Classical review of Haridra (Curcuma longa)

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Abstract

Haridra (Curcuma Longa Linn.) is one of the patent drug of India and the most valuable drug which is used by the Indians in all the ways for the rituals (in marriages & poojas); for preparing food preparation and as usual as home remedy medicine since ancient days. Till today Haridra is considered to be the most important drug. The aim of this study is to collect and evaluate the information on Haridra an important valuable medicinal plant and is mentioned in different Ayurvedic treatises like Brihadtrayee, Lagutrtrayee, and Nigantus. It is a drug which is having high therapeutic value as the root is available both in dried and wet form and this is used in so many preparations and used as Ekamuliya Prayoga (single drug therapy) also and is having highly antimicrobial and anti-fungal and anti-bacterial activity.

Key words: Haridra, Brihadtrayee, Ekamuliya Prayoga.

Introduction

Haridra is considered to be the one of the most important drugs which is easily available at home and can be used as a home remedies since ancient days to today when go through the history of Haridra from Vedic period to modern era - In Vedic period; Rigveda: in the treatment of Harima, Haridrodana is mentioned. Later in Atharva Veda: In Switra and Palita Haridra is used with Indravaruni and Nili. Haridra was also used externally for Udvartana in Hridroga and Kamala. Kousika Sutra delineated Haridra as an antidote of snake venom. Sayana claimed Hridra as Medhya when administered with honey and ghee. In Brahma Vaivarta Purana Goddess Parwati made a paste of Turmeric to cleanse her body, the same paste was used to make an idol of Ganseha and infused life into it, and thus Ganesha was born. Later in Samhita period Charaka Samhita⁴ In Sutrasthana it was mentioned in, Lekhniya, Kustaghna, Kandughna, Krimighna Gana in Chikitsasthana etc.

Key words: Haridra, Brihadtrayee, Ekamuliya Prayoga.
Dhupa & also in Chikitsa of Kasa, Shwasa, Charmadala etc. In Sangraha Kala Authors of Chakradatta, Yoga Ratnakara, Rasa Ratna Samucchaya, Bhaisajya Ratnavali, Rasatarangini etc. have mentioned this drug in their literature.

When it comes to Adhunika Kala: Vaidya P.V. Sharma has explained about Haridra in detail. In Nighantu Adarsha the drug Haridra is mentioned with its properties & Eka Moolika Prayoga. Modern botanical books like Indian Materia Medica by Nadkarni (1908). Indian Medicinal Plants by Kirtikar & Basu (1918), The Wealth of India, Indigenous Drugs of India by, R.N. have identified this drug as *Curcuma longa*. In Dravyaguna Hastamalaka, Vaidya Banwarilal Mishra has mentioned Haridra under Ardraka Kula. In Dravyaguna Vignana by Achrya Yadavaji Trikamji has mentioned Haridra in Haridradi Varga.

In Ayurvedic Pharmacopia of India and Ayurvedic Formulary of India, Drug Haridra has been mentioned. Thus, Haridra is one of the best herbal drug and important drug from Vedic period to till today.

**Historical background of Haridra**

**Vedic period**

By searching the Vedic literature, it was found out that the drug Haridra was mentioned extensively. Acarya Sayana claimed Haridra as Medhya when administered with Madhu and Ghrita.

Hindu mythology revealed that the herb Haridra is included in Navapatrika and Devi Durga presides over this plant.

According to Sounakiya Atharva Veda Samhita, Haridra is indicated Svitra and Polita when used along with Bhṛṅgaraja, Indrarvuni and Nili.

It was also used externally as Udvartana in Hridroga and Kamala. In Kausika Dharmasutra, it is delineated that Haridra is an antidote for snake venom.

**Samhita Kala**

**Caraka Samhita:** In this Samhita, comprehensive depiction of Haridra is found. There is talked about Rasa, Guna, Virya, Vipaka, Prabhava, Doshika Karma and therapeutic use of Haridra.

Haridra is described in several Mahakaṣaya, Yavagu, different Yogas like Nisaamalki, Vasantakusumakar Rasa, Haridrakhanda etc. in various aspects.

