International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 4 July-Aug 2021, pp: 766-777 www.ijprajournal.com ISSN: 2249-7781

# Study on Antidepressant Activity of Ficus Elastica

Akash Koley[1], Sruti Bagchi Ghosh [2], Shyamal Kumar Biswas[3], Rimpa Jana[4]
Author
[1,2,3]*Calcutta Institute Of Pharmaceutical Technology and Allied Health Sciences.*
[4] *Flemming College of Pharmacy*
*Corresponding Author: Sruti Bagchi Ghosh*

Date of Submission: 15-07-2021 Date of Acceptance: 31-07-2021

**ABSTRACT**: This research paper is about the antidepressant activity of several extracts of leaves of Ficus Elastica commonly known as rubber plant in two models. The methanolic extract was found to be most active among all the extracts most probably due to the presence of flavonoid present in it.

**KEYWORDS:** Methanolic extract, antidepressant activity, soxehlet extraction, flavonoid.

## I. I INTRODUCTION

Plant is an important source of medicine and plays a key role in world health[1]. Medicinal herbs or plants have been known to be an important potential source of therapeutics or curative aids. The use of medicinal plants has attained a commanding role in health system all over the world. This involves the use of medicinal plants not only for the treatment of diseases but also as potential material for maintaining good health and conditions. Many countries in the world, that is, two-third of the world's population depends on herbal medicine for primary health care. The reasons for this is because of their better cultural acceptability, better compatibility and adaptability with the human body and posses lesser side effects. From records, most of the used drugs contain plant extracts. Some contain active ingredients (bioactive components or substances) obtained from plants. Medicinal plants contain a wide variety of secondary metabolites or compounds such as tannins, terpenoids, alkaloids, flavonoids; that dictates the therapeutic potency of the plants especially the antimicrobial activities [2].

Depressive disorder is a prevalent psychiatric disorder, which affects 21% of the world population. According to WHO, depression is expected to become the second leading cause of disease related disability by the year 2020, following heart disease[3]. The lifetime risk of. depression varies from 5% to 12% in men and 10% to 25% in women

Depression is a state of low mood and aversion to activity. It can affect a person's thoughts, behaviour, motivation, feelings, and sense of well-being. It may feature sadness, difficulty in thinking and concentration and a significant increase or decrease in appetite and time spent sleeping. People experiencing depression may have feelings of dejection, hopelessness and sometimes, suicidal thoughts. It can either be short term or long term[4]. The core symptom of depression is said to be anhedonia, which refers to loss of interest or a loss of feeling of pleasure in certain activities that usually bring joy to people. Depressed mood is a symptom of some mood disorders such as major depressive disorder or dysthymia[4]. It is a normal temporary reaction to life events, such as the loss of a loved one and it is also a symptom of some physical diseases and a side effect of some drugs and medical treatments.

Suicide is the major consequences in most of the depressive illnesses. About 60% deaths are due to depression and related disorder. The cause of depression is not fully understood but are likely to be a complex combination of genetics, biological, environmental and physio social factors. There are two types of mental depression, namely unipolar depression, in which mood swings are always in the same direction and is common (about 75% of cases) non familial , clearly associated with stressful life events and accompanied by symptoms of anxiety and agitation. The second type is bipolar depression (about 25% of cases) sometimes also called as endogenous depression, shows a familiar pattern, unrelated to external stresses and usually appears in early adult life, results in oscillating depression and mania over a period of a few weeks [5]. Patients with depression have symptoms

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 4 July-Aug 2021, pp: 766-777 www.ijprajournal.com ISSN: 2249-7781

that shows decrease in brain monoamine serotonin, dopamine and 500,000/year is diagnosed as suffering from depression.

According to the most accepted hypothesis of depression, the monoamine theory, patients with major depression have symptoms that are reflected changes in brain monoamine neurotransmitters, specifically norepinephrine (NE) and serotonin (5-HT) . Clinical data suggests that dopamine (DA) is also involved in the pathophysiology and treatment of depression. Medications such as tricyclic antidepressants (TCAs), selective serotonin reuptake inhibitors (SSRIs), monoamine oxidase inhibitors (MAOIs), specific serotonin-norepinephrine reuptake inhibitors (SNRIs), 5-HT2 receptor antagonists, and other heterocyclic are clinically employed for drug therapy[6].

