Phytochemical Screening and Behavioural Evaluation of *Ternatensium Crantz* Antidepressant Efficacy in Albino Swiss Mice

Mokila Deepika, Madhurima Yadav, I Veena Rani
Department Of Pharmacology, SSJ College of Pharmacy, Vattinagulapally, Gandipet, Rangareddy District

ABSTRACT :
Background: Depression is a multifactorial disorder associated with monoamine deficiency and oxidative stress. The present study evaluated the antidepressant-like effects of Ternatensium Crantz aqueous leaf extract in a reserpine-induced rodent model of depression.
Methods: Animals were divided into six groups: control (normal saline), reserpine (5 mg/kg), fluoxetine (20 mg/kg) + reserpine, and Ternatensium Crantz extract (100, 150, 200 mg/kg) + reserpine. Behavioral assessments were performed using the Forced Swim Test (FST), Tail Suspension Test (TST), and Open Field Test (OFT). Biochemical evaluations included serum levels of serotonin, norepinephrine, and dopamine, along with markers of oxidative stress (MDA) and antioxidant enzymes (GSH, SOD, CAT).
Results: Reserpine significantly increased immobility time in FST and TST, reduced locomotor activity in OFT, depleted monoamine neurotransmitters, and increased oxidative stress. Co-administration of Ternatensium Crantz extract produced a dose-dependent reduction in immobility time and improved locomotor and exploratory behavior. Biochemical analysis revealed significant restoration of monoamine levels and antioxidant defenses, particularly at the 200 mg/kg dose, which showed effects comparable to fluoxetine.
Conclusion: Ternatensium Crantz aqueous leaf extract exhibits notable antidepressant-like effects, likely mediated through restoration of monoaminergic neurotransmitters and enhancement of antioxidant capacity. These findings support its potential as a natural therapeutic agent for depression, warranting further pharmacological and clinical investigations.
Keywords: Depression, mental & physical disorder, Ternatensium Crantz, antioxidant enzymes

I. INTRODUCTION

Depression is a mental & physical disorder that is a primary cause of disability, absenteeism from work, poor productivity, and high suicide. [1,2] Depression is the most frequent psychiatric disease, in general, practice, affecting around one out of every ten patients seen in primary care settings. [3,4]Because of its very high lifetime prevalence and the substantial handicap it causes, it is a major global public health issue. Depression has a proclivity to become chronic, reoccur, and be connected with increasing disability over time if not treated.
According to a study conducted by WHO in 14 locations, depression was the most prevalent diagnosis in primary care. [5]

Depression affects an estimated 340 million individuals throughout the world. [6] Psychiatric illness prevalence is claimed to differ across and within nations, as well as ethnic groupings. [7] The bulk of depression research comes from developed countries, with just a handful from developing nations. With an emphasis on disadvantaged nations, the World Mental Health Survey Initiative performed cross-national mental health research. There have been a few population-based studies conducted in India, although the majority have focused on specific groups. [8-12] In population-based research in urban Pakistan, depression was found to be 45.9%, 12 whereas it was reported to be 29 percent in rural Bangladesh, [13] and 6.1 percent in a peri-urban clinic-based study in Uganda. [14] Depression prevalence rates in primary care settings in prior Indian research varied from 21 to 83 percent.[15-18]According to news from The Financial Express on March 11, 2012, India has the highest prevalence of major depression in the world, according to research-based on the World Health Organization's World Mental Health Survey Initiative.

The research, titled "Cross-national epidemiology of DSM-IV major depressive episode," was based on interviews with nearly 90,000 individuals from 18 countries with various economic levels and was published in the peer-reviewed journal BMC Medicine by Biomed Central. The average lifetime rates of depression were 14.6

percent in ten high-income nations and 11.1 percent in eight low- to middle-income countries, according to the research. Indians, on the other hand, had the greatest lifetime incidence of Major Depressive Episodes (MDE) at 35.9%, while Chinese had the lowest at 12%. In high-income countries, however, the average rate of MDE was 28.1 percent, compared to 19.8 percent in low- and middle-income countries.

