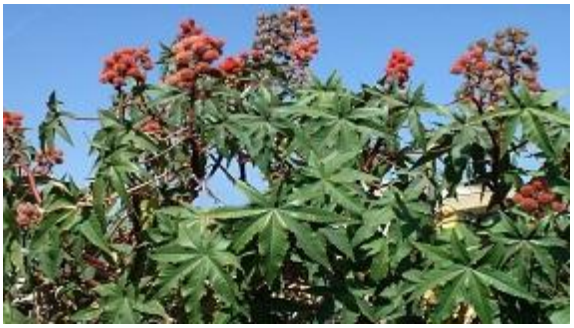

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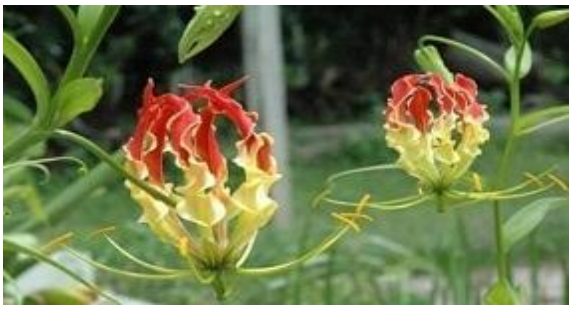

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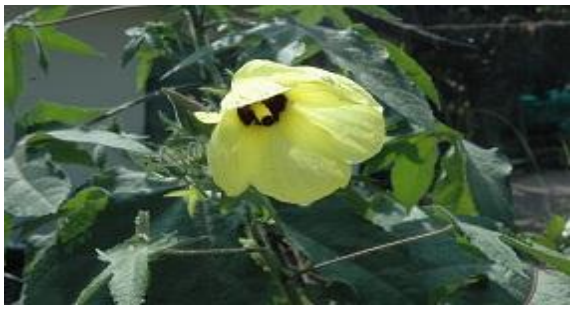

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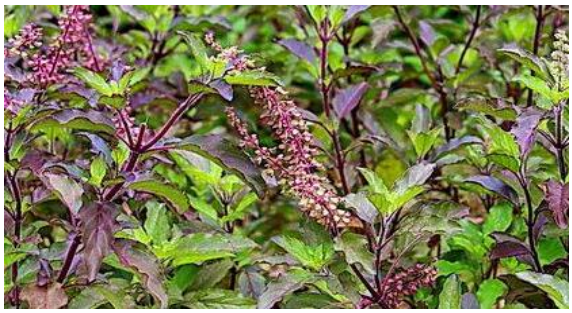
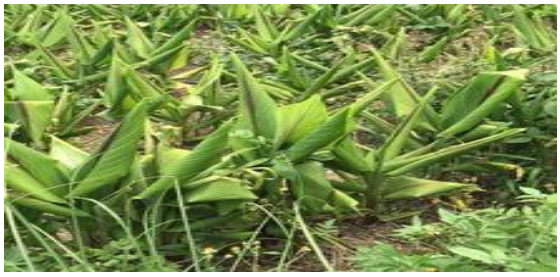


Kali Tulsi



Kali Haldi

Amrud

Traditional Herbs

Here in this review article section contains a list of sub-links that give you information on a whole host topics concerning that topic, like : Plant Introduction, Plant information, Taxonomy, Morphology, Varieties/ Hybrid genuses, Sowing-Time, Sowing-Method, Nursery Management, Insects Management, Disease Management, Farming Production Technology, Protected-Cultivation, Harvesting And Post-Harvesting & Value-Addition of medicinal plants of particular two plants, specially Kali Tulsi & Kali Haldi.[10-14]

Kali Haldi: *Curcuma caesia*, black turmeric or black zedoary is a perennial herb with bluish-black rhizome, native to North-East and Central India. Black turmeric is also sparsely found in the Papi Hills of East Godavari, West Godavari of Andhra Pradesh and Khammam district of Telangana.