Most of current antidepressants are not completely effective (only 33% of depressed patients are sensitive to their first antidepressant medication). What's worse, they are associated with many serious adverse effects, such as cardiac toxicity, sexual dysfunction, body weight gain and sleep disorder. Recently, there has been growing attention on the relation between dietary supplement (and potential nutritional deficiencies) and mental health. It has been presented that diet and nutrition offer key modifiable targets for the prevention of mental disorders, which play a fundamental role in the promotion of mental health. From this point of view, it is important to find a safer, better-tolerated antidepressant from natural plants.

Hence, there is a necessity to develop the newer antidepressant drugs with more safety and efficacy. Medicinal plants could be considered an excellent source for the antidepressant novel drug discovery by virtue of its proven safety and presence of multiple phytoconstituents which may exert synergistic effects. Recently medicinal plants have been explored as complementary and alternative medicine for the treatment of depression and has progressed significantly in past decade[7].

F. elastica belongs to the family Moraceae commonly known as the rubber, rubber bush, rubber tree, rubber plant, or Indian rubber bush, native to northeast India and southern Indonesia[8]. The latex obtained from the bark of branches is used for preparing rubber[9]. Many phytoconstituents including flavonoids, triterpenes and sterols were isolated and identified from different species of Ficus . In folk medicine, Ficus plants are reported to have hypotensive and antidiabetic activities, also neurotransmitters, specifically nor epinephrine, it is used to treat cough, chest conditions and also it is used as mild laxative, galactagogue, antirheumatic, digestive and as anthelmintic against intestinal parasites. It has been also used as anti-inflammatory in urinary tract, in sore throat, ulcerated nose, to reduce fever, to cure tuberculosis and piles. Externally, they have been to treat postulous, eczema, to cure tinea, for leprosy, to treat cracks in the soles of the feet and dressing to boils[10].

F. elastica was selected for this study because of its role as in traditional medicine which is used to cure various diseases[11] such as skin infections, allergies, anemia, neuro degenerative disorders and hepatic problems; in addition it is used as diuretic agent. The limitation of scientific literature to validate the traditional knowledge has limited its application in modern medicine.
Therefore, the present work aimed to evaluate the antidepressant-like effect of Ficus elastica in the models predictive of antidepressant action.

## II. LITERATURE REVIEW

Many Ficus species are commonly used in traditional medicine to cure various diseases. Ficus is a huge tropical, deciduous, evergreen tree with more than 800 species. Bark, root , leaves , fruit and latex of this plant are frequently used for the treatment of various illnesses. Ficus produces a unique fruit which is actually an inverted flower.

Ficus species are rich source of polyphenolic compounds , flavanoids which are responsible for treating psychriatic diseases such as neurodegenerative and hepatic diseases. They have long been used in folk medicine as astrigents carminatives,stomachics, vermonicides, hypotensives, antihelmintics and anti-dysentery drugs.

Four known compounds (emodin, sucrose, morin and rutin) were isolated from the leaves of Ficus elastica Roxb. The structures of the compounds were established by spectroscopic techniques and by comparison with published data. The compounds were screened for antimicrobial activity against two species of bacteria, Bacillus cereus (Gram-positve) and Pseuidomonas aeruginosa (Gram-negative) and four species of fungi by using the disc diffusion method. The compounds showed antibacterial activity but no antifungal activity was observed against the tested organisms.

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world population. The presently using drugs can impose a variety of side-effects including cardiac toxicity, hypopiesia, sexual dysfunction, body weight gain.

**PLANT PROFILE**

Name : Ficus elastic
Common Name: Indian rubber plant
Type: Broadleaf evergreen
Family: Moraceae
Native Range: Southeastern Asia
Height: 50.00 to 100.00 feet
Spread: 50.00 to 100.00 feet
Leaf: Evergreen

## III. MATERIALS AND METHODS

**Collection and authentication of Plant material**

The fresh leaves of Ficus elastica were collected from the rural area of Joynagar, Dist Howrah in the month of May. The botanical identity of plant specimen authenticated by a scientist at botanical survey of India, Botanical Garden, Howrah, India. The leaves were thoroughly cleaned and dried properly for 10 days. The leaves were coarsely powdered and further utilised for preparation of chloroform , methanol and aqueous extract

**Drugs and chemicals**

Bulk solvents like Petroleum ether (60-80°c), Chloroform, Methanol, water and routine chemicals were obtained from Central Drug House, India. All chemicals used were of analytical grade.

