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Pharmacognostic Evaluation & Preliminary Phytochemical Investigation Leaves of *Ficus Lyrata And Ficus Elastic*

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ABSTRACT

Ficus is one of the largest genera of flowering plants in the Moraceae family, with 875 species altogether. They go by the names fig trees or figs as well. There are currently 115 species identified in India, with the Northeast having the most diversity. The several Ficus species found in India are shown in the current study, together with information on their taxonomic categorization, geographic distribution, and pharmacological properties.

1. INTRODUCTION

Plant sources are the source of many lead compounds used in contemporary medicine. Among the antimalarial medications include the anticancer drug vincristine from Cathranthrus roseus, the cardiotonic drug digitoxin from Digitalis purpurea and Digitalis lanta, the antimalarial drug artemisin from Artemisia annua, and quinine from the species of cinchona (Gottlieb OR 1982). Viral illnesses could also be treated by plants; phillanthus and neem are two examples. Several plant-based medications, including opioids, ephedrine, rutin, coumarins, anthraquinones, reserpine, ergotine, and taxol, are still a part of routine treatment. The majority of them lack synthetic alternatives. Phytochemicals are a significant source of colors, flavors, sweeteners, fragrances, insecticides, antiparasitic medications, and a variety of other compounds. (Rao KC and Sangeetaa W. 1993).

The use of adaptable plants to treat ailments dates back to human history. As a result, the WHO noticed a long time ago and took into consideration various nations to consistently increase the energy of people using supportive plants and their products in the treatment of various illnesses. These common plants are highly valued by the general public and can be used as less expensive alternatives to conventional pharmaceuticals. Since the beginning of human history, people have relied on plants as a preventative measure or as a therapeutic tool to replenish and maintain health, and they are recognized as essential sources of several commonly occurring mixtures. Using customary items reduces the chance of developing severe ailments such as tumors, obvious structural problems, cardiovascular, acquired, and flammable diseases. Unique bioactive particles found in plants have the ability to increase the body's resistance to cell push and reduce the cytotoxicity of certain overseers. Ordinary objects and their helpers have historically been the most widely recognized sources of pharmaceuticals, and they continue to be associated with a genuinely amazing rate of pharmaceutical industry division. It has long been known that standard thing structures are unusual as lead structures for arrangement presentation due to their strong development distinguishing qualities, biological specificity, and other atomic aspects. (KhareP.,2004)

Many popular medications are derived directly or indirectly from plants, making them a rich source of component parts for pharmaceutical companies. However, other highly esteemed plant-chosen customs remain novel or unexamined in terms of their pharmacological activity. One of the main twelve mega bio-gathered attributes considered essential for the world unification is India. This is due to the fact that India is an endless region with diverse air, soil, height, and growth patterns. India is abundant in all three categories of biodiversity, especially in terms of region contrasts, innate distinctive traits, and species-gathering traits. (KulikovaO., 2015)

2. METHODOLOGY

2.1. Plant material

Fresh Leaves of *Ficus lyrata and Ficus elastic* were collected from area adjoining forests of Samastipur District north Bihar region in the month of November. Active secondary metabolites may be found in the bark, leaves, flowers, roots, fruits, and seeds of the plant. November 2021 saw the collection of fresh and healthy, disease-free plant leaves. Leaves of *Ficus lyrata and Ficus elastic* was carried out in sun but under the shade Fresh plant pieces were dried under cover of shade yet in the sun. Leaves of *Ficus lyrata and Ficus elastic* were preserved in plastic bags and closed tightly and powdered as per the requirements.

