

Pharmacognostical, Preliminary phytochemical screening and Antibacterial activity of methanol Extract of *Murraya koenigii*

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ABSTRACT

The methanol extract of *murraya koenigii* (leaf) were investigated for their antibacterial activity against *staphylococcus aureus* using cup plate agar diffusion method and methanol extract produces best results. Various investigations like physiochemical standard, preliminary phytochemical screening of the plant was carried out and parameters were reported. The present paper deals with investigation of various phytochemical present in methanol extract and in vitro antibacterial activity against the *s.aureus*. The literature survey does not exist antibacterial activity of *murraya koenigii* (leaf) in methanol extract against *s.aureus*. It is concluded that the plant studied may source of antibacterial plant.

Keywords: *Murraya koenigii*, curry leaf, Methanol extract, Antibacterial activity

INTRODUCTION

The *Murraya koenigii* (Curry tree) is a tropical to sub tropical tree in the family Rutaceae, which is a native in India. [<https://en.m.wikipedia.org>] *Murraya koenigii* is semi deciduous, aromatic smell spreading shrub or tree with strong woody stem but slender with the stem which is dark green to brownish in color the tree is 4-8.7 m tall, with a trunk up to 81 cm diameter, the diameter of main stem is about 16 cm. [Ganesan P.et al., 2013]

Curry leaf plant to have flowers and vibrant green leaves throughout the spring, summer and in rain fall. [Kureel SP et al., 1970] the leaves of *murraya koenigii* are used herbs in Ayurveda ,Siddhi Medicine in which they are ant diabetic activity ,antibacterial activity, anti-emetic, anthelmintic, antidiarrheal, antipyretic and wound Healing effect. [Manshu Jain et al., 2017] The leaves and fruits are also a source of essential oils which finds use as a fixative for heavy type of soap perfumes. [Manisha Vats et al., 2009] These plants are ingested as decoctions, teas and juice preparations to treat respiratory infection. [Abhishek Mathur et al., 2011]

Compounds found in curry tree leaves, stem, barks, seed certain Cinnamaldehyde, Carbazole alkaloids including mahanimbine, girinimbine.

[<https://en.m.wikipedia.org>] and also contain Bismahanine, Murryamine, Murrayafoline-A, Bismahanine, Mukonine-C, Murayazolinol, Mikonine-B, Koenioline, Murrastifoline, xynthyletin, koenigine-Quinone-A and B for therapeutic purpose of folk people. [Anwar F. et al., 1973;Curry leaf and its use 1962;Priyanka Gupta et al., 2012; Ragunathan K. et al.,1985]

MATERIAL AND METHODS

Plant material- The leaves of plant *murraya koenigii* (Rutaceae) was collected from the local area of Shirpur.

Extraction- Freshly collected plant of *murraya koenigii* was dried and then powdered using a mixer.4 gm. of plant powder was taken in Iodine flasks and adds 100 ml of methanol was added to Iodine flask. Flask was closely tight kept for 30 Hrs. These were occasionally shaken after it was filtered and marc was pressed. The entire extract of *murraya koenigii* leaves was evaporated to dryness in evaporator. Extractive yield was calculated. The yield of extracts is depicted in table no.1

Physical Evaluation -

Drug was evaluated for following physical parameters using referred methods and values obtained are depicted in table no.2.

1. Moisture content (loss on drying)
2. Total ash values
3. Water soluble ash value
4. Extractive value
5. Acid insoluble ash value

Phytochemical Screening-

Preliminary phytochemical screening was performed to identify phytochemicals in each extract of *murraya koenigii*. The phytochemicals were detected by color tests as depicted in table no.3

Antibacterial activity-

The antibacterial activity of the *murraya koenigii* was tested using Gram positive *S.aureus*. The bacterial strain was maintained on Nutrient agar at 4^o C and sub cultured into nutrient broth in our laboratory.