**Solvent extraction of plant material (leaves)**

Extraction is the separation of (medicinally) active portions of plant tissues using selective solvents through standard procedures. Extraction may be defined as the process of removal of desirable soluble constituents from a substance , leaving out those components which are not required , in the context of a given set of objectives, with the aid of solvents. There are various methods of extraction, one type of extraction (soxhlet extraction) has been tried in the present study.

**Fig: Ficus elastic**

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**Selection of solvent for soxhlet extraction**

The selection of the solvent for soxhlet extraction is based on the phyto constituent isolation process. The solvent should be easy to remove and inert. Normally the solvent selection is based on the increasing polarity order like the order of acetone, petroleum ether, ethyl acetate, chloroform, methanol, ethanol and water.The petroleum ether is commonly used for the extraction of the steroids and fixed oils, and also used for the removal of the chlorophyll from the leaf powder; some of the researchers uses petroleum ether for defatting of the plant material. After defatting, main solvent like alcohol or aqueous extraction was performed. Choloroform is used for removal of chlorophylI. Methanol is the semi polar solvent which can extract many of the phytoconstituents and water is the polar solvent which is cheap solvent and nontoxic. Numbers of polar constituents are isolated by water and which is also suitable for the animal and human studies.

**Soxhlet extraction**

Fresh plant leaves were collected and washed thoroughly with distilled water and then dried at room temperature in shade. Dried leaves were uniformly powdered using a mechanical grinder. The weight of the powder was 15.25g.

The powder was extracted by Soxhlet apparatus at an elevated temperature (65 °C) using petroleum ether, chloroform, methanol and aqueous consecutively (200 mL of each solvent). After each extraction, the plant material was dried and used The filtrates obtained were dried at a temperature of 40 ± 2 °C to haven gummy concentrate of the crude extracts. In the suitable container, the extracts were sored with proper leveling and maintaining other The yield obtained from seed using petroleum ether was 0.78 g , choloroform was 0.44 g and methanol was 1.12 g.

**Chemical constituent**

Ficus species contain flavanoid glycosides , alkaloids , phenolic acids , steroids , saponins , coumarins , tannins , triterpinoids – oleanolic acid , rusolic acid , αhydroxy ursolic acid , protocatechuic acid , maslinic acid . The nonenzymatic constituents include phenolic compounds , flavanoids , vitamin C . The enzymatic constituents present are ascorbate oxidase , ascorbate peroxidise , catalase , peroxidise . The phenolic compounds present are gallic acid and ellagic acid . Furanocoumarins that are reported are psoralen , bergapten .β-sitosterol and a new tetracyclic tritepene – glaunol acetate are reported from the leaves , bark and heartwood of F.palmata . Besides , ceryl behenate , lupeol , α-amyrin acetate are reported from the stem bark of F.palmata . Taraxasterol tiglate in heartwood , quercitin-3-glucoside, rutin from leaves and three new methyl ethers of leucoanthocyanins (delphinidin3-o-α- L-rhamnoside , pelargonidin-3-o-α-Lrhamnoside , leucocyanidin-3-o-β-D-glactosyl cellobioside) , methyl ether of leucoanthocyanidin , 20-tetra triaconten-2-one , pentatriacontan-5-one , 6- heptatriaconten-10-one , β-sitosterol-α-D-glucoside , meso-inositol were reported from the stem bark of F.benghalensis [3],[4]. Triterpinoid constituents rhoiptelenol , 3α-hydroxyisohop-22(29)-en-24-oic acid were isolated from the methanolic extracts of fresh leaves and stems of Ficus thumbergii . This species also contains lupenyl acetate , β-amyrin acetate , α-amyrin acetate , lupeol , βamyrin , α-amyrin , glutinol , ursolic acid, betulinic acid in its leaves and stems [5]. Besides the leaves , bark and fruits of F.benjamina contains cinnamic acid , lactose , naringenin , quercetin , caffeic acid , stigmasterol [6]. Two new pentacyclic triterpenes 8,26-cyclo-urs-21-en3β,20β-diol and 3β-acetoxy-8,26-cyclo-ursan-20β-ol and also 3-friedelanone, oleanolic acid, betulinic acid, lupeol acetate, α and β amyrine, 3,5,7,4'-tetra hydroxyl flavones, 3,5,7,3',4'-pentahydroxy flavanate are reported from the stem bark of Ficus cordata 4, 4, 24-trimelhyl-cholesta-8-en-3-B-ol, mixture of campesterol, stigmasterol and sitosterol, stigmasterol 3-B-o`glucoside and 4, 5, 7-trihydroxy flavan-3-ol. In addition to xantholoxin, $-amyrin and "-amyrin from n-hexane and ethyl acetate fractions of ethanol extract of Ficus capen (delphinidin3-o-α- L-rhamnoside , pelargonidin-3-o-α-Lrhamnoside , leucocyanidin-3-o-β-D-glactosyl cellobioside) , methyl ether of leucoanthocyanidin , 20-tetra triaconten-2-one , pentatriacontan-5-one , 6- heptatriaconten-10-one , β-sitosterol-α-D-glucoside , meso-inositol were reported from the stem bark of F.benghalensis [3],[4]. Triterpinoid constituents rhoiptelenol , 3α-hydroxyisohop-22(29)-en-24-oic acid were isolated from the methanolic extracts of fresh leaves and stems of Ficus thumbergii . This species also contains lupenyl acetate , β-amyrin acetate , α-amyrin acetate , lupeol , βamyrin , α-amyrin , glutinol , ursolic acid, betulinic acid in its leaves and stems [5]. Besides the leaves , bark and fruits of F.benjamina contains cinnamic acid , lactose , naringenin , quercetin , caffeic acid , stigmasterol