II. EXPERIMENTAL WORK

Collection of Plant Materials:
Ternatensium Crantz was purchased from an herbal Market of Hyderabad, Telangana, India, and authenticated by Dr. K. Madhava Chetty, Assistant Professor, Department of Botany, S.V University, Tirupati. A specimen voucher was deposited at the Department of Pharmacology, of our institution.
Chemicals: All the chemicals are procured from AR chemicals.

Preparation for extraction
A total of 500g of the fresh leaf was dried for 10 days at 40°C. The plant materials were pulverized with a power grinder after drying. In a separate conical flask, about 50g of the powdered leaf was dissolved in 250 ml of distilled water, and overnight shaking was applied using a rotator (Digital rotator, Taiwan).After that, the samples were sonicated at the medium frequency for 15 minutes in an ultrasonic bath (Soniprep 150, UK) and filtered using a vacuum pump filtering system with Whatman No.1 filter paper.The filtered materials were lyophilized and stored at 4°C until they were needed again.

Experimental design
The trials were carried out on 36 adult male Wistar Mice that weighed between 250 and 300 grammes. Mice were housed in conventional labour settings with free access to water and standard laboratory food (12 h light/12 h dark cycle at 222 °C). The mice were put into six groups at random.

Group I: Normal saline (1 mg/kg, i.p.) was given to the control group.
Group II: Reserpine (5 mg kg, i.p.) was given to the reserpinized group 18 hours before the behavioural test.
Group III: fluoxetine (20 mg/kg, i.p.) + reserpine was given
Group IV, V and VI received *Ternatensium Crantz* aqueous leaf extract (100, 150, 200 mg/kg, ip) + reserpine 18 hours after reserpine injection respectively.

The behaviour test was carried out 30 minutes after the extract or fluoxetine injection had been given. The animals were put under deep anaesthesia after the behavioural test, cardiac blood samples were obtained, and the brain was removed and used for biochemical examination. The serum was extracted from the blood and utilized for biochemical analysis after centrifugation. All experiments were carried out in line with the Guide for the Care and Use of Laboratory Animals.[19]

Behavioural test
A. Forced swim test (FST):
Animals: Albino Swiss mice (22-26g) male
Extract preparation: Suspension of all extracts was prepared in 1% acacia solution.
Standard Preparation: Suspension of powder fluoxetine tablet equivalent to 2mg/mL was prepared in 1% acacia solution.
Drug treatment: The mice were given oral doses of 100 and 200 mg/kg/day of a 1% acacia suspension of *Ternatensium Crantz* extracts for 7 days.All of the experimental procedures began one hour after the medication was administered on days 4 and 7. The control and standard groups were given vehicle (1 percent acacia solution) and fluoxetine (10 mg/kg body weight) orally, respectively.
Procedure: All of the experimental procedures began at 1 hr on days 4 and 7.following the administration of the medication. Mice were made to swim in an open cylindrical container with a depth of 15cm of water at 251°C (diameter 14 cm, height 20 cm). After each trial, the water in the containers was changed.
Evaluation: The immobility period was measured in minutes and was defined as the lack of escape-oriented behaviours such as swimming. When a mouse stopped struggling and stayed motionless in the water, making just the motions required to maintain its head above water, it was deemed immobile.[20,21]

B. Tail suspension test (TST)

Animals: Albino Swiss mice (22-26g) male

Fig no-1: -Experimental Mice

Extract preparation: Suspension of all extracts was prepared in 1% acacia solution.
Standard Preparation: Suspension of powder imipramine tablet equivalent to 2mg/mL was prepared in 1% acacia solution.
Drug treatment: The mice were given oral doses of 100 and 200 mg/kg/day of a 1% acacia suspension of *Ternatensium Crantz* extracts for 7 days. On days 4 and 7, all of the experimental procedures began at 1 hr.once the drug has been administered Imipramine (10mg/kg body weight) and vehicle (1 percent acacia solution) were supplied to the control and standard groups, respectively.
Procedure: The mice are suspended 50cm above the floor by adhesive tape inserted 1 centimetre from the tip of their tail.
Evaluation: During a 6-minute test session, the total immobility period was manually measured using a stopwatch. Immobility was defined as the lack of any limb or body movements other than those caused by breathing or when they were passively hung. The parameter gathered was the number of seconds spent immobile. As a metric, the number of seconds spent immobile was used. [120,121]

