

Curry Leaf (*Murraya koenigii*): Unveiling its Therapeutic Potential

Susmita Oraon¹, Bandana Mayanglambam¹, Soumik Mukharjee¹, Siddharth Singh² and Goutam Mondal³

¹Department of Plant Pathology, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur-741 252, Nadia, W.B., INDIA

²Department of Plant Pathology, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur-208 002, U.P., INDIA

³AICRO on MAP and Betelvine, Directorate of Research, Bidhan Chandra Krishi Viswavidyalaya, Kalyani-741 235, W.B., INDIA

Email: khushioraon97@gmail.com

*Medicinal plants have been known to be an important potential source of therapeutics or curative aids. The use of medicinal plant has attained a commanding role in health system all over the world. Several plants play an important role in providing shelter, clothing, food, flavour and medicinal products among many other uses. India is the land of several medicinal plants and herbs that are traditionally used to cure many diseases. Curry leaf (*Murraya koenigii*), is one such plant, belongs to the family Rutaceae. It grows throughout the Indian subcontinent. Curry leaf is a highly valued plant for its aroma and medicinal value. The important advantages claimed for therapeutic uses of medicinal plants in various ailments are their safety besides being economical, effective and their easy availability. Curry leaf contain several medicinal properties that include it being antidiabetic, antioxidant, antimicrobial, antiinflammatory, anticarcinogenic and with hepatoprotective properties.*

Introduction

“Let food be your medicine and let medicine be your food.” These days the term “Alternative Medicine” became very common in western culture, it focus on the idea of using the plants for medicinal purpose. World Health Organization stated that, 80 % of the population, markedly in the developing countries, banks on traditional plant based medicine for primary health care. India is frequently known as enormous biodiversity of medicinal plants. Among them curry leaf (*Murraya koenigii*) have a lots of bioactive principles due to which plant has been proven as a natural medicinal plant (Fig. 1). The word ‘curry’ originated from the Tamil word ‘kari’ which means ‘spiced sauce’ commonly known as curry leaf or curry patta in Indian language. It belongs to the family Rutaceae that consists of approximately 150 genera and 1500 species.

Curry leaf has been used for centuries in the Ayurvedic system of medicine. It is an important leafy vegetable; its leaves are widely used in Indian cookery for flavouring foodstuffs. Curry Leaves, aromatic ingredient found in the Indian households having health and therapeutic advantages. Currently, in addition to antibiotics and chemically synthesized drugs, the trend to look out for alternative medicines such as natural or herbal medicines is increasing because they have fewer side effects or toxicity owing to their natural sources. This tree being indigenous to India, Srilanka and South East Asian countries is known by several vernacular names such as ‘Kadi Patta’ or ‘Meetha Neem’ in Hindi, ‘Kariveppilai’ in Tamil, ‘Karivepaaku’ in Tamil, ‘Karivempu’ in Malayalam. The leaves are used in many different types of holistic treatments like Ayurveda, Siddha, and traditional Chinese treatments for their medicinal properties in

treating diabetes, diarrhoea, gastro intestinal disorders etc. The dried grounded leaves also have anti-helminthic, anti-fungal and anti-bacterial properties, which are potent against various infections and skin disorders.



Fig.1. Curry leaf Plant

Origin and distribution

It grows throughout the Indian subcontinent, later spread worldwide by the Indian migrants. The leaves are particularly associated with South Indian cuisines. From the Ravi River in Pakistan its distribution extends eastwards towards Assam in India and Chittagong in Bangladesh, and southwards to Tamil Nadu in India. Among the 14 global species of the genus *Murraya*, only two are found in India: *M. koenigii* (L.) Spreng and *M. Paniculata* (L.) Jack, with the former being more renowned for its potent medicinal properties.

Plant description

It is a shrub or a small tree having a main, dark greenish to brown, stem with several dots on it. The stem of *Murraya koenigii* is brown to dark green with shiny, smooth and aromatic leaves. The flowers are small, white in colour, bisexual, deeply five cleft calyx, pubescent, having five petals which are free, glabrous, whitish in colour and with dotted glands. Fruits are seen to occur in close clusters, small ovoid or sub-globose, glandular with a thin pericarp. They are biseeded, seeds having spinach green colour. Pinnate leaves are used in many South Indian curries.

Climate and soil

The ideal temperature ranges for curry leaf is around 16-37 °C. Growth of plant gets affected beyond this temperature. Red sandy loam soil is ideal for its cultivation. It grows well in almost any type of soil if there is a good drainage and can grow up to 1500 m in the Himalayas.

Traditional use

It has wide culinary use and is one of the main components of formulations in the traditional Ayurvedic system. People have utilized plant as source of therapy against ailments

because of its phytochemicals which play an important role in boosting up various organ functions by acting as antioxidants.