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Volume 6, Issue 4 July-Aug 2021, pp: 766-777 www.ijprajournal.com ISSN: 2249-7781

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**Phytochemical Study of Ficus elastica:**
Phytochemical screening of the crude extracts was carried out employing standard procedures to reveal the presence of different phytochemical constituents such as alkaloids, carbohydrates, flavonoids, glycosides, tannins, steroids, and saponin.

**1. Test for Anthraquinones**:
10 ml of benzene was added in 1ml of Pet. Ether extract solution in a conical flask and soaked for 10 minutes and then filtered. Further 10 ml of 10% ammonia solution was added to the filtrate and shaken vigorously for 30 seconds and pink, violet, or red color indicated the presence of anthraquinones in the ammonia phase.

**2. Test for Tannins:**
10 ml of bromine water was added to the 0.5 g aqueous extract. Decoloration of bromine water showed the presence of tannins.

**3.Test for Alkaloids:**
- **Wagners's Test:** 1 ml of Wagner's reagent is added to the test tube containing 2 ml of aqueous plant extract of the sample and reddish brown colour showed in the presence of alkaloids.
- **Dragendroff's Test:** 1 ml of Dragendroff's reagent is added to the test tube containing 2 ml of aqueous plant extract of the sample and orange colour showed in the presence of alkaloids.

**4. Tests for Flavonoids:**
- **Shinoda Test:** Pieces of magnesium ribbon and Hcl concentrated were mixed with aqueous crude plant extarct after few minutes and pink color showed the presence of flavonoid.

**Alkaline Reagent Test:** 2 ml of 2.0% NaOH mixture was mixed with aqueous plant crude extract; concentrated yellow color was produced, which became colorless when we added 2 drops of diluted acid to mixture. This result showed the presence of flavonoids.

**5. Tests for Glycosides:**
**Liebermann's Test:** We added 2.0 ml of acetic acid and 2 ml of chloroform with whole aqueous plant crude extract. The mixture was then cooled and we added H2SO4 concentrated. Green color showed the entity of aglycone, steroidal part of glycosides.
- **Keller-Kiliani Test:** A solution of glacial acetic acid (4.0 ml) with 1 drop of 2.0% FeCl3 mixture was mixed with the 10 ml aqueous plant extract and 1 ml $H_2SO_4$ (concentrated). A brown ring formed between the layers which showed the entity of cardiac steroidal glycosides.
- **Salkowski's Test:** We added 2 ml $H_2SO_4$ concentrated to the whole aqueous plant crude extract. A reddish brown color formed which indicated the presence of steroidal aglycone part of the glycoside.