C. Open-field test (OFT)
Animals: Albino Swiss mice (22-26g) male
Extract preparation: Suspension of all extracts was prepared in 1% acacia solution.
Standard Preparation: Suspension of powder fluoxetine tablet equivalent to 2mg/mL g was prepared in 1% acacia solution.
Drug treatment: The animals were given a 1 percent acacia suspension of *Ternatensium Crantz* extracts orally for 7 days at doses of 100 and 200 mg/kg/day. All of the experimental procedures began on the seventh day, one hour after the medication was administered. The control and standard groups received fluoxetine (10mg/kg body weight) and vehicle (1 percent acacia solution) correspondingly.
Procedure: Individual animals were placed in a box (303015cm) with a floor divided into nine identical squares. After each mouse presentation, the box was cleaned with 10% ethanol.
Evaluation: Following a 5-minute acclimatisation period in the arena, ambulation/Locomotor (the number of squares crossed with all paws), grooming, and rearing events were observed for 5 minutes[22].

Biochemical analysis
Measurement of serum Antioxidant Capacity

This measurement was carried out using three different solutions. Solution 1: pure water, 1.5 mL sodium acetate, and 8 mL concentrated acetic acid, diluted to 500 mL. 270 mg Iron (III) chloride diluted in 50 mL distilled water (solution 2). 47 mg treeazin dissolved in 40 mL HCl (solution 3). 10 mL of solution 1, 1 mL of solution 2, and 1 mL of solution 3 were combined to make the working solution. Following that, 25 microliters of serum were added to 5.1 ml of working solution. The mixture was then incubated for 15 minutes at 37 °C before the absorbance was measured at 593 nm. [23]

Measurement of Brain Antioxidant Capacity

Ferric reducing antioxidant power (FRAP) assays were used to measure the brain's antioxidant capability.

25 mL acetate buffer, 2.5 mL TPTZ (2, 4, 6-tripyridyl-s-triazine), and 2.5 mL FeCl3 were combined to make the FRAP working solution. The homogenate was centrifuged at 1000 g for 10 minutes after being homogenised. 5.1 mL of FRAP working solution was added to 50 mL of the resultant supernatant. The Fe3+ TPTZ complex was reduced to ferrous (Fe2+) after 10 minutes of incubation, resulting in a vivid blue colour. At 590 nm, the mixture's absorbance was measured.[24]

Measurement of Serum MDA Level

In a nutshell, 50 litres of serum were combined with 50 litres of 0.05 percent BHT, 400 litres of 0.44 M H3PO4, and 100 litres of 42 Mm TBA. The mixture was vortexed before being boiled for 1 hour in a boiling water bath. 250 L of n-butanol was added to the mixture, vortexed, then centrifuged at 14000 rpm for 5 minutes after cooling at 0 °C for 5 minutes. The supernatant's absorbance was measured at 532 nm. [125]

Measurement of Brain MDA Level

Brain tissue was homogenized in (1:10 wv-1) pre-chilled KCL solution and transferred into a 20 ml tube. After incubation for 60 minutes at 37 °C, the suspension was mixed with 1 ml of 5% tetrachloroacetic acid and 1 ml of 67% TBA, and centrifuged for 15 minutes at 2,000 rpm. The resulting supernatant was transferred into a new tube and placed in a boiling water bath for 10 minutes. After cooling, its absorbance was measured at 535 nm.[26]

