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### RESEARCH ARTICLE

#### TURMERIC: THE GOLDEN AND PRECIOUS GIFT OF NATURE

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#### Abstract

In India from ancient time plants are consumed as source of food and also for prevention and treatment of various diseases. Curcuma longa is commonly known as turmeric cultivated in Asia and some tropical countries. Its medicinal usage has been reported in the traditional systems of medicine such as Ayurveda and Homeopathy. Its constituents are curcumin volatile oil and curcuminoids etc. Curcuma longa is known for its colour and its health-giving properties. It possesses various medicinal properties as anti-microbial, anti-oxidant, anti-inflammatory, anti-carcinogenic etc.

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#### Introduction:-

Curcuma longa is belonging to Zingiberaceae (ginger) family and it is a perennial herb. It is cultivated in Asia including India, China and other tropical countries. It grows to 3-5 ft long having pointed and oblong leaves, funnel-shaped yellow flowers.<sup>[3]</sup> Its root system has many rhizomes which is used as a spice known as turmeric and its medicinal extract curcumin. Rhizome is used as medicine which was introduced in Homeopathy and proved by Augustine, Arya and Balachandra. In India Curcumin longa has different names in different languages as Halda, Haldi, Hardee, Halad, Halede, Halada, Haldar, Aneshta, Bahula, Halud, Indian saffron, Turmeric, Lidar, Mannal, Halja, Manjal, Mancal.<sup>[4]</sup> In past it is used as aromatic stimulant and carminative while currently it is used for cough, rheumatism, sinusitis diabetic wounds, biliary disorders, anorexia and hepatic disorders.<sup>[3]</sup>

#### Geographical Distribution:-

Turmeric (*Curcuma longa* Linn. Syn. *C. domestica* Valet.) is one of the important spice crops. India is a leading producer and exporter of turmeric in the world. Andhra Pradesh, Tamil Nadu, Orissa, Karnataka, West Bengal, Gujarat, Meghalaya, Maharashtra, Assam are some of the important states cultivates turmeric, of which, turmeric can be grown in diverse tropical conditions from sea level to 1500m ASL, at a temperature range of 20-35°C with an annual rainfall of 1500mm or more, under rain fed or irrigated conditions. Though it can be grown on different types of soils, it thrives best in well drained sandy or clay loam soils with a pH range of 4.5-7.5 with good organic status<sup>[1], [12]</sup>

#### Classification of Curcuma longa:-

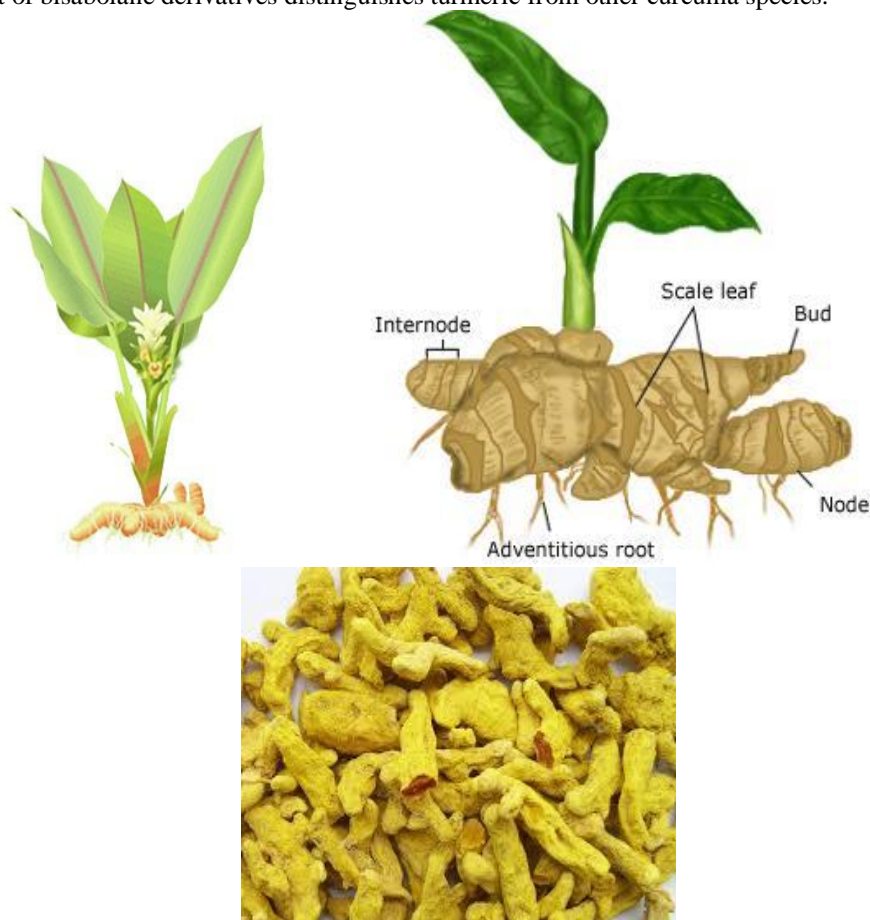
|                      |                              |
|----------------------|------------------------------|
| Class Liliopsida     | Subclass Commelinids         |
| Order Zingiberales   | Family Zingiberaceae         |
| Genus <i>Curcuma</i> | Species <i>Curcuma longa</i> |

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### Chemical Composition Of Turmeric:-