**6. Test for Terpenoids:**
2.0 ml of chloroform was added with the 5 ml aqueous plant extract and evaporated on the water path and then boiled with 3 ml of $H_2SO_4$ concentrated. A grey color formed which showed the entity of terpenoids.

**7. Test for Steroids:**
2 ml of chloroform and concentrated $H_2SO_4$ were added with the 5 ml aqueous plant crude extract. In the lower chloroform layer red color appeared that indicated the presence of steroids.

**Experimental Animals**
All the pharmacological experiments were conducted using albino mice (n = 3), weighing between 25 and 30 g .The animals (Swiss albino mice) of either sex were used for these experiments. They were acclimatized and housed in animal house with 12hr: 12hr light-dark cycle at 27±2°c temperature and 45-55% relative humidity. Food and water supplied ad libitum. They were acclimatized for at least 7 days before the start of experiments. The care and use of laboratory animals were strictly in accordance with the guidelines prescribed by the Institutional Animal

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Ethics Committee .The work was approved by Calcutta Institute Of Pharmaceutical Technology And A.H.S. ( CIPT). Control animals were treated with normal saline. Drugs like fluoxetine (20 mg/kg), test drug FICUS ELASTICA extract (500 mg/kg) were dissolved in distilled water and administered orally once daily for seven days.

| Drug & Doses(mg/kg) | Experimental Models | |
|---|---|---|
| | FST | TST |
| Distill water (0.2ml per animal) | Group 1 | Group 6 |
| Fluoxetine (20mg/kg) | Group 2 | Group7 |
| Methanol extract (500mg/kg) | Group3 | Group8 |
| Chloroform extract(500mg/kg) | Group4 | Group9 |
| Aqueous extract(500mg/kg) | Group5 | Group10 |

**Study Group:**

**Acute Toxicity Studies**

Extract of F elastica (was studied for acute oral toxicity as per revised OECD (2002) guidelines No. 423. Animals were observed for four hours hourly for behavior changes and daily for fourteen days. The extract was devoid of any toxicity in rats when given in dose up to 2000 mg/kg by oral route. Hence, for further studies 200-400 mg/kg doses of extract were used.

**Experimental Design for anti-depressant activity:**

The mice were divided five groups (n=3). Drugs/ vehicle were administered to the animals 60 min prior to study.

**Group I:** Negative control, administer saline 2 ml/kg orally.

**Group II:** Positive control and receive standard drug Fluoxetine (20 mg/kg orally).

**Group III:** Receive Aquous extract (500mg/kg orally).

**Group IV:** Receive Methanol extract (500 mg/kg orally).

**Group V:** Receive Chloroform extract (500 mg/kg orally).

**Forced Swimming Test (FST)**

Mice were placed in an open cylindrical container (diameter 10 cm, height 25 cm), containing 15 cm of water at 25 ± 1 °C. The duration of observed immobility was recorded during the last 4 min of the 6-minute testing period . Mice are forced to swim individually in a restricted space from which they cannot escape and are induced to a characteristic behavior of immobility. Each mice was judged to be immobile when it ceased struggling and remained floating motionless in the water, making only those movements necessary to keep its head above water. Decrease in the duration of immobility during the FST was taken as a measure of antidepressant activity.

**Tail Suspension Test (TST)**

In tail suspension method test mice are considered immobile when they having passively and completely motionless. Mice were suspended 50 cm above the floor by adhesive tape placed approximately 1 cm from the tip of the tail. The time during which mice remained immobile was quantified during a test period of 6 min. Mice were considered immobile only when they hung passively and completely motionless.

The total duration of immobility induced by tail suspension were measured.

**Statistical Analysis**

All the data were presented as Mean ± SEM values. The results of study were subjected to one way Analysis of Variance (ANOVA) followed by Dunnett's test. Values with $P<0.05$ were considered statistically significant.

## IV. RESULT:

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Antidepressant activity:

The antidepressant effects of aqueous, methanolic and chloroform extract of Ficus elastica (500mg/kg) and Fluoxetine (20mg/kg) were studied by observing the changes in the duration of immobility in the two models: Forced swim test (FST) and Tail suspension test (TST). In both TST and FST, methanolic extract of Ficus elastica 500 mg/kg produced significant reduction ($p<0.05$) in the immobility period when compared with that of standard group animals that received only the vehicle. The results are tabulated in Table 1 & Table 2

**Effect of drugs on forced swimming test**

Mean duration of immobility was significantly reduced after 1 hr and 2 hr in fluoxetine (20 mg/kg) group as compared to the normal saline. The decrease in immobility with methanolic extract (500 mg/kg) was statistically significant compared with normal saline ($P < 0.05$), and found to be significant when compared to fluoxetine ($P < 0.05$). Also, mean duration of immobility was significantly decreases in mice with aqueous extract & chloroform extract when compared to control and standard groups.