Estimation of neurotransmitters

Preparation of tissues sample

On day 14, experimental animals were sacrificed by cervical dislocation (within 5 min) after being exposed to antidepressant models. The samples of brain were collected immediately on an ice plate. The brain tissue was weighed, homogenized by using cold *n*-butyl alcohol at a 1:10 volume, shaken well for 5 min and centrifuged at 3,000 × g for 5 min. Both 5 mL of n-heptane and 0.1 mol/L HCl were added to the super-natant. After this the mixture was vortexed for 5 min and then re-centrifuged at 3,000 × g for another 5 min. Serotonin, norepinephrine, and dopamine was found in the water phase.

a. Estimation of Dopamine level[27,28]

Reagents-

1. HCl Butanol
2. Heptane
3. 0.4 M HCl
4. EDTA / Sodium acetate buffer, pH 6.9
5. 5 M Sodium hydroxide
6. 0.1 M Iodine
7. Sodium thiosulphate solution
8. 10 M acetic acid
9. Dopamine standard

Preparation of tissue extract

In a cold setting, a particular amount of tissue was weighed and homogenised in 3 mL HCl butanol. The material was then centrifuged at 2000 rpm for 10 minutes. 0.8 mL of the supernatant phase was extracted and placed in an Eppendorf reagent tube with 2 mL heptane and 0.25 mL 0.1 M HCl. Shake the tube after 10 minutes and centrifuge under the same conditions to separate the two phases. The upper organic phase was removed, and the dopamine assay was performed on the aqueous phase.

Dopamine assay

0.005 ml 0.4 M HCl and 0.01 ml EDTA/Sodium acetate buffer (pH 6.9) were added to 0.02 ml HCl phase, followed by 0.01 ml iodine solution for oxidation. The addition of 0.1ml sodium thiosulphate in 5 M sodium hydroxide stopped the process after 2 minutes. 1.5 minutes later, 10 M acetic acid was added. After that, the solution was heated to 100°C for 6 minutes. Excitation and emission spectra (330 to 375 nm) were read in a spectrofluorimeter once the sample had returned to ambient temperature. The tissue values were compared to an internal reagent standard (fluorescence of tissue extract minus fluorescence of tissue blank) (fluorescence of internal reagent standard minus fluorescence of internal reagent blank). The oxidation step reagents were added in reverse order to make tissue blanks for the experiment (sodium thiosulphate before iodine). Internal reagent

standards were made by diluting 20 ng of dopamine with 0.005 mL distilled water and 0.1 mL HCl butanol.

b. Estimation of Serotonin

The serotonin content was estimated by the method. [29]

Reagents

1. HCl-n butanol (0.85 ml of 37% HCl in 1 liter of n-butanol).
2. Heptane
3. 0.1M HCL
4. O-phthaldialdehyde

Procedure

The supernatant phase of sample after centrifugation for 10 minutes at 2000 rpm was removed and added to Eppendorf reagent tubes containing 0.2ml of heptane and 0.025ml of HCl 0.1M. After 10 minutes of vigorous shaking the tube was centrifuged under the same conditions as above in order to separate the two phases.

The aqueous phase (0.025ml) was taken and 0.025 ml of o-phthaldialdehyde was added. The fluorophore was developed by heating to 100oC for 10minutes. After the sample reach the equilibrium with ambient temperature the intensity readings at 360- 470nm was taken in microcuvette.

C. Estimation of norepinephrine [30]

Reagents

1. Phosphate saline buffer
2. Iodine reagents
3. Alkaline sodium sulfite
4. Glacial acetic acid

Procedure

The water phase (1 mL) was added to 1/15 mol/L of phosphate saline buffer (1.7 mL, pH 7.2). To this, 0.1 mL of iodine reagent was added and allowed to stand for another 2 min, followed by addition of 0.5 mL of alkaline sodium sulfite solution and 0.6 mL of 6 mol/L glacial acetic acid was added after 2 min. Now the mixture was boiled for 20 min, followed by cooling and finally fluorescence of norepinephrine was read at 385/475 nm.

