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A Review of Murraya Koenigiiits Benefit and Pharmacologicalaction

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Abstract: *Although they are called "sweet neem leaves," the leaves are called "Kari leaves. " In South India, curry leavesare a rare and leafy vegetable, important in the garden. Due to the shape of the leaves in the shape of a bitter tree, the Canadian name for this plant is "black neem", which means "black neem". This is a very valuable product that is used in the cosmetics and pharmaceutical industry as well as food packaging. Therefore, from the point of view of the welfare of farmers and businesses, plant breeding is very important. These aromatic leaves are used to flavor many Indian dishes, especially curries with fish or coconut milk. The sauce for these spicy dishes is described by the creative Indian word "Kari", which gave its name to the curry leaf. Industry, and food flavoring as well. Therefore, from the point of view of the welfare of farmers and businesses, plant breeding is very important. These aromatic leaves are used to flavor many Indian dishes, especially curries with fish or coconut milk. There is a need to grow more curry leaves because they are widely used in the industry for their medicinal properties such as diabetes, antioxidants, antimicrobials, anti-inflammatory, liver protection, anti-cholesterol etc. and make up. The economic condition of the farmer can also be improved in several wayscurry leaves are an indispensable ingredient in dressings, not just for decoration. It has many medicinal and nutritional uses, as well as cosmetic uses. But since ancient times, it has been customary to remove curry leaves from dishes and throw them away before tasting. Mustard seeds are simmered in hot oil. adding chopped onions and curry leaves. In this article, we will explore the health benefits of curry leaves in addition to the taste of everyday life*

Keywords: Murraya Koenigii, pharmacological activity, Traditional uses

I. INTRODUCTION

The curry (or kauri) leaf (called riverplain in Tamil) grows throughout India and has been used for centuries in South India and Sri Lanka as a vegetable condiment, chutneys, vegetables and drinks. South Indian traders introduced them to Malaysia, Burma and Singapore. When the British came to India, they called it a curry leaf and named it after the spicy sauce (Karin Tamil) that was added to it. India is often known for its rich diversity of medicinal plants.

Figure. No. 1: Murraya Koenigii.

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Among them, Murraykonini has many biological principles becausewhich plant has been proven to be an important medicinal plant, but the least attention or indifference by researchers.[1]Murrayakoenigii is a spreading shrub in the Rosaceae family. It is found in Himachal Pradesh and tropical forests of Peninsular India and Malaysia.[2]Different parts of the plant are used in the past to treat many diseases. For example, the roots, bark and leaves of the plant have been used to treat digestive problems. The leaves act as blood purifiers, and tonic. It is also used to treat body pain, kidney pain and vomitingcurry leaves can be used medicinally to treat bruises and rashes, to increase inflammation, etc. Herbs have been used medicinally throughout the world for thousands of years. According to the WHO (World Health), 80% of the population, mostly in developing countries, still rely on herbal medicine for primary health care. In India, there are many systems of medicinal use such as Ayurveda, Siddha, Unani, Machi and local health systems, which focus on the use of plant products to treat human diseases and conditionsanimals Organization.[3]

Taxonomical Classification [4]

Kingdom Taxonomic -Plantae
Subkingdom- Tracheobionta
Super division- Spermatophyta
Division- Magnoliophyte
Class- Magnoliophyta
Subclass – Rosidae
Family- Rutaceae
Genus- Murray J. Koenig ex L.
Species- Murraykonini (L.) Spreng