**Effect of drugs on tail suspension test**

Mean duration of immobility was significantly reduced after 1 hr and 2 hr in fluoxetine (20 mg/kg) group as compared to the normal saline. The decrease in immobility with methanolic extract (500 mg/kg) was statistically significant compared with normal saline ($P < 0.05$), and found to be significant when compared to fluoxetine ($P < 0.05$). Also, mean duration of immobility was significantly decrease in mice with aqueous and chloroform extract when compared to standard and control groups. Immobility was significantly decrease in mice with aqueous and chloroform extract when compared to standard and control groups.

**Fig 1: Forced Swim test**

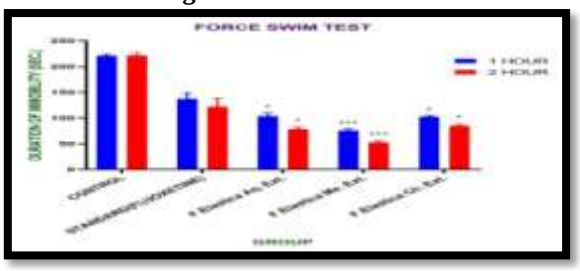
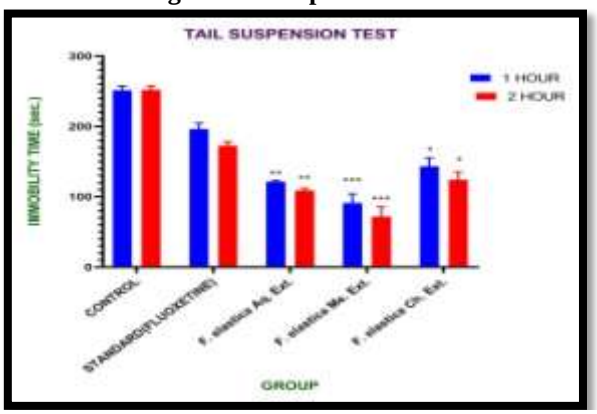



**Fig 2: Tail Suspension test**




## V. DISCUSSION:

This study was conducted to assess the antidepressant activity of Ficus elastica in albino mice in FST, TST were used for this study. Exposure to stress plays an important role in depression. These animal models produce physical stress and lead to depression. TST, FST models of depression which provides a rapid and reliable behavior screening test for antidepressants. The immobility has been expected to reflect a state of behavioral despair and failure to adapt to the stress. Antidepressant drugs decrease immobility time in both FST and TST.

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Volume 6, Issue 4 July-Aug 2021, pp: 766-777 www.ijprajournal.com ISSN: 2249-7781

To date numerous animal models of depression have been designed either as empirical tests that attempt to screen potential antidepressants or as models that try to explain the theoretical basis of depression. No single model is complete, but a model may be valid for certain types of depression. A battery of animal models, standard drugs for the study have to be considered to evaluate the therapeutic efficacy of a test drug. The model FST and the TST are sensitive all major class of antidepressant drug including trycyclics,serotonin reuptake inhibitors, monoamine oxidase inhibitors and atypical.Fluoxetine used as standard drug. It acts by selectively inhibiting reuptake of serotonin in the synapse by binding to the re-uptake pump on the neuronal membrane to increase its availability and enhance neurotransmission.

Phytochemical analysis showed the presence of Flavonoids and phenolic compounds have been reported to have multiple biological effects such as Central nervous system disorders , control and standard group in a solvent dependent manner. The methanolic extract shows better

The TST model is the more widely used animal model for screening antidepressant acitivity. Hanging of tail from a significant distance in mice cause depression and significant increase in immobility time. The antidepressant drug Fluoxetine (20mg/kg) produced significant reduction in immobility compared with control. antioxidant activity, analgesic, anti-inflammatory , inhibition of mast cell histamine release antiulcerogenic, cytotoxic, antihypertensive, hypolipidemic, antiplatelet and neurodegenerative diseases .