2.2 Pharmacognostic evaluation

a. Organoleptic evaluation of plant materials

Organoleptic is define as being perceivable by the sense such as smell, appearance, taste , touch, odor. Organoleptics evaluation can be done by means of organs of sense and thereby define some specific charectors of the material which can be consider as a first step toward established of identity and degree of purity.

b. Loss of Drying

1 gm powder of *Ficus lyrata and Ficus elastic* leaves of the plants were transferred into a petridish and the contents were distributed. The loaded plate was heated at 105^0C in hot air oven for 1 hr and then cooled in desiccators. The percentage loss was calculated by using following formula**:**

$$\% \textbf{ Loss of drying } = \frac{Loss\ in\ weight\ of\ the\ sample}{Weight\ of\ the\ sample} x\ 100$$

2.3 Determination of ash values

a. Determination of total ash: Two grams of finely measured dried powdered leaves were obtained by burning, cooling, and weighing leaves of *Ficus lyrata and Ficus elastic* austral in a tarred platinum or silica dish at a temperature that did not exceed 450°C until the leaves were carbon-free. As a result, the collected ash was cooled, weighed, and the air-dried product was used to determine the proportion of ash.

$$\textbf{Ash Value} = \frac{\text{Initial Weight} - \text{ Final Weight}}{\text{Initial Weight}} \text{x } 100$$

2.4. Extraction process

100 grams of dried Ficus lyrata plant material and 100 grams of Ficus elastic were thoroughly extracted using the maceration process. Using a solvent mixture of ethanol-water(70:30), using maceration process for 48 hrs, filtered and dried using vaccum evaporator at 40^0C. 70% ethanol was used to extract plant material constantly and for 48 hours at room temperature.. **(Pradhan *et al.*, 2010, Ansari 2001, Mukherjee 2007).** The percentage yield of each extract was calculated by using following formula:

$$\textbf{Percentage Yield} = \frac{\text{Weight of Extract}}{\text{Weight of Powder drug taken}} \text{x } 100$$

2.5 Phytochemical screening

Medicinal plants are a traditional source of medical supplies, and many modern pharmaceutical products are indirectly derived from plants. Phytochemical components are made up of two main bioactive components (such as proteins, sugar, amino acids, chlorophyll, etc.) and secondary bioactive components (such alkaloids, terpenoids, flavonoids, etc.). Using standard protocols, phytochemical studies were performed on each extract.

a. Physical characteristics of extracts

Different physical parameters of extracts including their nature, colour, odour, taste and Percentage yield are reported in 3.6.

b. Quantitative chemical test: Different methods of identification were used to investigate phytoconstituents present in the Leaves of *Ficus lyrata and Ficus elastic.*

3. RESULT AND DISCUSSION

The dried Leaves material under running water, an electronic grinder was used to grind it. The powder was extracted in stages using the maceration process and an ethanol-water solvent combination. *Ficus lyrata* and *Ficus elastic* were evaluated using various standards criteria, including phytochemical screening, percentage loss, yield, and organoleptic evaluation.

3.1 Plant material and their part used

Table 3.1: Showing plant material and their part used

Plant Species	Family	Part used	Season of collection
Ficus lyrata	Moraceae	Leaves	Summer

Ficus elastic	Moraceae	Leaves	Summer

3.2 Organoleptic evaluation of powder of plant material

Table 3.2: Organoleptic evaluation of powder of plant materials

Plant	Color	Odour
Ficus lyrata	Green	Characteristic
Ficus elastic	Green	Characteristic

3.3 percentage loss

Table 3.3: Showing the results of percentage loss of *Ficus lyrata* & *Ficus elastic*

S. No.	Plant name	% loss
1.	***Ficus lyrata***	**59%**
2.	***Ficus elastic***	**56%**

3.4 Ash value of plants powder

Table 3.4: Results of percentage ash value of leaves of *Ficus lyrata* and *Ficus elastic*

S. No.	Parameters	*Ficus lyrata*	*Ficus elastic*
1.	Total Ash value	3.8%	3.3%
2.	Acid insoluble ash	2.2%	1.9%
3.	Water soluble ash	3.2%	3.7%

3.5 Percentage yield

The percentage yield of several leaf extracts from *Ficus lyrata* was displayed in Table No. 3.5. The ethanol-water extract had a greater yield of 12.39%, respectively. The ethanol-water leaf extract yielded 8.15%, which was comparable to the *ficus elastic* of the leaves extract

Table 3.5: Percentage yield of leaves of *Ficus lyrata* and *Ficus elastic*

Plant Name	Percentage yield (%)
	Ethanol-Water
Ficus lyrata	12.39
Ficus elastic	8.15

3.6 Phytochemical screening of extracts

3.6.1 Physical characteristics of hydroalcoholic extracts

Table 3.6: Physical characteristics of hydroalcoholic extracts

Plant	Color	Odour	Teste

Ficus lyrata hydroalcoholic extract	Green	Characteristic	Bitter
Ficus elastic hydroalcoholic extract	Green	Characteristic	Bitter

3.6.2 Quantitative chemical test

The bioactive components of plant extracts are often identified and categorized with the aid of preliminary phytochemical investigation.