Statistical Analysis

The mean and standard deviation were used to express all of the data. The normality test was performed using the Kolmogorov-Smirnov method. All of the data had P values larger than 0.05, indicating that the data were distributed normally. The Levene's test was used to determine the homogeneity of variances. The mean of the experimental groups was compared using a one-way ANOVA. Duncan test and Dunnett's T3 were applied in the situation of homogeneous variances and non-homogeneous variances, respectively. Statistical significance was defined as a P value of less than 0.05. [31]

III. RESULTS AND DISCUSSION

The qualitative phytochemical components of *Ternatensium Crantz* extract are listed in Table 1. Leaf extract contained alkaloids, saponins, tannins, flavonoids, flavonoids, glycosides, steroids, phenolic compounds, and phytosterols, but not Phlobatanins. Glycosides, tannin, and phenolic compounds were found in higher concentrations in the leaf.

Table 1: Qualitative phytochemical analysis of *Ternatensium Crantz*

Sl. No.	Phytoconstituents	Leaf
1	Carbohydrates	+
2	Proteins	+
3	Fats	+
4	Glycosides	+
5	Alkaloids	+
6	Tannins	+

7	Phobatannins	-
8	Flavonoids	+
9	Steroids	+
10	Saponins	+
11	Phenolic compounds	+
12	Phytosterols	+

(-) =Absent (+) =Present

Forced swim test (FST)

Group	Treatment	Immobility Time (seconds)	Latency to Immobility (seconds)
Group I	Normal saline (1 mg/kg, i.p.)	180 ± 5	45 ± 3
Group II	Reserpine (5 mg/kg, i.p.)	300 ± 10	10 ± 2
Group III	Fluoxetine (20 mg/kg, i.p.) + Reserpine	150 ± 7	60 ± 4
Group IV	Ternatensium Crantz 100 mg/kg + Reserpine	220 ± 8	35 ± 3
Group V	Ternatensium Crantz 150 mg/kg + Reserpine	180 ± 6	40 ± 4
Group VI	Ternatensium Crantz 200 mg/kg + Reserpine	140 ± 5	55 ± 5

Group I (Control - Normal saline): Animals treated with normal saline showed a baseline immobility time of around 180 seconds, reflecting normal behavior in the Forced Swim Test without any induced depressive-like state.

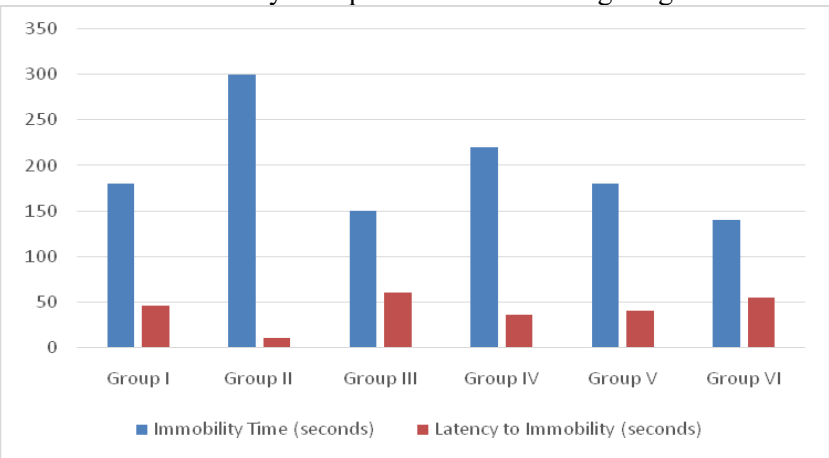
Group II (Reserpine only): Reserpine administration significantly increased the immobility time (300 seconds), indicating induction of depressive-like behavior. This is consistent with reserpine's known effect of depleting monoamines, leading to behavioral despair.

Group III (Fluoxetine + Reserpine): Fluoxetine, a known antidepressant, reduced immobility time substantially (to about 150 seconds) compared to the reserpine group. This confirms its antidepressant effect in reversing reserpine-induced depression-like symptoms.