Agar diffusion method -

In vitro antibacterial activity of crude extracts was studied against gram positive *S. aureus* by the agar plate diffusion method.

Nutrient agar was used as bacteriological medium. The extracts of crude drugs is used test sample and ampicillin is standard sample.100 µl of inoculum was aseptically introduced as the surface of sterile agar plates and sterilized- Shaped glass rods was used for even distribution of the inoculums .wells were prepared in the agar plates using a sterile cork barer.100 µl of test and standards sample extract was introduced in the well. The plates were introduced at 37°C for 24 Hrs. The zone of inhibition produced by extract was measured and compared with those produced by Antibiotic ampicillin. Antibacterial activity of *murraya koenigii* methanol extracts is depicted in table no.4

Pharmacognosy of murraya koenigii-

Murraya koenigii commonly known as curry leaf is a small tropical to sub-tropical shrub or tree that typically grows to 6-15 tall and is noted for a pungent, aromatic .this tree is native to moist forests in India and Sri Lanka. Interesting house plant; the

leaflets of which can be snipped for cooking. [www.missouribotanicalgarden.org]

Flowers of curry leaves is small , white fragrant and funnel shaped ,the diameter of flower is 1.2 cm in the fully opened form each cluster bear approximately 60 to 90 flowers at a time after flowering at once. Stem is brown to dark green in color, with dots on the bark like small nodes on it. Bark was peeled off longitudinally under the exposing the white wood underneath. Fruit of the *murraya koenigii* occurs in cluster from varies in 32 to 80 in number. [Manshu Jain et al.,2017]

**RESULT AND DISCUSSION**

The yield of extract in methanol was found to be 17.1% on dry weight. Ash parameter, extractive values were evaluated. The preliminary phytochemical screening of Extract showed the presence of Carbohydrate, Glycoside, Alkaloids and Proteins are detected.

Antibacterial screening data showed that methanol extract has exhibit antibacterial activity.

Table 1.Yield of Extract

Sr.no.	Extract	% Dry weight
1.	Methanol	17.1

Table 2.Physical Evaluation

Sr.no.	Parameters	Values(%)
1	Extractive value	17.1
2	Total Ash value	4.2
3	Acid insoluble ash value	2.4
4	Water soluble ash value	2.0
5	Moisture content	16

Table3.Preliminary Phytochemical screening

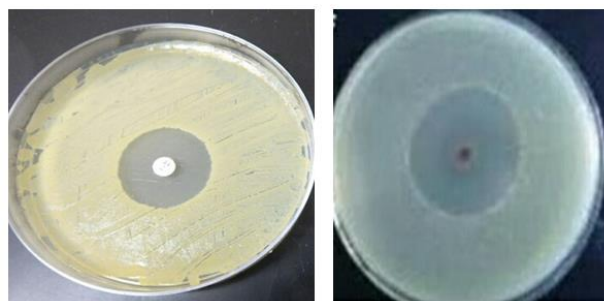
Sr .No.	Constituents	Methanol Extract
1	Alkaloids	+

2	Flavonoids	-
3	Saponins	-
4	Carbohydrate	+
5	Proteins	+
6	Volatile oils	+
7	Steroids	-
8	Glycosides	+
9	Tannins	-

Where- (+) - sign indicate presence and (-)- sign indicated absence of constituent.

Table 4. Antibacterial activity.

Sr.No.	Sample	Conc.($\mu\text{g/ml}$)	Zone of Inhibition(mm)
1	Methanol Extract	100	6.2
2	Ampicillin	100	5.5



CONCLUSION

Methanol extract showed that presence of alkaloids, carbohydrate, Proteins, volatile oils and glycosides. From antibacterial screening it was found that methanol extract showed best antibacterial activity in the concentration 100 $\mu\text{g/ml}$. The methanol extract showed the zone of inhibition 6.2 mm. This is an indicated the methanol extract of *murraya koenigii* shows they inhibit growth of microorganism.

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Conflict of interest: None.

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