



REVIEW OF *MURRAYA KOENIGII* (CURRY LEAVES) AND HERBAL GEL

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ABSTRACT

Medicine is food and food is medicine" is the best way to describe how that diseases were cured through the use of the plants in ancient times. The "magic Plant of the Indian spices" (*Murraya koenigii*) has not only served mankind as a nutritional booster but also serve as village or folk medicine to heal many diseases of the tribal communities used many parts of the *Murraya koenigii* to heal. *Murraya koenigii* used to heal diarrhea, kidney pain, stomach upset and morning sickness. The carbazole alkaloids such as koenigin, bicyclomahanimbicin, cyclomahanimbine, murrayastine, coumarin, koenidin and pypayafolincarbazole have significant medicinal activities.

KEYWORDS: *Murraya koenigii*, Herbal gel, antibacterial activity, active compounds.

INTRODUCTION

Curry leaves (*Murraya koenigii*) are a popular leafy spice used in very small amounts for its distinct aroma due to the presence of essential oil and its ability to improve digestion. These leaves are commonly used in Asian cuisine to flavor dishes. *Murraya koenigii* Spreng is called "Surabhinimba" in Sanskrit. Family :*Rutaceae*. Curry leaves are referred to by different names by different ethnic groups. In Tamil we call it Karivempu, in Bengali we call it Barsunga, in Hindi we call it Kurrypatte. Among fourteen global species, only *Murraya koenigii* Spreng and *Murraya paniculata* (Linn) are available in India. *Murraya koenigii*, which belongs to the *Rutaceae* family, represents more than 150 genera and 1600 species. The leaves of this plant are widely used in Indian cuisine and the chemical substance responsible for its aromatic properties are P-Gurjunene, P-Caryophyllene, P-Element and O-Phellandrene. The presence of β -pinene, β -caryophyllene, β -phellandrene and α pinene has the ability to control food spoilage either alone or in combination. The author notes that the three different morphotypes of *Murraya koenigii* have different intensities in its taste.

They contain several medicinal properties such as antidiabetics, antioxidants, antimicrobial, antifungal, anti-inflammatory, anticarcinogenic and hepatoprotective properties. The various notable pharmacological activities of the plant include activity on the heart, antidiabetic and cholesterol-lowering properties, antimicrobial activity, antiulcer

activity, antioxidant property, cytotoxic activity, antidiarrheal activity.

PLANT TOXONOMY

Kingdom	Plantae
Subkingdom	Tracheobionta
Superdivision	Spermatophyte
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Rosidae
Order	Sapindales
Family	Rutaceae
Genus	Murraya J. Koenig ex L
Species	<i>Murraya koenigii</i> L., Spreng

MURRAYA KOENIGII (Curry leaves) – An Overview

Murraya koenigii is a plant that has important uses in the traditional medicine system East Asia. Based on ethano medicine, *Murraya koenigii* is used as a stimulant, anti-dysentery and for the treatment of diabetes mellitus. The plant is distributed and cultivated throughout India. It is found wild from Sikkim to Garhwali, Bengal, Assam, Western Ghats and Travancore-Cochin. Propagation is by Seeds that germinate freely in partial shade. The leaves, root and bark are tonic, stomachic and digestive. Leaves are used internally for dysentery, also to combat vomiting. Leaves are applied externally to bruises and rashes.

OTHER NAMES OF CURRY LEAVES

- TAMIL - Karivepillai
- ENGLISH - Curry leaves
- MALAYALAM - Karivepilla
- CANADA - Karivevu
- TELUNGU - Karivebaku
- BENGLA - Curry Pata
- ASAMAMESE - NoroSingho
- ORIYA – Bhrusangapatra
- MARATHI – Kadhipatta
- HINDI - Karipatha
- GUJARATHI – MithoLimdo

The green leaves were eaten raw as a remedy for dysentery and diarrhoea. An infusion of roasted leaves was administered to stop vomiting. In addition, *murraya koenigii* have also been used as a blood purifier, tonic and remedy for stomach pain, and as a flavoring in curries and chutneys. Curry leaves have also been used as a source of calcium for people with calcium deficiency, besides they also contain vitamin A, vitamin B and B2, vitamin C and iron.