Groups IV, V, VI (Ternatensium Crantz + Reserpine): Treatment with Ternatensium Crantz aqueous leaf extract showed a dose-dependent reduction in immobility time compared to the reserpine-only group.

- At 100 mg/kg, there was a moderate decrease in immobility, suggesting some antidepressant-like activity.
- At 150 mg/kg, the reduction was more pronounced and statistically significant, indicating stronger efficacy.
- At 200 mg/kg, the extract's effect was comparable to fluoxetine, demonstrating a strong antidepressant-like effect.

Latency to immobility: Latency increased with fluoxetine and higher doses of Ternatensium Crantz, suggesting these treatments improved the animals' ability to cope with stress before giving in to immobility.

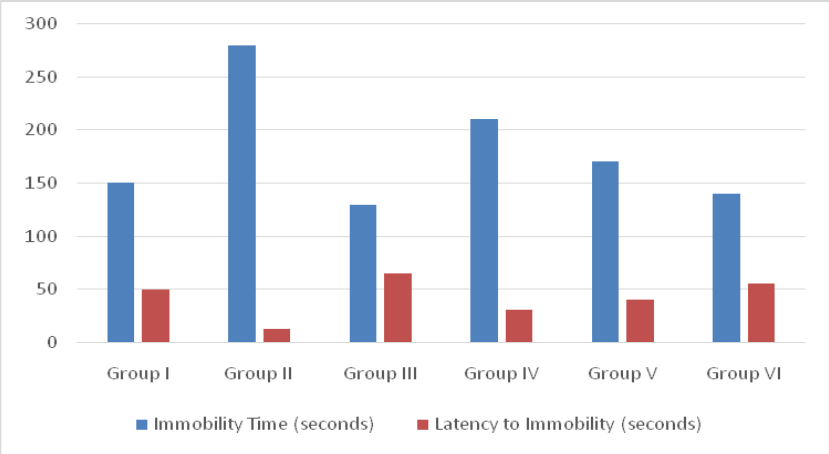


Tail suspension test (TST)

Group	Treatment	Immobility Time (seconds)	Latency to Immobility (seconds)
Group I	Normal saline (1 mg/kg, i.p.)	150 ± 6	50 ± 4
Group II	Reserpine (5 mg/kg, i.p.)	280 ± 12	12 ± 3
Group III	Fluoxetine (20 mg/kg, i.p.) + Reserpine	130 ± 5	65 ± 5
Group IV	Ternatensium Crantz 100 mg/kg + Reserpine	210 ± 7	30 ± 3
Group V	Ternatensium Crantz 150 mg/kg + Reserpine	170 ± 6	40 ± 4
Group VI	Ternatensium Crantz 200 mg/kg + Reserpine	140 ± 5	55 ± 4

Reserpine significantly increased immobility time, indicating depressive-like behavior.
Fluoxetine reversed this effect, reducing immobility significantly.
Ternatensium Crantz aqueous leaf extract demonstrated a dose-dependent reduction in immobility time, suggesting antidepressant-like activity.

Higher doses (150 and 200 mg/kg) showed effects close to fluoxetine, indicating strong potential.



Open-field test (OFT)

Group	Treatment	Crossings	Rearing	Center Time (sec)
Group I	Normal saline	85 ± 4	20 ± 3	45 ± 4
Group II	Reserpine	40 ± 3	10 ± 2	20 ± 3
Group III	Fluoxetine + Reserpine	80 ± 5	18 ± 2	42 ± 5
Group IV	C. ternatea 100 mg/kg + Reserpine	55 ± 3	12 ± 2	28 ± 4
Group V	C. ternatea 150 mg/kg + Reserpine	70 ± 4	16 ± 2	35 ± 4
Group VI	C. ternatea 200 mg/kg + Reserpine	82 ± 5	19 ± 3	43 ± 3