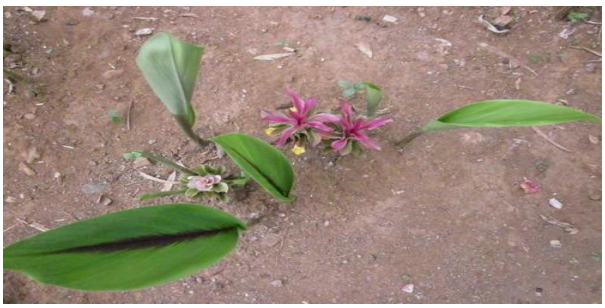
The rhizome of black turmeric has a high economic importance owing to its putative medicinal properties. In west Bengal, the rhizome of the plant is used in Kali Puja, and hence the plant is called Kali haldi. By etymology, Kali is the feminine form of Kala, which means black color and hence the plant is termed as black turmeric in English. This species has been regarded as endangered by the central forest department of India due to biopiracy.[9,15]

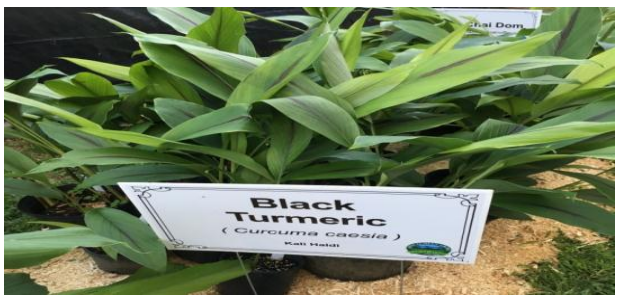
Category: Aromatic.
Group: Forest.
Plant Type: Herbs.
Botanical Name: *Curcuma caesia* Roxb.
Common Name: Kali Haldi.

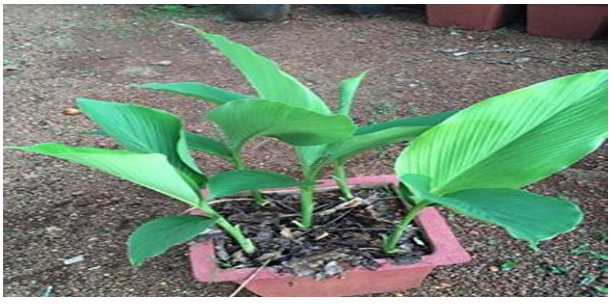
Uses: Kali Haldi is recognized as a medical herb with strong antibiotic properties. It is used as remedy for wound, bruises and sprain, skin problems, digestive aid, liver protection and it helps in reducing cholesterol. It is believed to play a role in preventing and curing cancer in Chinese medicine. In an effort to remove cell accumulations such as a tumor, curcuma is often utilized. It contains aromatic volatile oils that help to remove excessive lipids from the blood, reduce aggregation of platelets and reduce inflammation. Rhizomes parts are basically used. 5000 kg/ha dry rhizomes are usually yield coming in an experience.[16-17]

Origin and Distribution: It is native to India. It is commonly known as 'Black turmeric'. In India it grows in West Bengal, Madhya Pradesh, Orissa, Bihar, North-East and Uttar Pradesh and is widely used by ethnic communities for various ailments.

Description: It is an aromatic and pretty ginger with stout underground rhizomes. It is an important aromatic herb. It is used for medicinal and aromatic both.[18-19]







Taxonomy
Family: Zingiberaceae.
Order: Zingiberales.
Species: *C. aromatic.*

Description: It is an aromatic and pretty ginger with stout underground rhizomes. It is an important aromatic herb. It is used for medicinal and aromatic both.

