

Curry Leaf: A Review *Murraya koenigii*: Shrub with Multipotential Activity

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Abstract

Curry Leaf (*Murraya koenigii*) is a South Asian native that is used in a variety of cuisines for its flavour and smell. Herbal drugs, which are relatively affordable and have few side effects, have long been used to treat a wide range of ailments. Curry Leaf is commonly utilised in traditional Ayurvedic medicine. Small deciduous shrub having medicinal and nutritional properties that could make it a future industrial crop. *Murraya koenigii* contains antibacterial, antifungal, and antiprotozoal effects, according to the literature, particularly in the leaf, stem, bark, and oil. The herb as a whole is used as a tonic and stomachic. The purpose of this research is to look at the classification, origin, physical properties, and traditional usage of curry leaf around the world.

Keywords: Extracts; Leaves

Introduction (Gahlawat, 2014)

Curry leaf (*Murraya koenigii*) is a member of the Rutaceae family, which has 15 genera and 1600 species (Sangam et al., 2015). It is found in South Asia, specifically India, Sri Lanka, and Bangladesh (Mustafa and Oktavia, n.d.). Because of their nutritional and pharmacological value, the use of plant-based natural products in illness treatment and prevention, as well as health enhancement, has piqued the interest of the scientific community and the general public. Medicinal plants are abundantly available and provide a low-cost, low-risk source for the development of innovative drugs [1, 2]. alkaloids, essential oils, phenolics, minerals and proteins (Singh et al., 2011), terpenoids, tocopherol, β -carotene and lutein (Patterson and Verghese, 2015). It can be used fresh, dried, powdered or in cooked form. It has many name forms i.e. Curry Leaf in English, Mitha Neem in Hindi, Karuveppilai in Tamil and Surabhinimba in Sanskrit (Henry, 2015). Curry Leaf plants can also be used as hedge and ornamental shrub due to its compound leaves (Parmar and Kaushal, 1982). *Murraya koenigii*

is distributed in the moist forest of Asian regions particularly Nepal, Bhutan, Laos, Pakistan, Thailand and cultivated all over India. It is rarely observed outside the Indian sphere of influence (Kumar et al., 2013). Herbal drugs are highly effective with minimum side effects and are to be used extensively in treating various diseases and they are relatively low cost. This review explains the different uses and potentials of curry leaf.

Classification

<i>Kingdom</i>	<i>Plants</i>
Sub-Kingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Magnoliopsida
Sub-Class	Rosidae
Order	Sapindales
Family	Rutaceae
Genus	<i>Murraya</i>
Species	<i>M. koenigii</i>
Binomial name	<i>Murraya koenigii</i> (L.) Sprengel

Description (Narasimhan, 1975)

Curry leaf plants can reach heights of 4-6m (13-20 Feet) and have trunk diameters of up to 40 cm (.16 inches). The leaves are pinnate, having 11-21 leaflets that are 2-4cm long and 1-2cm wide. The leaves are strongly scented, while the flowers are tiny, white, and fragrant. It has edible little black lustrous berries or fruits, however its seeds are toxic.



Figure 1: Curry Leaves plant.

Phytochemistry (Rastogi, 1984)

Curry leaves, scientifically known as *Murraya koenigii*, are widely used in Indian cuisine for their distinct flavor and aroma. They are also known for their potential health benefits. The phytochemistry of curry leaves involves the analysis of the bioactive compounds present in these leaves. Here are some of the key phytochemicals found in curry leaves:

- 1. Carotenoids:** Curry leaves contain various carotenoids, including beta-carotene, lutein, and zeaxanthin. Carotenoids are known for their antioxidant properties and are important for eye health.
- 2. Phenolic Compounds:** Curry leaves are rich in phenolic compounds such as quercetin, kaempferol, and rutin. These compounds possess antioxidant, anti-inflammatory, and antimicrobial properties.
- 3. Flavonoids:** Flavonoids are another class of phytochemicals present in curry leaves. They include compounds like apigenin,

myricetin, and luteolin. Flavonoids exhibit antioxidant, anti-inflammatory, and anticancer activities.

4. **Alkaloids:** Curry leaves contain alkaloids such as murrayanine and mahanine. Alkaloids have been associated with various pharmacological activities, including antimicrobial, antifungal, and anti-inflammatory effects.
5. **Essential Oils:** The essential oil extracted from curry leaves contains compounds like beta-caryophyllene, beta-pinene, and alpha-terpinene. These volatile compounds contribute to the characteristic aroma and flavor of curry leaves.
6. **Triterpenoids:** Curry leaves also contain triterpenoids, including mahanimbine and koenimbine. These compounds have been studied for their potential antidiabetic and cholesterol-lowering effects.

Moisture	63.2%
Total Nitrogen	1.15%
Fat	6.15%
Total Sugars	18.92%
Starch	14.6%
Crude Fiber	6.8%
Ash	13.06%
Acid insoluble ash	1.35%

Carotenoids

Lutein	9.744mg
d-tocopherol	18349 of
Total carotene	21.4mg/100mg
B-carotene	1.1mg/100g

Pharmacological Activities Reported

S. No.	Property	Scientists Reported	Description
1.	Immunomodulatory potential	Math et.al (2020)	Curry leaf extract works as an immunomodulator by boosting humoral immunity and phagocytic activity.
2.	Gastrointestinal disorder	Mandal et.al, 2010	In a charcoal meal test, nhexane extracts of curry leaf seeds showed considerable inhibitory effect against castor oil-induced diarrhoea and a significant decrease in gastro intestinal motility in wister rats.
3.	Antiviral	Math et.al (2020)	Because of its high concentration of polyphenols, terpenens saponins, and terpenes, its mouth wash can diminish the viral load of SARs-COV2.
4.	Antifungal	Mishra et.al (2010)	M koenigii acetone extract is active against <i>Aspergillus niger</i> , benzene extract is active against <i>Alternaria solani</i> , and ethanolic extract is active against <i>Pencillium notatum</i> .
5.	Hepatoprotective	Patil et. al 2012	It is hepatoprotective against ethanol-induced hepatotoxicity.

6.	Cardioprotective	Jaysinghe et. al 2012	Curry leaf extract may replenish cardiomyocytes and boost defence against doxorubicin-induced cardiotoxicity.
7.	Antigenotoxic	Verma and Kumari 2020	Studies on mouse sperm cells demonstrated. Curry leaves have a protective effect against paracetamol-induced genotoxicity.
8.	Free radical Scavenging property	Ningappa et. al 2008	Its ethanolic extract possesses the strongest antioxidant and free radical scavenging activity.
9.	Anti- cancer	Ghosh et. al 2012	Curry leaf ether extract has been shown to reduce cancer cells in mice.
10.	Anti diabetic	Arul Selvan et. al (2006)	In STZ-induced diabetic rats, it has strong hypoglycemic potential. It is more effective than the wellknown antidiabetic medication glibenclamide. Mahanimbine has been shown to lower blood sugar levels in mice.
11.	Analgesic	Nishan and Subramaniam (2015)	Root juice consumption gives renal pain relief.

Conclusion

Based on available reports and data from a literature review, it is concluded that *murraya koenigii* is a miraculous plant with medicinal importance due to its richness in antioxidants, carotenoids, alkaloids, and the presence of more than 50 beneficial chemical constituents. Beside from their therapeutic properties, they also benefit skin care, hair damage due to high levels of Vit-A, and eye sight.

Given its great pharmacological actions and the abundance of literature, *Murraya koenigii* may be used to cause a wide range of diseases as well as in the production of medications and amriolating agents against many types of toxicity.

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