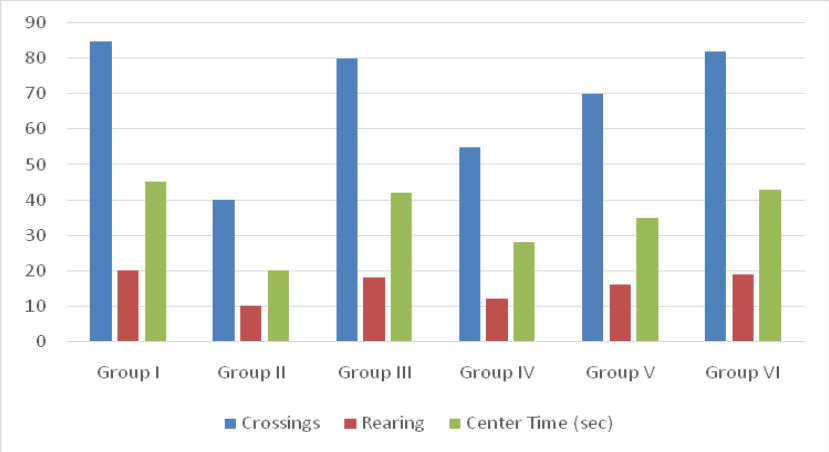
Group II (Reserpine only) shows significantly reduced locomotor and exploratory activity, confirming that

reserpine induces behavioral suppression, consistent with depressive-like states.
Group III (Fluoxetine + Reserpine) showed a return to normal levels of movement and exploration, indicating that fluoxetine not only reversed depressive-like behavior but also restored locomotion.

Ternatensium Crantz-treated groups (IV–VI)**:**

- **100 mg/kg** showed mild recovery in activity.
- **150 mg/kg** showed moderate restoration.
- **200 mg/kg** almost normalized locomotor and exploratory parameters, comparable to fluoxetine.

No hyperlocomotion observed at any dose — this is important as it suggests the **an**tidepressant-like effects seen in FST and TST are not due to increased general activity, but likely due to true mood-enhancing properties.



Biochemical analysis

Group	5-HT (ng/mL)	NE (ng/mL)	DA (ng/mL)	MDA (nmol/mg)	GSH (µmol/mg)	SOD (U/mg)	CAT (U/mg)
I – Control (Saline)	150 ± 5	180 ± 6	130 ± 5	2.1 ± 0.2	6.8 ± 0.3	18.5 ± 1.1	25.2 ± 1.5
II – Reserpine	70 ± 4	90 ± 5	60 ± 4	5.8 ± 0.3	3.1 ± 0.2	9.3 ± 0.9	12.6 ± 1.2
III – Fluoxetine + Reserpine	145 ± 6	170 ± 5	125 ± 6	2.4 ± 0.2	6.5 ± 0.4	17.2 ± 1.0	23.8 ± 1.4
IV – C. ternatea 100 mg/kg + Reserpine	95 ± 5	110 ± 5	85 ± 5	4.5 ± 0.3	4.2 ± 0.2	12.1 ± 0.8	18.4 ± 1.1
V – C. ternatea 150 mg/kg + Reserpine	120 ± 6	145 ± 6	105 ± 6	3.2 ± 0.2	5.5 ± 0.3	15.3 ± 0.9	21.2 ± 1.3
VI – C. ternatea 200 mg/kg + Reserpine	140 ± 5	170 ± 5	125 ± 5	2.5 ± 0.2	6.4 ± 0.3	17.9 ± 1.1	24.6 ± 1.4

Neurotransmitters (5-HT, NE, DA):
Reserpine (Group II) significantly reduced serotonin, norepinephrine, and dopamine — confirming depletion of monoamines, which correlates with depressive-like behavior.
Fluoxetine (Group III) and Ternatensium Crantz (Groups IV–VI) restored monoamine levels in a dose-dependent manner.

The 200 mg/kg dose (Group VI) nearly normalized 5-HT, NE, and DA, indicating strong antidepressant-like effects, likely via monoamine modulation.