PLANT DESCRIPTION AND HABITAT

This plant is distributed and cultivated throughout India. It is found wild from Sikkim to Garhwal, Bengal, Assam, Western Ghats and Travancore-Cochin. Propagated by seeds, it grows only in partial shade. Also found elsewhere in the Asian region, for example moist forests at 500-1600 m altitude in Guangdong, S Hainan, S Yunnan (Xishuangbanna), Bhutan, Laos, Nepal, Pakistan, Sri Lanka, Thailand.Arribada reaches Malaysia, South Africa and Réunion together with South Indian immigrants. Outside of India's influence, it is almost invisible. M. koenigii is a semi-stemmed, semi-double, small tree with slender but strong trunk and branches covered with dark gray bark, smooth, smooth and very fragrant leaves. Leaflets 9-25 or more, short-stemmed, opposite, punctate tuber, very fragrant.Arribada reaches Malaysia, South Africa and Réunion together with South Indian immigrants. Outside of India's influence, it is almost invisible. M. koenigii is a semi-stemmed, semi-double, small tree with slender but strong trunk and branches covered with dark gray bark, smooth, smooth and very fragrant leaves. Leaflets 9-25 or more, short-stemmed, opposite, punctate tuber, very fragrant.Plant Description Tree is a semi-deciduous, unarmed aromatic small spreading shrub or tree as strong woody stem, stem which is dark green to brownish in colour.[5] The tree is 4. 2–8.6 m (14–31 feet) tall, with a trunk up to 81.2 cm diameter. The diameter of the main stem is approximate 16-17 cm. Stem and Bark are Brown to dark green, the main stem is 16 cm up to 6 meters in height and 15 to 40 cm in diameter. 6The stem has dots on the bark like small node. Curry leaves are Aromatic in nature, Leaves of curry leaves are shiny and smooth undersides are paler. Leaves are pinnate, exstipulate, reticulate and have ovate lanceolate with an oblique base, with 11-22 leaflets and the size is each leaflet is 0. 80–1.56 inch in length and 0. 38–0.78 inch broad. The flowers of curry leaves are Small, white fragrant and funnel-shaped. The Curry tree flowers have a sweet fragrance, black berries in small size with shiny appearance. The fruits are in the sub globose and smaller in size in the spinach green colour seed in one or two number which are enclosing each other in the thin pericarp1. The fruits are 1.2 to 1.3 cm in the diameter with length 1.3 to 1.5 cm, purple black after ripening and they are edible.[6]

MORPHOLOGY

Murrayakoenigii is a small tree up to 2.5 meters tall, dark green to brown. Peeling back the bark long enough to reveal the white wood underneath. The diameter of the main stem is 16 cm. The leaves are about 30 cm long, each leaf has 24 leaflets, and they have air traps. The flowers are fragrant and the shape of the crown is white, and the diameter of the

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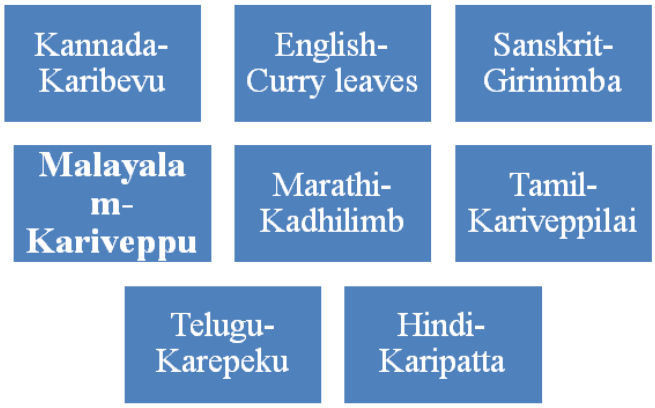
flower is 1.12 cm when fully opened, it is double. Fruits are round in shape, 1.4 to 1.6 cm long and 1 to 1.2 cm wide. When the fruit is fully ripe, the surface is black and shiny, and the pulp is blue. It is a green spinach seed with a length of 11 mm and a weight of approx445mg. [7,8]curry leaf (Murrayakoenigii) belongs to the Rutaceae family including 150 genera and 1600 species. thisplant is native to Southeast Asia, especially India, Sri Lanka and Bangladesh (Mustafa and Octavia, the use of the Murrayakoenigii dates back to the 1st and 4th centuries AD. Tamil and Kannada texts describe Moraya Koenigii as having curry as a delicacy. In terms of flavor, it is considered one of the most important elements in South Asian cuisine. It retains its flavor and other properties even after drying, making it a popular flavor and aroma in tropical countries . The main flavor and aroma components of curry leaves are pinene, Sabine, caryophyllene, cardinalol and cardine.The whole plant is considered tonic and stomachic, which has ancient uses Murrayakoenigii has been shown to contain biological phytochemicals such as alkaloids, essential oils, phenols, minerals and proteins, terpenoids, tocopherol, beta-carotene and lutein. It can be used fresh, dried, powdered or cooked. It has many different names like Curry Leaf in English, Mitha Neem in Hindi, Karuvepilai in Tamil and Surabhinimba in Sanskrit. Garden leaf plants can be used as hedges and ornamental shrubs because of their clustered leaves.The Murrayakoenigii is grown in humid forests in the regions of Asia, especially Nepal, Bhutan, Luas, Pakistan, Thailand and throughout India. It is rarely seen outside of Indian influence. Herbal medicines are very effective and have few side effects and are widely used to treat various diseases at low cost.This review explains the various uses and capabilities of the software.Fresh leaves, dried leaf powder and essential oils from the leaves are used to enhance the flavor of curries, fish dishes, soups and meat products. They also add a delicious flavor to egg dishes, are convenient to use, and contribute to the taste of many types of cooking. In Ayurvedic medicine, dry curry leaf powder is combined with honey and betel nut juice as a temporary remedy. Externally, these leaves are used against bruises, burns, rashes and bites from poisonous animals. Internally, it is used to reduce arthritis and control diabetes. In addition, it is stimulating and shows promise in the treatment of diseases such as leukoderma, arthritis and rheumatism. Because of its bitterness and bitterness, the leaves and roots have cooling and anthelmintic and analgesic properties. It is often used to treat colds, reduce body heat, thirst, itching and inflammation. Root juice has liver protection properties and is good for kidney pain. In addition, the fruits of this plant are very edible and have many medicinal uses.Apart from culinary uses, the essential oils extracted from curry leaves are also valued by cosmetics, aromatherapy and the soap industry for their aromatic properties. Steam drying of the leaves is used as stomachic, carminative, purgative, antipyretic and anti-anemic.Murrayakoenigii leaves are known to be an excellent hair tonic, maintaining natural hair texture and stimulating hair growth. The traditional method is to boil the leaves in coconut oil until a thick paste is obtained. Many parts of the plant, including the leaves and the whole plant, have been used in traditional medicine for their anti-emetic, blood-purifying, depressant, antifungal, analgesic, anti-inflammatory and anti- diarrhea. It has also been used to relieve kidney pain, vomiting and to treat poisonous animal bites. Eating the raw green leaves of this plant with lemon juice can help with diarrhea and morning sickness. In addition, the use of leaf paste and root juice can relieve kidney inflammation and pain. [9