**Susruta Samhita:** Acarya Susruta has mentioned Haridra in 3 Vargas - Haridradi, Mustadi and Lakshadi Gana. Rasapancak, therapeutic uses and Doṣakarmata are also described. It is used in various diseases like - Vrana, Visa, Medoroga, Pratisay etc.

**Ashtanga Hridayam:** Acarya Vagbhata did not mention the Haridra in detail, but it can be incorporated in different Ganas and therapeutic uses. It is recommended for different diseases as different formulations. Others Samgraha Grantha

**Sharanadhara Samhita:** There is no description on botanical and Rasapanchak aspects here; but it has mentioned in different Kalpana to mitigate different diseases like - Churna Kalpana, Kwath Kalpana, Sneha Kalpana, Lepa Kalpana etc.

**Nighantu Kala:** Almost all Nighantu have mentioned about Haridra in various Varga. Synonyms, botanical descriptions, properties, therapeutic uses are also mentioned.

**Plant profile of Haridra**

Local name: Haridra, halud

Botanical name: *Curcuma longa* Linn.

Family: Zingiberaceae/ Scitaminae

Implication of Botanical Name

**Curcuma:** This word is derived from the Sanskrit Kunkuma, means referring to both turmeric and saffron.

**Longa:** Plant is long/tall.

**Vernacular names of Haridra**

- Assamese : Halodhi, Haladhdi
- Bengali : Halud, Haldi
- Gujarati : Haldar
- Hindi : Haldi, Hardi
- Kannada : Arishina
- Marathi : Halad
Malayalam : Manjal
Oriya : Haladi
Punjabi : Haldi, Haldar
Sanskrit : Haridra, Kanchani, Pita, Nisha, Baravarnini, Yoshitpriya, Hattavilasini, Laksmi, Gauri
Santhali : Sasang
Telugu : Pasupu
Tamil : Manjal, Manchal
Kashmiri : Ladar, Ladhir

Other names

Arabic : Kurkum, Zarsud, Uruk-Es-Suff
Burmese : Sanwin, Hsanwen, Sanae
English : Turmeric
Latin : Curcuma Longa
Persi : Serd-Chubah
Urdu : Haldi
Nepali : Besar, Haldi
Thai : Kha Min Chan, Khaminluang
German : Curcuma, Indischer, Safran
Sinhala : Kaha
Indonesian: Kunyit, Kunir, Daunkunyit

Specific Characters

Flowers: Yellow
Rhizome: The useful part is rhizome and it is golden-yellow within, used for dyeing.
Uses: It is effective drug for jaundice, worms, Prameha and poisoning.

Taxonomical position of Haridra

Kingdom - Plantae
Subkingdom - Viridiplantae
Infra kingdom - Streptophyta
Super division - Embryophyta

Division - Tracheophyta
Subdivision - Spermatophytina
Class - Magnoliopsida
Super order - Lilianae
Order - Zingiberales
Family - Zingiberaceae / Scitamineae
Genus - Curcuma L.
Species - longa
Binomial name - Curcuma longa.

Pharmacognosy

Morphological descriptions

Roots/tubers - Root stock large, ovoid; sessile tubers thick, cylindrical, bright yellow inside.
Leaves - Long petiole; oblong, narrow at the base.
Flower - Bracts pale green; flowers as long as bracts, pale green; flowers during rainy seasons.

Distribution and habitat

Plant is a native of South Asia and is cultivated extensively throughout warmer parts of the world, including India.

Macroscopic and microscopic features of rhizome

Macroscopic: Rhizomes ovate, oblong or pyriform (round turmeric) or cylindrical, often short branched (long turmeric), former about half as broad as long, latter 2-5cm long and about 1-1.8cm thick, externally yellowish to yellowish-brown with root scars and annulations of leaf bases, fracture horny, fractured surface orange to reddish brown, central cylinder twice as broad as cortex: odour and taste characteristic.

Microscopic: Transverse section of rhizome shows epidermis with thick-walled, cubical cells of various dimensions, cortex characterized by the presence of mostly thin-walled rounded parenchyma cells scattered collateral vascular bundles, a few layers of cork developed under epidermis and scattered oleoresin cells with brownish contents; cork generally composed of 4-6 layers of thin-walled, brick-shaped parenchyma, cells of ground tissue contain starch
grains of 4-15μ in diameter, oil cell with suberised walls containing either orange-yellow globules of volatile oil or amorphous resinous matter, vessels mainly spirally thickened, a few reticulate and annular.