Ficus elastica contains a natural phytonutrients which is known as flavonoid . This is responsible for improving vital neurotransmitters activities which happen in memorization and information process and may be helpful in depression.

The FST model is the more widely used animal model for screening antidepressant acitivity. Force swim in mice cause depression and significant increase in immobility time. The antidepressant drug Fluoxetine (20mg/kg) produced significant reduction in immobility compared with control. Duration of immobility period was significantly decrease in all the treatment groups (aquous, methanolic and chloroform) when compared to

inhibition of immobility period than other treatment group.

Duration of immobility period was significantly decrease in all the treatment groups (aqueous, methanolic and chloroform) when compared to control and standard group in a solvent dependent manner. The methanolic extract shows better inhibition of immobility period than other treatment group.

**TABLE :1(Force swim test)**

| **Groups** | **0.9% Glacial acetic acid + 0.9% NaCl** | | **Fluoxetine (20mg/kg)** | | **F.Elastica Aqueous Ext.(500mg/kg)** | | **F.Elastica Methanolic Ext.(500mg/kg)** | | **F.Elastica Chloroform Ext.(500mg/kg)** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Hour** | 1 hr. | 2 hr. | 1 hr. | 2 hr. | 1 hr. | 2 hr. | 1 hr. | 2 hr. | 1 hr. | 2 hr. |
| **Mean ±SEM** | 221 ±3.215 | 221.66 ±4.33 | 137.33 ±11.465 | 122± 15.88 | 103.66 ±5.925 * | 78.33 ±3.756 * | 75.66± 3.383 *** | 52.66± 2.728 *** | 102.66 ±2.603 * | 84.66± 2.963 * |

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Volume 6, Issue 4 July-Aug 2021, pp: 766-777 www.ijprajournal.com ISSN: 2249-7781

**TABLE: 2 (Tail suspension test)**

| **Groups** | **0.9% Glacial acetic acid + 0.9% NaCl** | | **Fluoxetine (20mg/kg)** | | **F.Elastica Aqueous Ext.(500mg/kg)** | | **F.Elastica Methanolic Ext.(500mg/kg)** | | **F.Elastica Chloroform Ext.(500mg/kg)** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Hour** | 1 hr. | 2 hr. | 1 hr. | 2 hr. | 1 hr. | 2 hr. | 1 hr. | 2 hr. | 1 hr. | 2 hr. |
| **Mean ±SEM** | 251.66 ±6.009 | 252.33 ±5.364 | 196.33 ±8.570 | 173 ±5.686 | 121.33 ±1.856 ** | 109 ±3.215 ** | 91 ±13.115 *** | 71.66 ±14.403 *** | 143.33 ±12.019 ** | 124.3 ±19.140 ** |

**Result of Phytochemical analysis:**

| Extract | Anthraquinones | Tannin | Alkaloid | Flavonoid | Glycoside | Terpenoid | Steroid |
|---|---|---|---|---|---|---|---|
| Petrolium ether | - | - | + | - | - | + | + |
| chloroform | - | - | - | + | - | + | - |
| Methanol | + | + | - | + | + | + | - |
| Aqueous | + | + | - | - | - | + | - |

## VI. CONCLUSION:

From primitive time herbal plants have taken attention till date for their beneficial effect towards human society. Comparing with synthesized products, many times herbal products showed less toxicity and seemed to be safe. This current study was designed to evaluate the antidepressant effect upon Swiss Albino Mice using various extracts of Ficus elastica (500 mg/kg) and Fluoxetine(20mg/kg) as standard. Both Force swim test model and Tail Suspension test model reveals that methanolic extract of Ficus elastica leaves showed better inhibition of immobility period than other treatment group but aqueous extract also shows good antidepressant activity compared to chloroform ex

**Future approaches**:

Different kinds of the research study must needed to elucidate the mechanism of action of Ficus elastica in the CNS, the pattern of effects were observed in these experiments suggest the involvement of norepinephrine neurotransmitters system on its antidepressant-like effect. The present study also warrants further investigation into identification of the active compounds in herbal medicines, in particular extract of Ficus elastica with antidepressant-like effects

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International Journal of Pharmaceutical Research and Applications
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