SYNONYMS OF CURRY LEAF:



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PHYTO CONSTITUENTS OF PLANT

Leaf: Murrayakoeniggi leaves contain quenimebin,o-methylmuraiamine, o, o-methylmahanine, isomahanine, bismahanine, and bispiriafoline, as well as quenigine, quinine, quinidine, mahanimebin, isomahanimebin, quenibidin, and murayhanzoformyl-31-methyl-31-methyl- 31 n carbazole, and 6, 7-dimethoxy-1-hydroxy-3-methylcarbazole are the main components of dry leaves. In addition, the leaves of Muraya koenigii contain nicotinic acid, protein, carbohydrates, fiber, minerals and carotene.[10]

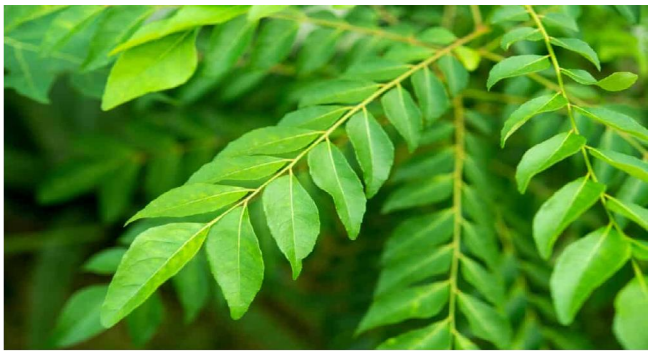

Figure.No2:Leves of Muraya Koenigii

2. Seed: Conimbine, quinine and curiam are the three bioactive carbamides found in the seeds of Murayakoenigii. In addition, mahanimbin, jirinibin, quenimbin, mahanin and isomahanin are present in the seed. Murrayakoenigii seeds contain minor furocoumarins such as xanthotoxin, isobiacnaglycol, biacanglycol and isogospherol in addition to indicolactone, anisoalactone and 2,3-epoxyindicolactone, a furocoumarin lactone. This is the first furocoumarin with a monoterpenoid lactone chain.[11]

Figure No.3: Seeds of Muraya Koeniggi.

3.Fruit: Mahanimebin and koenimbine can be extracted from Murayakoeniggi fruits usingether oil. Along with mahanimbin, moraizolidin, girinimbin, quenimbin and mahanin, isomahaninand moriano also found.[11]

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Figure No.4: Fruits of Muraya Koeniggi.

