

Pharmacognostical, Phytochemical and Physiochemical Screening of the Leaves of *Ficus Racemosa* (Moraceae)

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Abstract

Ficus racemosa Linn is a member of Moraceae family and has been used as a herbal remedy for centuries. The leaves of the *Ficus racemosa* plant are used to cure piles, dysentery, diarrhoea, and other skin conditions and used as an anthelmintic, astringent, antidiabetic and anti-inflammatory. Carbohydrates, Glycosides, Tannin, Steroids, Gum, Mucilage, Lupeol acetate, Leucoanthocyanidin and α -Amyrin acetate these are the important constituents in whole plant. The evaluation of preliminary phytochemical analyses of *Ficus racemosa* leaves is the focus of the current work. The *Ficus racemosa* plant produces terpenoids, tetraterpene, racemosic acid, alkaloids, glycosides, flavonoids, phenolic compounds, saponin, and tannins in its leaves of *Ficus racemosa* alcoholic and aqueous extract are 6.8% w/w and 4.3%w/w. Tannin and saponin are major exact compound. Tetra triterpenoids, Glauanol, acetate, racemosic acid, Alkaloids, Glycosides, Flavonoids, Phenolic compound are the other phytochemical constituent.

1. Introduction

Plants were being used therapeutically in Indigenous system of medicines to cure an array of human diseases. The *Ficus racemosa* (Fig) Plant is the most significant drug source in the Indian and international medical systems. The Indian medicines are based on Siddha, Unani, Ayurveda and Homeopathy [1]. phytochemical constituent is naturally present in the leaves. *Ficus racemosa* is the deciduous tree and also found in the mountains like outer side of Himalayan ranges, Punjab, sbihar, and Orissa. The trees are found in the high altitude 1800m in evergreen forest [2,3]. The tree are has got medicinal value. Its leaves are oval to elliptic in shape and dark green in colour. The *Ficus racemosa* leaves are used in the treatment of constipation and also as an ear drop, by holding it close to a fire. [4]. The leaves are having the anti-microbial, anti-bacterial, anti-tussive activity [5,6,7,8]. *Ficus racemosa* are commonly known as fig (English), udumbara (sanskrit) and umbar in (marathi). Leaves of *ficus racemosa* (fig) are used in treatment of dysentery,

asthma, menorrhagia, gonorrhea(gleet) and urinary disease. In the ancient and now a day these leaves are used in various disease and health problem [9,14]. As a result, the aim of this work is to provide a summary of phytochemical and physiochemical screening on different leaves extract of *Ficus racemosa*.

2. Materials and Methods

Plant Material Collection

The leaves of *Ficus racemosa* were collect from saveetha college of pharmacy garden, Chennai, india and then it is washed properly and dried in the clean condition to avoid microbial contamination and the shadow. The dried leaves are powdered. Also, keep the powder in air tight container and use it for phytochemical screening.

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Preparation Of Extract

The drug was ground and extracted using soxhlet with acetone, methanol, ethyl acetate, and ethanol. The extraction takes 48 hours to complete. The extracts were then placed in a dry, airtight container for phytochemical screening.

Phytochemical Investigation

The various phytochemical investigation is performed by using the various extracts. The phytochemical name is investigation by under this method ^[10,11,12,13].

Phenols

A small quantity of substance was dissolved with 2ml distilled water and a few drops of 10% aqueous ferric chloride solution was added and observed for appearance of blue or green colour.

Flavonoid

Shinoda test:

When adding a few pieces of magnesium turnings and concentrated HCL to the extract solution, a pink to crimson red, occasionally green to blue colour develops after a few minutes, indicating the presence of flavonoids.

Quinones

Add 1ml of conc sulfuric acid and 2ml of extract (powder) to a test tube. The solution shows in red color. It indicates the presence of quinones.

Tannins

Lead acetate test:

The test solution was combined with basic lead acetate solution and the development of a white precipitate was observed.

Ferric chloride test:

A few drops of 5% aqueous ferric chloride solution were applied to 2ml of the drug's aqueous extract and the appearance of blue black colour was seen.

Saponins

A drop of sodium bicarbonate solution was added to the sample and the mixture was shaken vigorously and left for 3 minutes. Development of any honey comb like froth was examined.

Cardiac Glycosides

Borntrager's test:

The powdered substance was heated for five minutes in a test tube with 1ml of sulphuric acid. Filtered while hot, cooled, then shaken with an equivalent volume of chloroform. The bottom layer of solvent was separated and shaken with half of its volume of dilute ammonia. In the ammoniacal layer, a rose pink to red colour is created.

Modified Borntrager's test:

2ml of dilute sulphuric acid was used to boil the test sample. This was treated for 5 minutes with 2ml of newly made 5% aqueous ferric chloride solution, then shaken with an equivalent volume of chloroform. The lowest solvent layer was separated and shaken with half of its volume of dilute ammonia. The ammoniacal layer produces a rose pink to crimson colour.