Ayurvedic system of medicine uses powdered dry curry leaf mixed with honey and betel nut juice as an anti-periodic. The bark and the roots are used as a stimulant by the physicians. The leaves of this plant are used externally for application onto bruises, burns, eruption and treatment of bites of poisonous animals. Internally, they are used to cure dysentery. Curry leaves are also used in calcium deficiency. The leaves and roots used for curing piles, allaying body heat, thirst, itching and inflammation also been helpful in leucoderma and other blood disorders. Fresh juice of curry leaves, with lime juice and sugar, is an effective medicine in the treatment of morning sickness, nausea and vomiting due to indigestion. Root and fruit juice have hepatoprotective actions and are proven to be good for kidney related pains. Furthermore, the plant has anti-tumor, hypoglycaemic and anti hypercholesterolemic effects.

Benefits of curry leaves

Curry leaf is packed with a various nutrients like carbohydrate, calcium, phosphorous, iron, magnesium, zinc, fiber, vitamins like vitamin A, vitamin B, vitamin C, vitamin E (Table 1). It helps heart function better and extensively used in the treatment of anaemia, diabetes, indigestion, obesity, hair and skin problems, kidney problems. Leaves are high in fiber, packed with proteins, abundant in calcium and phosphorus, and rich in essential oils, making them a powerhouse of nutrients with numerous therapeutic benefits.

Table 1. Nutritional value of curry leaves (per 100 g)

Nutrients	Quantity	Nutrients	Quantity
Energy	: 108 Kcal	Folic Acid	: 23.5 µg
Protein	: 6.1 gm	Magnesium	: 44 mg
Fiber	: 6.4 gm	Carotene	: 7560 µg
Phosphorus	: 57 mg	Riboflavin	: 0.210 mg
Calcium	: 830 mg	Niacin	: 2.3 mg
Iron	: 0.93 mg	Vitamin C	: 4 mg

Sources: as per USDA

Bio-chemicals such as Carbazol alkaloids (Girinimbiol and Girinimbine) are abundant in the stem, leaf, and root extracts of curry leaves, offering antidiabetic, anticancer, antimicrobial, antioxidant, anti-inflammatory, and other beneficial properties. The plant also contains proteins, fats, carbohydrates, flavonoids, terpenoids, enzymes, and oils, many of which exhibit biological activity, aiding in the treatment and management of various diseases. Specific compounds such as Mahanine, bismurrayafoline E, euchrestine, bismahanine, bispyrafoline, isomahanine, O-methyl murrayamine A, O-methyl mahanine, lutein, carotene, and tocopherol, found in leaf extracts, display antioxidant properties. Curry leaf extracts help maintain normal blood glucose levels by activating pancreatic beta cells responsible for insulin production. The oil of curry leaves possesses antibacterial, antifungal, hypolipidemic, anti-lipid peroxidative, hypoglycemic, antioxidant, and anti-hypertensive properties. Some of the therapeutic activities of Curry leaf plants are briefly describe below:

Diabetes control: The curry leaves play a significant role in the maintenance of blood sugar level of the body. The production of insulin from the pancreatic β -cells become active on



consumption of curry leaves, this insulin help in keeping the blood sugar level under check. It helps in reducing the breakdown of starch into glucose resulting low blood glucose level.

Prevents anemia: Curry leaves are reach source of iron .The deficiency of iron in the human body causes anaemia. Having a high concentration of iron in curry leaves is extremely effective in increasing the haemoglobin and red blood cell of the blood. It acts as natural blood purifier and reduces the chances of getting infections.

Good for vision: Curry leaves being abundant in vit-A and β -carotene that helps to promote the eye cornea by preventing drying up and the transparent layer that cover the eye. It plays a vital role in improving eye sight and prevents night blindness.

Infections control: The curry leaves have antioxidants, anti-bacterial, anti-fungal and anti-inflammatory properties. So, regular consumption of this herb shields our body against various infections.

Improve digestion and act as boon for weight loss: Curry leaves are considered as a boon by people under weight loss management program by improving digestion capacity and burn excess bodyfat. The presence of carbazole alkaloids in the leaves prevents weight gain and manages the cholesterol level in the blood. It washes out the harmful toxins from our body.

Prevents cancer: Recent researches suggest that the presence of phenols and carbazole alkaloids tested for its ability to preventing cancer.

Dental care: The essential oils extracted from curry leaves have the capacity of strengthen the teeth, removes bad odour and protects the teeth and gum from any foreign microbes and infections.

Hair and skin care: The protein and beta-carotene present in curry leaves helps in reducing hair falls and increasing hair growth. It nourishes the damaged hair. Vitamin B in curry leaf helps in strengthening the hair and delaying the hair greying. Curry leaves are also helpful in skin care and wound healing.

Conclusion

Curry leaf, a traditional multipotential plant, offers medicinal properties across all its parts-leaves, stems, roots, fruits and seeds. With notable pharmacological activities including heart health, anti-diabetic and cholesterol-reducing properties, antimicrobial effects, antiulcer benefits, antioxidative qualities, cytotoxic effects, antidiarrhea properties, and phagocytic activity. The oil extracted from its leaves also holds therapeutic value.