4.Root: The root of Muraya koenigii contains bioactive substances such as marmesine-1"-Orutinoside, murayanol and murayagetin. In addition, the bark of the plant was used to extract mucoenins-A, B and C mucoenine-A, three B. and C monomer alkaloids and carbazole monomeralkaloids and morastifolin-F These compounds are bis-2hydroxmethylcarbazole, bisumaquinone-A, and bismurrayaquinone-A. benzene extract mucoline and mucolidine the root bark contains quinoline, a chemical term for 1-methoxy-3-hydroxymethylcarbazole.[10]

Figure No .5: Root of Muraya Koeniggi.

5.Flower: The plant spends the majority of its energy on nurturing the blossoms before they mature and transform into fruits. The plant's growth is severely slowed as a result. Soimmediately cut off the flower buds from the plant unless you have a cause to grow the curry leafseeds. linalool (32.83%), elemol (7.44%), geranyl acetate (6.18%), myrcene (6.12%), allow ocimene (5.02), α-terpinene(4.9%), and (E)-β-ocimene (3.68%) as the maincompounds.[10]

Figure.No.6: Flower of Muraya Koeniggi.

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HEALTH BENEFITS- [12]

1) Powerful anti-oxidant-curry leaves are rich in plant-based antioxidants. These compounds keep us healthy and protect us from many diseases. They protect us from oxidative damage, prevent diseases of the nervous system, cardiovascular system, kidneys, etc.

2) Reduce risk of cancer-The leaves have no anti-mutagenic potential. It protects our body against various types of cancer. The flavonoids in the leaves do not have anti-cancer activity. It is effective in preventing the growth of breast cancer cells. Kale also protects the body against colon cancer. Kale leaves are also useful in protecting the body against cancer.

3) Reduce risk of heart disease-Curry leaves protect our hearts by preventing oxidative damage. Taking kale leaves lowers cholesterol levels. It also lowers triglyceride levels. As a result, reducing risk factors can help protect us from heart disease.

4) Help in the management of diabetes: Eating curry leaves helps in controlling diabetes and its complications. Curry leaves are very effective in lowering blood sugar levels. Kale leaves are high in fiber, which slows down digestion and thus prevents sudden spikes in blood sugar. It increases the action of insulin and helps diabetics. You can refer to the diabetes food chart to find other foods that should be included in your diabetes meal plan.

5) Heals wounds: Can be used in garden leaves! Apply curry leaf paste on wounds, minor burns or rashes to heal them. Kale leaves have anti-inflammatory properties that can protect wounded skin from infection.

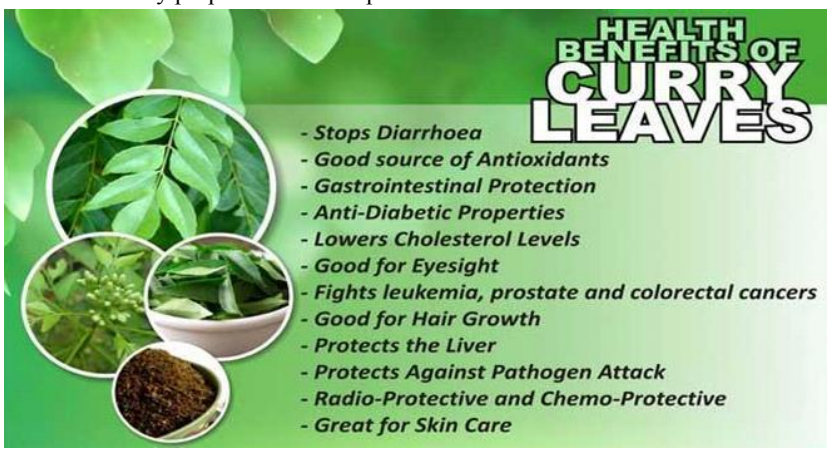

Figure. No.7: Health benefits of curry leaves.