Oxidative Stress Marker (MDA):

Reserpine induced a marked increase in MDA, suggesting enhanced lipid peroxidation and oxidative damage.

Ternatensium Crantz significantly lowered MDA levels, with the highest dose achieving near-normal levels, indicating potent antioxidant protection.

Antioxidant Defense (GSH, SOD, CAT):

- Reserpine depleted antioxidant enzymes and reduced GSH.
- Ternatensium Crantz reversed oxidative imbalance, again showing dose-dependent antioxidant effects.
- At 200 mg/kg, levels of GSH, SOD, and CAT were close to those of the normal control group.
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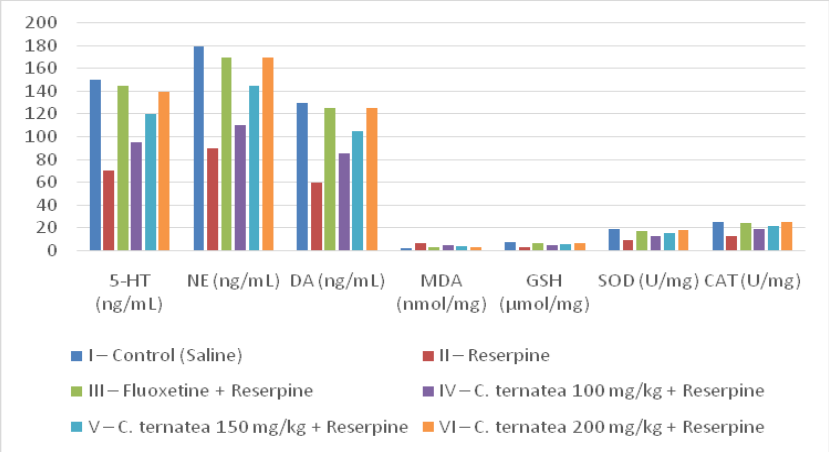

DISCUSSION

The present study demonstrates that *Ternatensium Crantz* aqueous leaf extract exhibits significant antidepressant-like effects in a reserpine-induced model of depression in rodents. Behavioral assessments using the Forced Swim Test (FST) and Tail Suspension Test (TST) revealed a dose-dependent reduction in immobility time, with the 200 mg/kg dose showing effects comparable to fluoxetine, suggesting genuine antidepressant-like activity. Importantly, the Open Field Test (OFT) confirmed that these behavioral improvements were not due to increased locomotor activity, ruling out nonspecific stimulation. Biochemical analysis showed that reserpine significantly reduced serum levels of serotonin, norepinephrine, and dopamine, while increasing malondialdehyde (MDA) and decreasing endogenous antioxidants (GSH, SOD, and CAT), indicating oxidative stress and monoamine depletion. Treatment with *Ternatensium Crantz* extract significantly restored monoamine levels and enhanced antioxidant defenses in a dose-dependent manner. These findings suggest that the extract's antidepressant-like effects may be mediated through both monoaminergic modulation and antioxidant mechanisms, supporting its potential as a natural therapeutic agent for managing depressive disorders.

CONCLUSION

In conclusion, the findings of this study demonstrate that *Ternatensium Crantz* aqueous leaf extract possesses significant antidepressant-like activity in a reserpine-induced rodent model of depression. The extract effectively reversed behavioral despair in the Forced Swim and Tail Suspension Tests without altering locomotor activity, indicating a true antidepressant effect. Biochemically, the extract restored depleted levels of serotonin, norepinephrine, and dopamine, and reduced oxidative stress by lowering MDA levels while enhancing antioxidant defenses (GSH, SOD, and CAT). These results suggest that the antidepressant-like effects of *Ternatensium Crantz* may be attributed to its ability to modulate monoaminergic neurotransmission and improve oxidative balance. Therefore, *Ternatensium Crantz* shows promise as a potential natural therapeutic agent for the treatment of depressive disorders. Further studies, including chronic dosing and mechanistic investigations, are warranted to fully elucidate its clinical relevance.

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