

Evaluation of Antidepressant Activity of *Nerium Oleander* Flower Extract in Albino Mice

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1. Introduction

Depression is one of the major mental disorders, it characterized with symptoms such as regular negative moods, decreased physical activity, feelings of helplessness, sluggish thought, and cognitive function¹. According to the World Health report, approximately 450 million people suffer from a mental or behavioral disorder. This amounts to 12.3% of the global burden of disease, and will rise to 15% by 2020^{2,3,4}.

Nerium oleander L. is an important medicinal materials numbers of pharmacological activities are determined by different scientists. Its main active constituents are polysaccharides, cardenolides, glycosides, and triterpenoids. The important pharmacological activities are antinociceptive, anti-inflammatory, anti-depressant, antibacterial and anticancer activity. Commonly known as an Indian Oleander.

2. Objective

To evaluate antidepressant activity of *Nerium oleander* flower extract in albino mice

3. Materials and Methods

Animals: Male Albino mice

Solvents: Normal Saline
Distilled water

Drug: *Nerium Oleander* flower extract
Imipramine (Depsonil)

Extraction: 50% Ethanolic Extract

Coarse crushed *Nerium Oleander* Flowers + Ethanol + Distilled Water → Soxlet Apparatus → Boiled at 50°C → Extract Filtered & Dried → Stored in air tight container.

Antidepressant Activity

Tail Suspension Test

Male Albino mice, weighing 25-30 grams were used. Grouping of Animals: They were divided into 5 groups with 6 animals (30 mice).

Group1: Normal Control 10ml/kg (Distilled Water),

Group 2: Imipramine 10mg/kg,

Group 3: *Nerium Oleander* Flower Extract 50mg/kg,

Group 4: *Nerium Oleander* Flower Extract 75mg/kg,

Group 5: *Nerium Oleander* Flower Extract 100mg/kg.

The total duration of immobility induced by tail suspension was measured according to the method described by Steru *et*

*al*⁵. Tail Suspension Test (TST) is carried out for duration of 5min. Each drug was administered initially to individual groups of mice. After 30 min & 60 min of drug administration each mice was suspended on the edge of a shelf 58 cm above the floor by the adhesive tape placed approximately 1 cm from tip of the tail. Mice are considered immobile only when they hang passively and are completely motionless for at least 1 min. The duration of immobility time was recorded^{6,7}.



Showing - Reduction of Total duration of immobility Period of mice



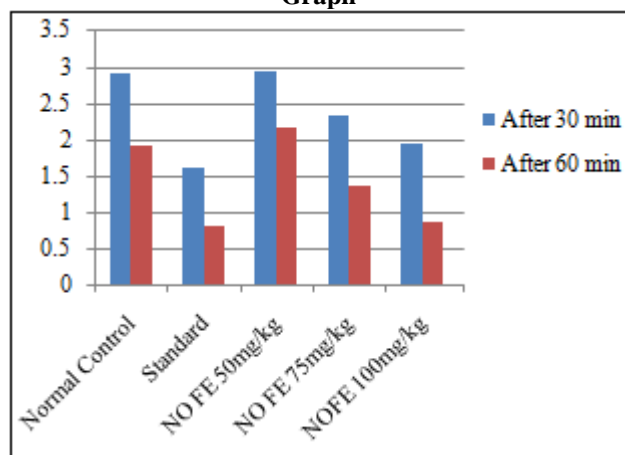
Showing - Immobility Period of mice

All the values are expressed as Mean \pm SEM

Groups	Parameters	Total Duration of Immobility	
		After 30 min	After 60 min
Normal Control 10ml/kg	Mean \pm SD	2.94 \pm 0.51	1.92 \pm 0.43
	SEM	-	-
Imipramine 10mg/kg	Mean \pm SD	1.63 \pm 0.35**	0.84 \pm 0.29**
	SEM	0.14	0.11
NOFE 50mg/kg	Mean \pm SD	2.96 \pm 0.36	2.17 \pm 0.10*
	SEM	0.14	0.04
NOFE 75mg/kg	Mean \pm SD	2.34 \pm 0.19*	1.36 \pm 0.20**
	SEM	0.07	0.08
NOFE 100mg/kg	Mean \pm SD	1.95 \pm 0.40**	0.86 \pm 0.28**
	SEM	0.16	0.12

*P value<0.05, **P value<0.01.

Graph



Mean of Total Duration of Immobility Time

4. Observations and Results

Observations were recorded and results were analyzed by One way analysis of variance (ANOVA)⁸. *Nerium Oleander Flower extract* significantly (P<0.05) decreases the duration of immobility in mice.

5. Discussion

The present study designed to screen antidepressant activity of *Nerium Oleander Flower extract*. Experiments were designed by Tail suspension test (TST) on Swiss male albino mice. Animals after antidepressant treatment struggle more even in desperate situation, and they spend less time with immobility. *Nerium Oleander Flower extract* produces significant antidepressant like effect in TST, as it reduces the immobility period. From the discussion it is suggested that *Nerium Oleander Flower extract* might produce antidepressant effect by interaction with adrenergic receptor thereby increasing the level of noradrenaline along with reduction in level of serotonin and dopamine in brains of mice.

6. Conclusion

The ethanolic extract of *NeriumOleander Flower extract* at the dose of 100mg/kg (i.e after 30 min & 60 min) has shown significant antidepressant activity when compared to the control. Amongst all the groups Imipramine has good stability and activity.

Nerium oleander Flower extract has shown significant antidepressant activity in TST.

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