Turmeric contains protein (6.3%), fat (5.1%), minerals (3.5%), carbohydrates (69.4%) and moisture (13.1%). The essential oil (5.8%) obtained by steam distillation of rhizomes has *a*-phellandrene (1%), sabinene (0.6%), cineol (1%), borneol (0.5%), zingiberene (25%) and Sesquiterpenes (53%)<sup>5</sup>. Curcumin (diferuloylmethane) (3–4%) is responsible for the yellow colour, and comprises curcumin I (94%), curcumin II (6%) and curcumin III (0.3%)<sup>6</sup>. Demethoxy and bisdemethoxy derivatives of curcumin have also been isolated<sup>7</sup>. Curcumin was first isolated<sup>8</sup> in 1815 and its chemical structure was determined by Roughley and Whiting<sup>9</sup> in 1973. It has a melting point at 176–177°C; forms a reddish brown salt with alkali and is soluble in ethanol, alkali, ketone, acetic acid and chloroform,<sup>[3]</sup> the high content of bisabolane derivatives distinguishes turmeric from other curcuma species.<sup>[4]</sup>



### Uses:-

1. Turmeric (*Curcuma longa* and *Curcuma aromatica* Salisb.) has been described in Ayurveda active principle called Curcumin or diferuloylmethane, a yellow pigment present in turmeric (curry powder) has been shown to exhibit numerous activities.<sup>[9]</sup>
2. It has therapeutic as well as Chemo-preventive activity, hence it is useful in different types of cancers like duodenal tumors<sup>[25]</sup>, tongue carcinoma, colon cancer, human breast cancer cells.<sup>[5]</sup> The anti-carcinogenic effects of turmeric and curcumin helping in prevention of nitrosamine formation and hepatic detoxification of mutagens
3. The rhizome from *C. longa* L. has long been used to reduce menstrual disorders, rheumatism and traumatic diseases, and also act as antimicrobial, insecticidal repellent and anti-feeding against some stored-product insects.<sup>[7]</sup>
4. It is also used in confectionary and food industry and pharmacy, as well as in paints and varnishes as colouring agent.<sup>[2]</sup>
5. Turmeric has potential to give luster and glow to the skin as well as vigour and vitality to the entire body.<sup>[8]</sup>
6. In *Atharvaveda* (a collection of Vedas and mantras) Haridra (turmeric) was reported as a remedial drug for graying of hair, for skin disease and for curing jaundice.

7. Turmeric powder is employed in leech therapy to detach leech from the biting site.
8. In *Rasa sastra* (Alchemy) turmeric is added in group of yellow substances (*Peethavarga*) which is used in the processing of mercury.<sup>[9]</sup>
9. It has a strong antioxidant property, hence helps in protection of free radical damage.<sup>[13]</sup>
10. It acts as anti-inflammatory agent because it lowers histamine levels.<sup>[14]</sup>
11. It protects the liver from various toxic substances such as carbon tetrachloride (CCl<sub>4</sub>), galactosamine, acetaminophen (paracetamol), and *Aspergillus aflatoxin*.<sup>[15][18]</sup>
12. It has ability to improve circulation by preventing platelets from clumping together, which may help protect against Atherosclerosis<sup>[16]</sup>.
13. Turmeric is anti-mutagenic because it inhibits new cancers caused by chemotherapy or radiation used to treat existing cancers. It is effective against metastasis (uncontrolled spread) of melanoma (skin cancer) cells and may be helpful to inactivate the carcinogens in cigarette smoke and chewing tobacco. Curcumin inhibits HIV in test tubes, though human trials but still needed to confirm its effectiveness for treating humans with this condition.<sup>[22][23]</sup>
14. Curcumin is useful for reducing pain and stiffness in the joints. Turmeric in the diet may defend against pain from bursitis, arthritis, and tendonitis.<sup>[24]</sup>
15. Turmeric increases the production of enzymes which helps in digestion of fats and sugars and also stops cholesterol from forming gallstones.<sup>[10]</sup>
16. Turmeric is effective in the treatment of some urinary disorders such as diabetes mellitus and also useful in diabetic nephropathy.<sup>[11]</sup>
17. Turmeric stimulates the secretion of bile, acts as an anti-bacterial, eases stomach pain. Turmeric extract's effect on cholesterol levels may be due to decreased cholesterol uptake in the intestines and increase conversion of cholesterol to bile acids in the liver.<sup>[5][17]</sup>
18. Paste or fresh juice of rhizome is commonly used as local application as well as internally in the treatment of snake bites, leprosy, and vomiting associated with pregnancy.<sup>[19]</sup> and smallpox and chickenpox.<sup>[20], [21]</sup>
19. 1:20 proportion of Turmeric powder with alum powder is mixed and is blown into an ear that has chronic discharge or otorrhoea.<sup>[10]</sup>
20. Turmeric powder can give relief from dental problems by massaging the aching teeth which eliminates pain and swelling.<sup>[5]</sup>



### Conclusion:-

Turmeric is very powerful natural medicine. It is considered as store house of tremendous medicinal potential. It is very common in our daily life. *Curcuma longa* has ability to prevent and cure various ailments like anorexia, dyspepsia, abdominal colic, constipation, laryngitis, dry cough, dysmenorrhoea, lumbago, headache, vertigo,

conjunctivitis, toothache and anxiety neurosis, atherosclerosis etc. curcuma longa is not only use in medicinal preparation but also used in cosmetics and food industry.

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