Morphology
In View it found as a perennial herb and the stalk grows to about 8 to 10 inches tall, and is crowned with enlarged coloured bracts tipped with pink. **Leaf** of this plant is an evergreen plant with simple leaves. The leaves are arranged opposite one another. They are lanceolate with entire margins. Leaves are broad very decorative, elliptic, 3-4 ft long and 20 cm wide. **Flowers** are funnel-shaped and white. The flowers are arranged in spikes. When in full growth the plants can reach a height of about 3 ft tall. It has no particular released variety.[20-22]

Sowing-Time
Climate: It flourishes well in moist deciduous forest areas. This species is found in the eastern Himalayas and inhabits warm forest areas. It can withstand temperatures 15-40^0 C. It grows best in sandy or pebbly, loamy soil that is moist. Rhizomes are planted in April to July month.

Sowing-Method
Land Preparation: The land should be ploughed and harrowed to get a fine tilth. The field must be levelled properly and drainage arrangements made to avoid water logging during the rains. About 20 t per ha of FYM or compost should be mixed well into the soil. The land is divided into beds of 1 m width and convenient length rhizomes are planed in shallow pits on the top of the ridges. Spacing generally adopted is 45-60 cm between the ridges and 15-22 cm between the plants.[24]

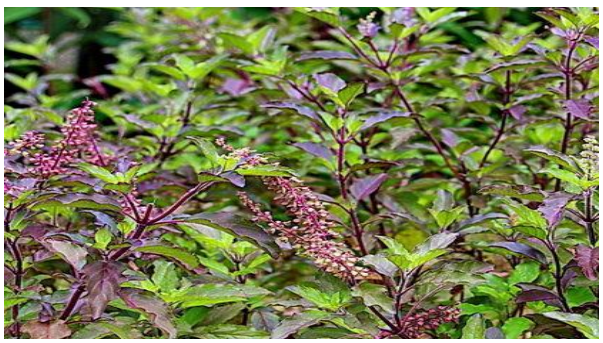
Cropping Method Description: The Rhizomes are cut into pieces each 4-5 cm long. Rhizomes are planted as such or split into two; each having at least one sound bud. The crop is sown from April to July, depending upon the tract. Mulching the bed with green leaves is an important practice beneficial to this crop. Two or three mulching are given, the first immediately after planting and the second and the third at intervals of 40-50 days.

Farming Production Technology
Manures: It needs heavy manuring. Usually, 40-50 tonnes of farmyard manure is applied at the time of preparing the land. Chemical fertilizers to supply 30 kg each of N, and P2O5 and 60 kg of K2O per he may also be applied in split doses. During summer, irrigation at 5 day intervals is recommended in case of red loam and at 7-9 days in the case of black loams. During the period of rhizome development and maturity, frequent irrigations are necessary. Manual weeding is a common practice for controlling weeds. It should be done at regular intervals for the good growth of plants.[25]

Harvesting
Harvesting Time: It is ready for harvesting after 8 and half months. Rhizomes should be digged very carefully. After digging the rhizomes should be lifted from soil and cleaned. The harvested rhizomes are washed well to remove adhering soil.

After washing, the rhizomes should be kept in the shade for drying. Godowns are ideal for the storage. Cold storage in not good for it. In general farmers use bullock carts or tractors for sending the produce to nearby market. From market yards, the produce is transported to distance in ordinary trucks and Lorries. Perfect packing, care in loading and unloading and quick transport results in less spoilage of crops.

Kali Tulsi
Tulsi or **Tulasi** (*Ocimum tenuiflorum*) or **Holy Basil** is a sacred plant in Hindu belief. Hindus regard it as an earthly manifestation of the goddess Tulsi; she is regarded as a great worshipper of the god Vishnu. The offering of its leaves is mandatory in ritualistic worship of Vishnu and his forms like Krishna and Vithoba.[20-23,26]



Category: Aromatic.
Group: Cultivated.
Plant Type: Herbs.
Botanical Name: *Ocimum canum.*
Common Name: Kali Tulsi.

