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ADVANCES IN DISEASE PROTECTING INGREDIENTS OF MURRAYA KOENIGII (CURRY LEAVES) –A TEXTUAL HERBAL MEDICINE WITH NEWER APPROACH

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Abstract

Most of the population in India relies upon herbal medicines because they have been considered as safe, effective, economical and easily accessible source for human healthcare. Ayurveda-The Indian Traditional System of Medicine claims to cure and control various diseases by means of herbal medicines. Recent researches have been focused on the natural plant-products alternatively for the disease control and cure. *Murraya Koenigii* (Curry Leaves/Kadhi Patta/Mitha Nimba/Giri Nimba) is one of such plants having many disease protecting ingredients (natural compounds) which can be used as a natural source to make newer, alternative and innovative medicines. *Murraya Koenigii* is evaluated on the lines of modern sciences by many scientist and researchers and proved that it is multi potential and important medicinal herb. The effects of natural compounds obtained from *Murraya Koenigii* showed that it possess many important properties like-anti diabetic, anti-oxidant, vasodilator, cholesterol reducing, anti-ulcer, anti-microbial, anti-bacterial, anti-fungal, anti-diarrheal, analgesic, anti-inflammatory, phagocytic, anti-helminthic, radio-protective, chemo-protective, cytotoxic, anti-tumor, memory enhancing, skin pigmenting and many useful properties which impart this plant a more medicinal value.

Keywords: Curry leaf, ethanobotony, phytochemical, *Murraya Koenigii*.

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INTRODUCTION

Government of India had been adopted the policy of Health for All by 2000 AD. For this purpose, the main emphasis is being given to Allopathic system of Medicine. Even though the modern medical science has contributed to health, it is not the all cure. But even after, it is the main system of medicine that gets the major cake of financial spending by the Govt. It has several limitations besides being very costly and beyond the means of common man. On the other hand, medicinal plants are cheaper and easily accessible source for healthcare purpose. Most of the population in India relies upon herbal medicines, because they have been considered as safe, effective and economical. India is a country with vast reserve of medicinal herbs, which contain numerous biologically active compounds that are helpful in improving the life and treatment of the diseases. But there is a need to encourage the use of medicinal plants as potential sources of new drugs. The presence of various life sustaining constituents in the plants made scientist to investigate these plants for their uses in treating the disease. Recently, uses of natural compounds, especially of plant origin have received more attention and interest globally, as they are well tested on human for their efficacy since thousands of years in Ayurveda-the Indian Traditional System of Medicine. *Murraya Koenigii* (Karry patta/Curry leaves/ Mitha Nimba/Giri Nimba) is one of such medicinally important herbs which is widely used as a herb, spice, condiments and also used to treat various diseases in India. *Murraya Koenigii* (Curry Leaves) is a staple in Indian dishes. It is well known for its subtle flavor and used confidently in daily cooking. It is a popular Ayurvedic home remedy used extensively in South India. Apart from this, curry leaves has a number of medicinal properties. Curry leaves contain many important ingredients like carbohydrates, proteins, fibers, calcium, phosphorous, iron, magnesium, copper, minerals, and vitamins like nicotinic acid, vitamin B, A,C and E, antioxidants, plant sterols and amino acids, glycosides and flavonoids. It is interesting to note that pure compounds or crude extract of curry leaves have been screened for some pharmacological activities by the scientists and found to possess anti-diabetic, cholesterol reducing property, anti-ulcer activity, anti microbial ,anti-bacterial, anti-trichomonal activity, vasodilating activity, anti-diarrheal, phagocytic, analgesic, anti-inflammatory, anti-helminthic, radio-protective and chemoprotective activity, memory enhancing, anti-oxidative ,skin pigmenting, cyto-toxic and anti-tumor activity and many more useful properties. Till other parts of the plant such as seeds, roots, bark of stem, seed oils which are documented to possess important medicinal properties in ancient texts, are not evaluated

scientifically for their biological potential. The presence of such important biochemical properties make this plant useful for treating various ailments and have a potential of providing useful drugs of human beings [1-8].

CHEMICAL CONSTITUENTS

Following are the chemical constituents found in *Murraya Koenigii* (Curry leaves) with tested pharmacological activities.