**Useful Part**[^17]: Kanda (Rhizome)

**Dose**[^18]: 1-3gm of the drug in powder form.

**Anupana**[^19]: Dhatri Rasa and Madhu or Guḍuchi Swarasa or Amlaki Swarasa or Kashaya of Citraka, Triphala, Darvi and Kalinga.

**Traditional use**: Traditionally it is used as spices, holy events like marriage, sacred thread ceremony etc.

**Phyto-chemistry**[^20]

The major chemical constituents are curcuminoids (approx.6%), the yellow colouring principles of which curcumin constitutes 50-60%; essential oil (2-7%) with high content of bisabolane derivatives.

Major chemical constituents: Curcumin, demethoxycurcumin and bisdemethoxy curcumin collectively known as curcuminoids (3-6%) are major polyphenolic compounds in turmeric rhizomes. The main colouring principle of turmeric rhizome was isolated in 19th century and named as Curcumin. Its chemical structure was determined by Roughley and Whiting (1973).

**Mechanisms of Action**

**Antioxidant Effects**[^21]

Water and fat soluble extracts of turmeric and its curcumin component exhibit strong antioxidant activity, comparable to vitamins C and E. A study of ischemia in the feline heart demonstrated that curcumin pretreatment decreased ischemia-induced changes in the heart. An in-vitro study measuring the effect of curcumin on endothelial heme oxygenase-1, an inducible stress protein, was conducted utilizing bovine aortic endothelial cells. Incubation (18 hours) with curcumin resulted in enhanced cellular resistance to oxidative damage.

**Hepatoprotective Effects**[^22]

Turmeric has been found to have a hepatoprotective characteristic similar to silymarin. Animal studies have demonstrated turmeric’s hepatoprotective effects from a variety of hepatotoxic insults, including carbon tetrachloride (CCl4), galactosamine, acetaminophen (paracetamol), and Aspergillus aflatoxin. Turmeric’s hepatoprotective effect is mainly a result of its antioxidant properties, as well as its ability to decrease the formation of pro-inflammatory cytokines. In rats with CCl4-induced acute and subacute liver injury, curcumin administration significantly decreased liver injury in test animals compared to controls. Turmeric extract inhibited fungal aflatoxin production by 90 percent when given to ducklings infected with Aspergillus parasiticus. Turmeric and curcumin also reversed biliary hyperplasia, fatty changes, and necrosis induced by aflatoxin production. Sodium curcuminate, a salt of curcumin, also exerts choleric effects by increasing biliary excretion of bile salts, cholesterol, and bilirubin, as well as increasing bile solubility, therefore possibly preventing and treating cholelithiasis.

**Anti-inflammatory Effects**[^23,24]

The volatile oils and curcumin of *Curcuma longa* exhibit potent anti-inflammatory effects. Oral administration of curcumin in instances of acute inflammation was found to be as effective as cortisone or phenylbutazone, and one-half as effective in cases of chronic inflammation. In rats with Freund’s adjuvant-induced arthritis, oral administration of *Curcuma longa* significantly reduced inflammatory swelling compared to controls. In monkeys, curcumin inhibited neutrophil aggregation associated with inflammation. *C. longa*’s anti-inflammatory properties may be attributed to its ability to inhibit both biosynthesis of inflammatory prostaglandins from arachidonic acid, and neutrophil function during inflammatory states. Curcumin may also be applied topically to counteract inflammation and irritation associated with inflammatory skin conditions and allergies, although care must be used to prevent staining of clothing from the yellow pigment.

**Anticarcinogenic Effects**[^25,26]

Animal studies involving rats and mice, as well as in vitro studies utilizing human cell lines, have demonstrated curcumin’s ability to inhibit
carcinogenesis at three stages: tumor promotion, angiogenesis, and tumor growth. In two studies of colon and prostate cancer, curcumin inhibited cell proliferation and tumor growth. Turmeric and curcumin are also capable of suppressing the activity of several common mutagens and carcinogens in a variety of cell types in both in vitro and in vivo studies.

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