Uses: The essential oils and leaves are used in flavoring foods, chewing gums, sweets, teas, soft drinks, energy drinks, milk products, cosmetics, shampoos, soaps, shower gels, body lotions, and toothpastes. It works as a great mosquito repellent to prevent malaria and dengue fever. It is used specially for treating diabetes.

The herb can be used to treat colds, fevers, parasitic infestations on the body and inflammation of joints and headaches. The traditional medicine recognized its value in the treatment of fevers, dysentery and tooth problems. It is used in various types of religious functions as part of rituals and as incense to protect the home. Whole Plant is used as different activities.[20-23,27]

Origin & Distribution: It is native to African countries. This bushy herb is common in tropical Africa and other areas of the tropics and was later introduced into the Americas. It is found in Jammu & Kashmir, Punjab, H.P., Uttaranchal and Delhi in India.

Description: *Ocimum canum* belongs to the Lamiaceae family. This annual plant is native to the African continent. It is also known as the African basil with a distinct mint flavor, with hairy leaves and scented flowers. In India, Hindus grow Tulsi as a religious plant in their homes, temples and their farms. They use Tulsi leaves in routine worship. Tulsi leaves contain a bright yellow volatile oil which is useful against insects and bacteria.[21,25]

Taxonomy
Family: Lamiaceae.
Order: Lamiales

Species
O. americanum.
O. basilicum.
O. campechianum.
O. gratissimum.
O. kilimandscharicum.
O. tenuiflorum.

Description
Ocimum canum belongs to the Lamiaceae family. This annual plant is native to the African continent. It is also known as the African basil with a distinct mint flavor, with hairy leaves and scented flowers. In India, Hindus grow Tulsi as a religious plant in their homes, temples and their farms. They use Tulsi leaves in routine worship. Tulsi leaves contain a bright yellow volatile oil which is useful against insects and bacteria.[26-28]

Morphology: In View, the plant branches from the base and has an angled stems and oval pubescent leaves. It is irregular and occurs in crowded whorls. It has a small corolla. The leaves are opposite and toothed. Its leaves are tiny and fuzzy. Flowers are violet or white in color. Flowers have a sweet scent resembling that of the clove. Flowers are more conspicuous. Flowers come August onwards. Seeds are black, ellipsoid in share. Seeds become mucilaginous when wetted. It grows upto a height of 2 feet. It has no released variety.

Sowing-Time
Climate: It flourishes in conditions of lot of sun. Tulsi naturally found from sea level to an altitude of 2000 m. It

does not do well in conditions of frost and regularly requires warm sun. They also require ample amounts of water to thrive.

Soil: It requires well drained soils and access to heat. The plant grows quickly when placed in warm soils, especially indoors. It is found growing naturally in moist soil. It is sown in Rainy season (15 June to 15 August) and October – November under irrigated condition.

Sowing-Method

Land Preparation: The field should be ploughed and harrowed several times to make a fine seed bed before seedlings are transplanted. A well mixed FYM should be incorporated in soil.

Cropping Method Description: Tulsi seeds germinate easily. As the seeds are small, they should be mixed with a mixture of sand and wood ash. Seeds are sown during the months of June. They are watered from time to time and germinated in one to two weeks.

Transplanting: 6-10 cm tall seedlings are transplanted in the field in July or October-November under irrigated condition. Seedlings are planted at a distance of 40 cm in rows. The field should be irrigated immediately after transplantation.

Nursery Management

Bed Preparation: The plant can be raised by raising seedlings in the nursery. Raised seed beds should be thoroughly prepared and well manured by addition of farmyard manure or vermicompost. The seeds are shown in the nursery. About 20-30 kg seeds are enough to raise the seedlings for planting one hectare land. After sowing the seeds in the nursery, a mixture of FYM /Vermicompost and soil is thinly spread over the seeds and irrigated with a sprinkler hose. The seeds take about 8-12 days to germinate and seedlings are ready for transplanting in about 6 weeks time.