PHARMACOLOGICALACTIONOFMURRAYAKOENIGGI: -

1. Anti-inflamatory-Muraya koenigii leaves were extracted with three different solvents. Petroleum ether, chloroform and alcohol. The dose of 250 mg / kg was chosen, 10. 1 mg / kg of 2500 was considered LD50, the dose was given orally Compared to the three solvents, it was found that the ethanol extract showed a significant reduction in carrageenan-induced paw edema in Wistar albino rats.[13]

2. Anti-microbial activity-Hexane, methanol and chloroform extracts of Muraya koenigii roots were tested against Bacillus subtilis, Staphylococcus aureus, Escherichia coli, Salmonella typhi and fungal strains of Aspergillus Niger, Candida albicans and Trichophyton rubrum. Hexane, methanol and chloroform extracts of Moraya koenigii root were effective against all strains tested and methanol extract was more effective against Staphylococcus aureus and Trichophyton rorum thanother strains. Staphylococcus aureus was sensitive to all three extracts, except that the aqueous root extract was insensitive to the tested microorganism10.[14]

3. Anti-fungal activity-Extracts from Moraya koenigii leaves show antifungal activity against various fungi such as Candida tropicalis, Candida albicans, Aspergillus fumigatus, Aspergillus niger and Microspore gypsum. In addition, the alcoholic extract of the leaves showed myotoxicity against Rhizoctonia solani and Colletotrichum falcatum. Methanolic and ethanolic extracts of Murrayakoenigii were found to be effective against the mycelial growth ofRhizoctonia solani and Fusarium oxysporum, but with different degrees of effectiveness. Both extracts showed inhibitory effects on fungal growth, but their effects were different.[15]

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3. Anti-viral activity-Antiviral activity against Candida tropicalis, Candida albicans, Aspergillus fumigates, Aspergillus Niger, Micro sporumgypseum was found by Murrayakoenigii leaf extract. The alcoholic extract of the leaves confirmed myotoxicity against Rhizoctonia solani and Colletotrichum falcatum. Although methanolic and ethanolic extracts were found to have different effectiveness on mycelial growth in Rhizoctonia solani and Fusarium oxysporum.

4. Histopathological activity-When curry leaves and mustard seeds were given to rats with normal diet, there were no histopathological changes. There is no negative effect on the nutrient ratio, red blood cell count, white blood cell count, total count, differential count, on the levels of blood components such as serum electrolytes, blood urea, hemoglobin, serum protein total, albumin globulin. Ratio, level of fibrin, glycosylated hemoglobin and activity of aspartate aminotransferase, alanine aminotransferase and alkaline phosphatase in serum 151.

5. Effect on dental carries-Since ancient times the effect on tooth decay has been found, the traditional method of using Moraya leaves to treat dental diseases. In experimental studies conducted on golden hamsters, it was indicated that feeding hundreds of hamsters with the extract of Moray produced a beneficial effect. Beneficial substances such as isomahanin, morianol and mahanin were found in these leaves. Considering these findings, the use of Muraya leaves in products such as toothpaste, oral gel and chewing gum can be considered to prevent oral problems and tooth decay [16,17]

NUTRIENTS OF CURRY LEAVES[18,19]

Loaded with many nutrients such as carbohydrates, fiber, calcium, phosphorus, iron, magnesium, zinc, multivitamins and flavonoids, curry leaves have many health benefits. It is widely used in the treatment of anemia, diabetes, infertility, obesity, kidney disease, hair and skin.

1) High on fiber: Kale leaves are another source of fiber. This keeps our digestive system healthy and active all the time. It is good for treating diarrhea and nausea and also controls the blood sugar level in our body.

2) Powerhouse of calcium:Calcium known for its importance in improving bone health in our bodies. As a source of calcium, kale leaves are excellent for strengthening teeth and bones and preventing diseases such as osteoporosis

3) Rich in phosphorus: Phosphorus, one of the most important nutrients in green vegetables, helps to cleanse the kidneys. It keeps the heart rate up and reduces pain.Muscles after exercise and strengthening teeth and bones. At the cellular level, phosphorus is used for the growth and repair of body cells and tissues.

4) Goods for vision: Curry leaves being abundant in Vitamin A and β-carotene play a vital role in improving our eye sight and treating eye related problems thus, reducing chance of night blindness

5) Fight Infections: The leaves have powerful antibacterial, antifungal, anti-inflammatory and antioxidant properties. Therefore, we should use curry leaves to protect our body against various diseases and bacteria.

6) Boon For Weight Loss: Curry leaves are considered beneficial by people for weight loss management plan. The presence of carbazole alkaloids in the leaves prevents weight gain and lowers LDL cholesterol (i.e. bad cholesterol) in the blood. It removes harmful toxins from the body and burns the fats in our body.

7) Aids In Digestion: The high fiber content of the leaves has been shown to be effective in treating many problems. Bloating, gas, anti-emetic and anti-diarrheal properties of the leaves are ineffective.