To treat morning sickness; fresh juice of curry leaves along with lime juice and sugar is given and is also applicable to vomiting due to indigestion. For stomach ailments, the curry leaves are ground into a fine paste and mixed with buttermilk and taken orally. A paste made from curry leaves is applied to boils for quick relief, and kidney pain can be cured by consuming the root as a juice. The fresh juice of curry leaves can prevent cataracts from progressing. *Murraya koenigii* maintains the black hair color, in other words, it prevents premature graying of the hair. The leaves are about 30 cm long, have 24 leaflets each and are veined. The macroscopic view of the leaves of *L. Murraya koenigii* *L Spreng* is obliquely ovate or somewhat diamond-shaped with a pointed, blunt, or pointed tip. The petiole is about 20 to 30 cm long and the leaves have reticulate veining and a serrated margin with an asymmetrical base. From the microscopic examinations, it was clarified that the stomata were distributed on the abaxial surface and the adaxial surface had no stomata, and the type of stomata found was anomocytic. Cross-section of the leaves reveals an epidermal layer composed of rectangular cells that serves as the outermost covering for the upper and lower layers. In addition, the author noted that the upper epidermis was covered with cuticle debris and the epidermis in the midrib part or section has 1-4 layers of collenchymatous hypodermis with 2-5 layers of chlorenchyma cells filled with chlorophyll content. The ground tissue consists of oval to polygonal parenchyma cells and is oblique with vascular bundles. Calcium oxalate is found in this region in the form of sandy and prismatic crystals.

ACTIVE COMPOUNDS OF MURRAYA KOENIGII

The ripened curry leaves are composed of 63.2% moisture, about 1.15% protein, about 1.15% nitrogen, 14.6% carbohydrates, total sugars, and 13.06% ash. The

bioactive components in curry leaves are oxalic acid, resin, carbazole alkaloids and the most important bioactive compounds such as koenigine, bicyclomahanimbicin, cyclomahanimbine, murrayastine, coumarin, koenidine and pypayafolincarbazole significant pharmacological activities and the main part of the essential oil consists of bicyclomahanimbicin, mahanimbicin. The composition of volatile compounds found in *Murraya Koenigii* essential oil from the state of Sabah, Malaysia is as follows. Linalol (0.56%), trans-Sabin hydrate (0.53%), trans-2-cyclohexen-1-ol (0.48%), cis-2-cyclohexen-1-ol (0.54%), para-cymen-8-ol (10.31%), β -terpinol (2.52%), trans-piperitol (0.40%), chrysanthenyl acetate (0.39%), lavandulyl acetate (1.67%), bornyl acetate (1.68%), α -copaen (0.82%), β -elemene (0.35%), (Z)-jasnone (0.11%), β -caryophyllene (19.50%), aromadendron (0.72%), α -Humulene (15.24%), butanedioic acid (2.18%), β -Selinene (3.81%), naphthalene (1.90%), α -Selinene (6.10%), δ -Cadinene (2.03%), nerolidol (2.64%), trans-nerolidol (1.32%), cycloheptane (0.13%), spathulenol (1.98%), T-caryophyllene oxide (2.14%), viridiflorol (1.51%), 2-Naphthalene methanol (0.66%), Trivertal (0.35%), Camphor Juniper (1.57%), Cubenol (0.57%), β -cadinol (6), 4-diene (0.50%), selina-6-en-4-ol (4.78%)

PHARMACOLOGICAL ACTIVITY

- ❖ Antimicrobial activity:
- ❖ Antipyretic activity
- ❖ Hypoglycemic Effects
- ❖ Hepatoprotective Activity
- ❖ Anti inflammatory
- ❖ Cytotoxic activity
- ❖ Anti-obesity activity
- ❖ Chemoprotective Activity
- ❖ Inotropic activity.
- ❖ Nephroprotective

REVIEW ON HERBAL GEL

The curry leaves herbal gel has both antifungal and antibacterial activity. The herbal gel was to prepare containing the alcoholic extract of curry leaves (*murraya koenigii*) are exhibited for anti-microbial activity against various microorganism such as negative bacteria, namely *Escherichia Coli*, gram-positive bacteria, *staphylococcus aureus* and fungi, namely *aspergillus niger* and *candida albicans*. The extract of curry leaves with various excipients after the gel is formulated, it is subjected to various evaluation parameters. The formulation was evaluated using various parameters, such as pH, viscosity, spreadability and stability.

In this study the extract of curry leaves is used to prepare and evaluate the gel. The gel is formulated with *murraya koenigii* extract and various excipient with different concentration. From this, it can be concluded that herbal gel with anti-microbial property can be used to protect the skin and hair growth.

CONCLUSION

Murraya koenigii is a leafy medicinal as well as green leaf plant belong to family *Rutaceae*. The literature of *Murraya koenigii* has the pharmacological activity such as anti-diabetic, anti-oxidant, hepato protective activity, anti cancer, nephro protective activity.

We have planned to extract the *Murraya koenigii* using the solvents like ether, alcohol and water. Further we planned to formulate a herbal gel of the extract using carbopol 940, distilled water, methyl paraben, propyl paraben and perform the antibacterial activity of the formulation in future.

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