Table 1

Sl. No.	Chemical constituents	Pharmacological activity
1	Koenimbine	Anti-diarrheal
2	Murrayacine	Anti-microbial
3	Girinimbine	Anti-tumor
4	Koenimbidine/Koenidine/Koenigicine	Anti-diarrheal
5	Koenine	Anti-oxidant
6	Koenigine	Anti-oxidant
7	Mukonicine	Anti-oxidant
8	Mahanimbine	Cytotoxicity, Anti-oxidant, Anti-microbial, Anti-diabetic, Hyperlipidemic
9	Mahanine	Cytotoxicity, Anti-microbial, Anti-cancer
10	Mahanimbicine	Anti-oxidant, Anti-microbial, Anti-diabetic and Hyperlipidemic
11	Murrayacine	Anti-oxidant, Anti-microbial, Anti-diabetic and Hyperlipidemic
12	Isomahanimbine/Mahanimbicine	Anti-oxidant, Anti-microbial, Anti-diabetic
13	Mahanimboline	Cytotoxicity, Anti-oxidant, Anti-microbial, Anti-diabetic, Hyperlipidemic
14	Isomahanine	Cytotoxicity, Anti-oxidant, Anti-microbial, Anti-diabetic, Hyperlipidemic
15	Mukoeic acid	Anti-oxidant
16	Murrayanine	Anti-oxidant
17	Mkonine	Anti-oxidant
18	Isomurrayazoline	Anti-amnesic, Immunomodulatory
19	Cylomahanimbine	Anti-inflammatory
20	Murrayazolinine	Anti-leukemial
21	Isomurrayazolinine	Nil
22	Mukonidine	Nil
23	Mahanimbicol	Nil
24	Mukoline	Nil
25	Mukolidine	Nil
26	Murrayanol	Anti-inflammatory, Anti-microbial
27	Girinimbilol	Anti-trichomonal
28	Koenoline	Cytotoxicity
29	Glycozoline	Antifeedant, Anti-inflammatory
30	3-methyl carbazole 2-hydroxy-3methylcarbazole	Anti-oxidant

Pharmacological activities

Many research studies carried on *Murraya Koenigii* proved that it is a multi-potential medicinal plant that:

A. Lowers cholesterol and protects from heart disease

The study published on *Murraya Koenigii* found that Carbazole alkaloids a major chemical constituent of curry leaves has anti-oxidant and lipid lowering and vasodialating properties that can help in lowering cholesterol levels. Curry leaves prevent the oxidation of cholesterol that forms LDL cholesterol (bad cholesterol). This in turn helps in increasing the amount of good cholesterol (HDL) and protects body from heart diseases and atherosclerosis.

B. Keeps blood sugar level under check-fights Diabetes

The study showed that Mahanimbine a chemical constituent of curry leaves have a great impact on blood sugar levels of Diabetics. It not only lowers the blood sugar level but also keep the check for a few days after the administration of curry leaves. The possible mechanism by which the Mahanimbine decreases the blood sugar level may be by potentiating of insulin effect either by increasing the pancreatic secretion of insulin by beta cells of islets of langerhans or by increasing the peripheral glucose uptake.

C. Help heal the gastric ulcer

Crude aqueous extract of leaves showed efficient reduction in gastric lesion which provides a confirmation about aqueous extract of leaves of *M.Koenigii* can act as a good anti-ulcer drug.

D. Help relieve the symptoms of Diarrhea

The study showed that cabazole alkaloids have an anti-diarrheal, anti-bacterial and anti-inflammatory property that produces a significant reduction in gastrointestinal motility.

E. Helps with digestion

Curry leaves are known to be carminative in nature and helps greatly indigestion. Once ingested, it helps the stomach digest food well and flush out the rest.

F. Reduces the side effects of chemotherapy

According to the study, methanolic extract of the leaves of *M. Koenigii* has the amazing ability to protect the body from ill effects of chemotherapy and radiotherapy. It not only protects the chromosomes from damage but also protects the bone marrow and halts the production of free radicals in the body.

G. Help heal and reduce skin infection, beats early ageing and rid the skin of blemishes

The leaves of *M. Koenigii* contains very strong anti-oxidant properties, anti-bacterial, anti-fungal and anti-protozoal properties. The oil of the leaves was found to have sun protection factors.

These make it a great remedy for common skin infections like acne and fungal infection of the nails.

H. Stop hair fall, premature graying of the hair and accelerate hair growth

The extract of curry leaves in coconut oil nourishes the hair roots so well that it prevents premature graying of hair and also acts as a stimulant for hair growth.

I. Kills the round worm parasites

Alcoholic extract of the plant leaves has significant anti-helminthes activity and was shown to kill parasite worms.

J. Can cure prostate cancer

Curry leaves have alkaloids in them; Mahanine is one of them which has been studied by the Indian Institute of Chemical Biology. The study showed that it kills the prostate cancer cells but does not kill other cells in the body such as the heart or liver cells

K. Helps keep anemia at bay

Being rich in iron and folic acid, it is a natural remedy to beat anemia.

CONCLUSION

In recent years, ethanobotanical and traditional uses of natural compounds especially obtained from the plants received more attention as they are well tested for their efficacy and generally believed to be safe for human use. Of course, they deserve scrutiny on modern scientific lines such as phytochemical investigations, biological evaluation, toxicity studies, investigations of molecular mechanism of actions of isolated phytochemicals and their clinical trials. It is a best classical approach to find out new natural molecules for the treatment of various diseases. All the literature available on *Murraya Koenigii* in ancient as well as in modern science depicted the fact that it is the most popular herbal remedy among the people. Following the traditional and folk claims, very little efforts have been made by the scientists and researchers to explore the potential of this plant. Now, it's a need of hour to carry out research studies on herbal medicines to find out the active ingredients of the plants to make it an effective, an innovative and a new natural medicine.

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