CURRY LEAVES SIDE EFFECT[20,21]

1) Possible Allergies: Allergies can cause some people to be allergic to something. leaves, so it is better for them to avoid using leaves altogether. If you experience itching, redness, or swelling after using the leave-in, contact your doctor immediately.

2) Might Cause Upset Stomach: Stomach problems The high fiber content in curry leaves is good for the stomach. Unfortunately, eating too much fiber can cause stomach upset. Bloating, diarrhea, abdominal cramping and cramping can occur.

3) May Cause Upset Stomach: It can lower blood pressure Consuming a lot of kale leaves can lower blood pressure due to the increased production of iron. Iron may be important for the body, but consuming too much iron can be harmful to the body in the long run. Therefore, it is better to eat kale leaves in small quantities.

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4) Unwanted Water Weight Gain: Leaves will be heavy without enough sodium. Eating too much sodium can lead to bloating and water weight. The weight of the water will cause you to slip. Therefore, it is better to eat leaves in moderation.

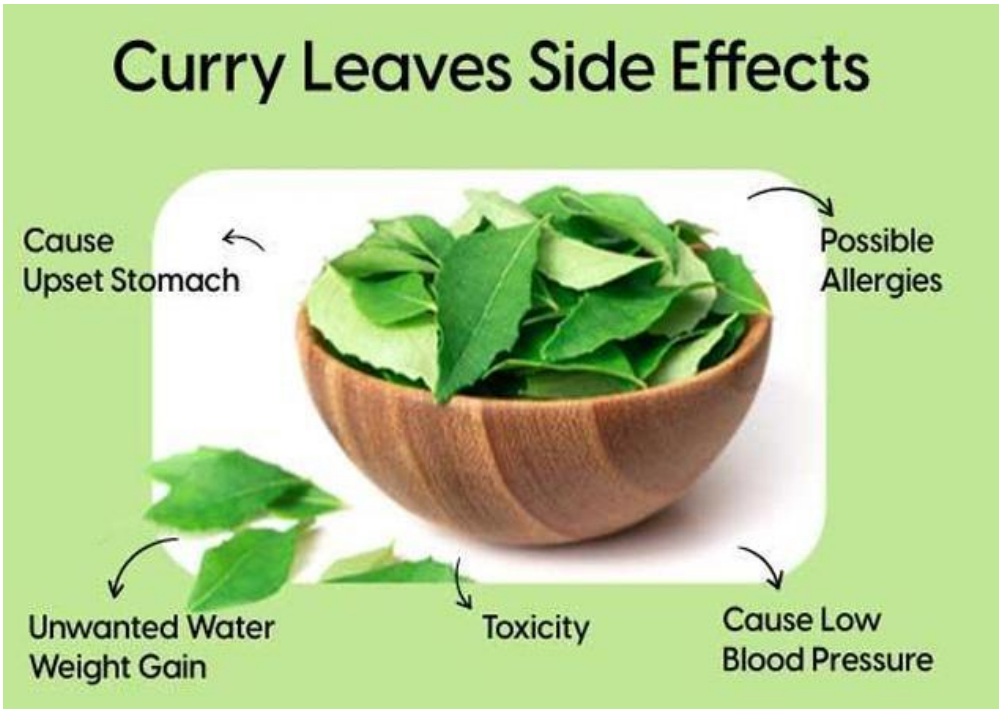

Figure. No.8: Side effect of curry leaves.

II. CONCLUSION

Murrayakoenigii is one of the most effective medicinal plants used by our ancestors centuries ago. In this day and age of globalization, it's hard to find fresh herbs in most homes, and many diners have relied on artificial ingredients to enhance the flavor of greens. Therefore, the importance of these useful plants should be emphasized and the biological aspects of Muraya koenigii and its use for the disease caused by resistance should be investigated, and collaborative research should be done. Curry leaves are an important part of Indian cuisine. It is used to add flavor and aroma to many Indian dishes. In addition, the use of curry leaves has many health benefits. Some of the benefits include - better liver and heart health, better eye health, better digestion, etc. Start your healthy journey by adding these delicious leaves to your diet.This review highlights the medicinal propertiesThese compounds show important therapeutic activities including antioxidant, pro-apoptotic, anti-angiogenic, anti-metastatic and anti-cancer, and affect various clinical symptoms for reducing neurotoxicity, stress oxidative, neuroinflammation, loss of neurons and mental disorders can occur. However, the low bioavailability of these polyphenols limits their effectiveness, and future research is needed to focus on increasing their bioavailability and effectiveness through clinical trials.

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