Table 3.7: Phytochemical Screening of extracts of *Ficus lyrata*

S. No.	Constituents	Ethanol-Aqueous extract
1.	Alkaloids A) Wagner's Test: B) Hager's Test:	 -Ve -Ve
2.	Glycosides A) Legal's Test:	 -Ve
3.	Flavonoids A) Lead acetate Test: B) Alkaline Reagent Test:	 +Ve +Ve
4.	Saponins A) Froth Test:	 +Ve
5.	Phenolics A) Ferric Chloride Test:	 +Ve
6.	Carbohydrate A) Fehling's Test:	 +Ve
7.	Diterpenes A) Copper acetate Test:	 -Ve
8.	Tannin A) Gelatin test:	 +Ve

Ficus lyrata leaves extract included flavonoids. Phenols and flavonoids were detected in the ethanolic-water extract of Ficus lyrata leaves. The majority of the phytochemicals that were evaluated are present in the extracts. Table 3.7 showed that the Ficus lyrata ethanol-water extract contained flavonoids, phenolics, tannins, and carbohydrates saponin. There are no glycosides, alkaloids, or diterpenes in the ethanol-water extract.

Table 3.8: Phytochemical Screening of extracts of *Ficus elastic*

S. No.	Constituents	Ethanol-Aqueous extract
1.	Alkaloids A) Wagner's Test: B) Hager's Test:	 -Ve -Ve
2.	Glycosides A) Legal's Test:	 -Ve
3.	Flavonoids A) Lead acetate Test: B) Alkaline Reagent Test:	 +Ve +Ve
4.	Saponins A) Froth Test:	 +Ve
5.	Phenolics A) Ferric Chloride Test:	 +Ve
6.	Carbohydrate A) Fehling's Test:	 +Ve
7.	Diterpenes A) Copper acetate Test:	 -Ve
8.	Tannin A) Gelatin test:	 +Ve

Table No. 3.8 shows the outcomes of the phytochemical screening of the *Ficus elastic* leaves extract. The majority of the phytochemical composition of the solvents ethanol and water was identical, according to the results of the phytochemical screening. On the other hand, certain phytochemicals are present in one region of the plant sample and absent in another due to physiological and metabolic events occurring inside the plant.

Chemical tests were used to perform phytochemical screening on *Ficus elastic* leaf extract in solvents; the findings are displayed in Table 3.8. The phytochemical analyses identified a number of bioactive secondary metabolites that may be in charge of their therapeutic properties. The presence of flavonoids, phenolics, tannins, and saponin was discovered in the ethanol-water extract of *Ficus elastic* leaves.

CONCLUSION

Medicinal plants have become an integral element of traditional medical frameworks. Documentation of the examination work done on conventional medications is required. These investigations aid in the identification of plant material. When synthetic analgesics and antimicrobial drugs were not yet widely available in the middle of the 20th century, natural drugs dominated the therapeutic landscape. People began to switch to this framework when allopathic pharmaceutical arrangements for manufactured drugs gained rapid traction and faster symptomatic relief. Organoleptic evaluation should be achievable through the sense organs, which provide the simplest and fastest means of establishing character purity to

ensure the purity of a particular drug. Organoleptic characteristics are evaluated, including leaf structure such as margin, peak, base surface, venation inflorescence, and so forth, as well as shape, size, shade, aroma, and taste of the stem bark. Morphological representation of plant parts that can be viewed with the unaided eye or using an enlarging lens is known as plainly visible study.

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