Farming Production Technology

Manures: The use organic fertilizer or liquid fertilizer gives the best result. It needs minimal fertilizing, too much will burn the plant out. Never fertilize in extremely hot or cold seasons. In soil of average fertility 40 kg/ha N, 40 kg/ha P is applied as basal dose at the time of transplanting. 40 kg/ha N is applied in 2 split doses during the growing season.

Irrigation Management

After transplanting the field should be irrigated once a month, especially after the end of monsoon. Seedlings are established well by the time of second irrigation. It is right time to get the gaps filled and replace the weak plants so that uniform stand is achieved. In the summer 3-4 irrigation per months are necessary whereas during the remaining period, irrigation is given as and when required. About 20-25 irrigation are enough during a year.

Weed Control Management

Before transplanting deep ploughing has to be done. All the roots of the weeds are collected manually and removed. Under well managed conditions 4 or 5 weedings and hoeings are required to keep the fields free from weeds. Weeding can be done by hand or mechanically by a tractor-driven cultivator.

Harvesting

Harvesting Time: Harvesting should be done on a bright sunny day. It is ready for first harvest 90-95 days after planting. For leaf production, the crop has to be harvested at flowers initial. The crop should be cut at 15-20 am above the ground level.

The harvesting is done is such a way that the most of the tender shoots are cut leaving the woody stem portions for regeneration. During the last harvest, entire plant is harvested.[27-28]

Post-Harvesting & Value-Addition

Drying: It has to be shade dried for about 8-10 days by thinly spreading on gunny bags. It should be preferably in well aerated drying sheds. Basil oil is obtained by steam distillation of partially dried herb. Distillation can be done in directly-fired stills which are operated by a steam generator. Airtight bags are ideal for packing. It must be packed in poly or nylon bags to prevent the entry of moisture.

Storage: Leaves should be stored in dry places. Godowns are ideal for the storage. Cold storage is not good for it.

Transportation: In general farmers use bullock carts or tractors for sending the produce to nearby market. From market yards, the produce is transported to distance in ordinary trucks and Lorries. Perfect packing, care in loading and unloading and quick transport results in less spoilage of crops.[26,28]

CONCLUSION

Black Turmeric rhizome is believed to have magical powers. In Chhattisgarh, tribes make paste of rhizomes using cow's urine and apply the mixture on forehead as Bindi along with blood, for Vasikaran and Tantra practices.[6] Some tribes believe that the rhizomes act as a talisman to keep evil spirits away. Some people believe that the rhizome of the plant is a form of the goddess Kali and carry a rhizome in their pockets. Some Hindu organizations sell rhizome paste to use as Tilaka, with a belief that it will remove all kinds of black magic. The color of the root is considered similar to the skin complexion of several Hindu deities: Kali, Rama, Krishna, and Shiva.

Every part of the Tulsi plant is revered and considered sacred. Even the soil around the plant is holy. The *Padma Purana* declares a person who is cremated with Tulsi twigs in his funeral pyre gains moksha and a place

in Vishnu's abode Vaikuntha. If a Tulsi stick is used to burn a lamp for Vishnu, it is like offering the gods lakhs of lamps. If one makes a paste of dried Tulsi wood (from a plant that died naturally) and smears it over his body and worships Vishnu, it is worth several ordinary pujas and lakhs of Godan (donation of cows). Water mixed with the Tulsi leaves is given to the dying to raise their departing souls to heaven. Just as Tulsi respect is rewarding, her contempt attracts the wrath of Vishnu. Precautions are taken to avoid this. It is taboo to urinate, excrete or throw waste water near the plant. Uprooting and cutting branches of the plant is prohibited. When the plant withers, the dry plant is immersed in a water body with due religious rites as is the custom for broken divine images, which are unworthy for worship. Though Tulsi leaves are necessary for Hindu worship, there are strict rules for it. A prayer of forgiveness may also be offered to Tulsi before the act.

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