Terpenoids

Liebermann Burchard's Test:

The powdered medication was heated and cooled after being treated with a few drops of acetic anhydride. After adding conc.sulphuric acid from the sides of the test tube, a brown ring appears at the junction of the two layers, the upper layer turns green, indicating the presence of steroids, and the formation of a deep red colour indicates the presence of tri terpenoids.

Salkowski Test:

The sample was treated with a few drops of strong sulphuric acid, and the formation of a red lower layer indicated the presence of steroids, whereas the formation of a yellow lower layer shows the presence of tri terpenoids.

Physio Chemical Properties

The phytochemical investigation of leaf from a ficus racemosa displays the total amount of ash, acid-

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insoluble ash, and water-soluble ash. Loss on drying. Extractive values that are soluble in alcohol and water are both present. Both the ether and chloroform soluble extractive values are calculated tannin, phenols and carbohydrates can be found in alcoholic and aqueous extracts. The oil, fats, proteins and volatile oils are not present.

3. Result

Taste: slightly bitter.



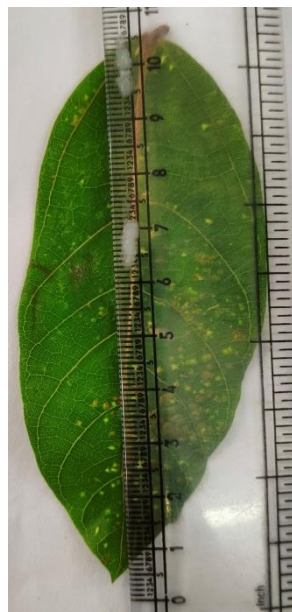
The dimensions of a leaf are 3-7 cm in width and 5-20 cm in length. Type Simple Form Arrangement that is ovate or ovate-lanceolate Alternate-spiral Margin whole, flat, and barely undulating. Leaves apex Intense Leaf base acute - rounded venation Three distinct veins that are reticulated appear to be emerging from the lamina's base. Midrib rose above the 10-15 pairs of very faintly curled lateral veins on both surfaces.

MARCOSCOPY OF LEAVES

Macroscopical studies were performed like colour, odour, taste.

Colour: Light green on the lower side and dark green on the upper side.

Odour: Characteristic odour



Stipule 2.2 cm long, ovate-lanceolate. Petiole is 3.2-8cm.

Preparation Of Precentage [%] Yield Of Extract

The preparation of extract yield in percentage [%] is 4% W/W.

The color of extract was greenish brown color.



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Phytochemical Studies

PHYTOCHEMICAL CONSTITUENT	EXTRACT			
	METHANOL	ETHANOL	ACETYL ACETATE	ACETONE
PHENOL	++	++	++	++
FLAVANOIDS	++	++	++	++
QUINONES	++	++	--	++
STEROIDS	++	++	++	++
TANNINS	++	++	--	--
CARDIAC GLYSOCIDES	++	++	--	--
TERPENOIDES	--	--	++	--
SAPONINS	++	--	--	--

NOTE= Present ++; Absent --

Physiochemical Studies

S.NO	PHYSIOCHEMICAL EXTRACT	AND VALUES
1	Alcohol soluble	3% W/W
2	Water soluble	10.6% W/W
3	Chloroform soluble	1.03% W/W
4	Ether soluble	5% W/W
5	Ash value	6.9% W/W
6	Acid insoluble ash value	2.9% W/W
7	Water soluble ash value	3.9% W/W
8	Loss on drying value	1.6% W/W

4. Discussion

Ficus racemosa leaves are frequently used in herbal medicine and also used in treatment of diarrhea, piles, dysentery and hypoglycemic. the activity like anti-

microbial, anti-diabetic, anti- inflammatory. *Ficus racemosa* (leaf) extract was subjected to a variety of phytochemical tests, which revealed the presence of phenol, steroids, flavonoid, quinone, saponins, terpenoids, carbohydrates. The physiochemical

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investigation of *Ficus racemosa* leaf shows total Ash value (6.9%W/W), water soluble ash value (4.0%W/W), acid insoluble ash value (2.9%W/W). Water soluble extractive values(10.6%W/W), Loss on drying(1.6%W/W), Alcohol soluble extractive values (3%W/W), ether soluble extractive values (5%W/W) and chloroform soluble extractive values (1.03%W/W) are determined.

5. Conclusion

The results of the phytochemical analyses of *Ficus racemosa* leaves on the various extracts demonstrate that flavonoids, quinones, steroid and phenols are primarily present all of the extracts. Cardiac glycosides and tannins are present typical amounts and must be separated using rather dissolving agent such as ethanol or methanol. *Ficus racemosa* leaves also contain saponins and terpenoids, which must be separated using rather dissolving agent such as methanol or ethyl acetate. Therefore, physiochemical values were compiles within the standard value. The phytochemical, pharmacognostical evaluation and physiochemical of *Ficus racemosa* leaves is reported.

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