



## **Evaluation of anti-catatonic potential of *Anogeissus latifolia* extract on haloperidol induced catalepsy in mice**

**Urolagin K.U\***

**Asst professor, Aditya Bangalore Institute of Pharmacy Education and Research,  
Bangalore, India**

**Abstract:** The present study involves the evaluation of *Anogeissus latifolia* extract on haloperidol induced catatonic responses in mice.

Haloperidol, an antipsychotic agent was used to induce the catatonic responses, which are similar to the extrapyramidal effects found in parkinsonism. Three groups (n=6) male albino mice were used in the study. Catalepsy was induced by intraperitoneally injection of haloperidol (1mg / kg). The degree of catalepsy (Catatonic scores) was measured as the time the animal maintained an imposed posture. Comparison of anti-cataleptic efficacy of *Anogeissus latifolia* extract (200 mg / kg, orally) with scopolamine (1mg / kg) was made to assess degree of catalepsy in the animal.

The significant reduction in the cataleptic scores was found in *Anogeissus latifolia* extract treated group as compared with untreated animal group. This study reveals the possible involvement of anti-oxidant potential of *Anogeissus latifolia* extract for its anti-catatonic responses.

**Key words :** *Anogeissus latifolia*, Catatonia, Haloperidol.

### **Introduction:**

Parkinson's disease is neurodegenerative disease characterized by the selective loss of dopamine (DA) neurons in the substantia nigra pars compacta (SNc). Catalepsy is an animal model for screening of drugs for Parkinsonism. *Anogeissus latifolia* (Combrataceae) is a hydro-alcoholic extract, has got an antioxidant property, therefore selected for testing its influence on haloperidol induced catalepsy in mice.

**Objective:** Extract preparation and phytochemical investigation.

Evaluation of *Anogeissus latifolia wall* extract on haloperidol induced catalepsy.

### **Experimental design:**

The study protocol was approved by the institutional animal ethical committee.

**Urolagin K.U /International Journal of ChemTech Research, 2018,11(11): 278-281.**

**DOI= <http://dx.doi.org/10.20902/IJCTR.2018.111129>**

**Drugs:**

Haloperidol (RPG live sciences) and scopolamine (Cadila health care Ltd) injections were used. *Anogeissus latifolia* extract prepared by maceration followed by soxhlation<sup>1</sup>.

**Animals:**

Male albino mice (25-30g) were procured from registered animal facility centre, acclimatized for 10 days before initiation of the experiment.

**Acute study :**

In acute study animals divided into three groups of six each. The first group received vehicle served as control (C), second group received scopolamine (1mg / kg; ip) and third group received *Anogeissus latifolia* extract (200 mg / kg, orally). All drug solutions are freshly prepared and given orally by using feeding tube. Haloperidol (1mg / kg) constituted in normal saline was administered intraperitoneally to induce catalepsy, 30min after vehicle / drug administration<sup>2</sup>. The degree of catalepsy was measured at 5, 15, 30, 45, 60, 90 and 120 min after haloperidol injection, catalepsy was measured as the time the animal maintained an imposed position with both front limbs raised and resting on 4cm height. The end point was assumed to occur when both front paws were removed. If animal fails to correct the posture within 10 seconds from 4cm height, 0.5 score is given for each paw and 0.5 score is given to animal which moves only when touched or pushed. Thus for single mouse maximum possible score would be 3.5 min revealing total catatonia.

**Chronic study :**

*Anogeissus latifolia* (200mg / kg), scopolamine (1mg / kg) and vehicle were administered orally once a day to respective groups for 6 more days<sup>3</sup>. Thirty minutes post oral administration, haloperidol (1mg / kg) was administered ip to all groups once daily for 6 more days<sup>3</sup>. Catalepsy again measured on seventh day at 5, 15,30,45,90 and 120 min post haloperidol administration.

**Results and Discussion:****Table:**

Groups	Effect of <i>Anogeissus latifolia</i> extracts on haloperidol induced catalepsy in mice( Acute Study)						
	Cataleptic scores at different time points (min)						
	5	15	30	45	60	90	120
1)Control	1.5 ± 0	1.4± 0.27	1.91± 0.32	1.75± 0.17	2.25± 0.28	2.58±0.15	2.58±0.15
2)Standard	0.41± 0.08	0.5 ± 0	0.25±0.11	0.16±0.10	0.16±0.10	0.33±0.10	0.25± 0.11
3)Treatment	0.75± 0.11	1± 0.12	1.25± 0.11	1.16±0.10	1.25± 0.11	1± 0.12	0.75± 0.11
	F- 47.5 P<0.001 <sup>c</sup>	F-7 P<0.01 <sup>b</sup>	F-16 P- 0.001 <sup>c</sup>	F-37.43 P<0.001 <sup>c</sup>	F-31.69 P<0.001 <sup>c</sup>	F-77.97 P<0.001 <sup>c</sup>	F-93.14 P<0.001 <sup>c</sup>
Statistical analysis by One- way ANOVA followed by Dunnett's Multiple Comparison Test							

a-p < 0.05, when compared with normal animals.

b- p < 0.01, when compared with control animals.

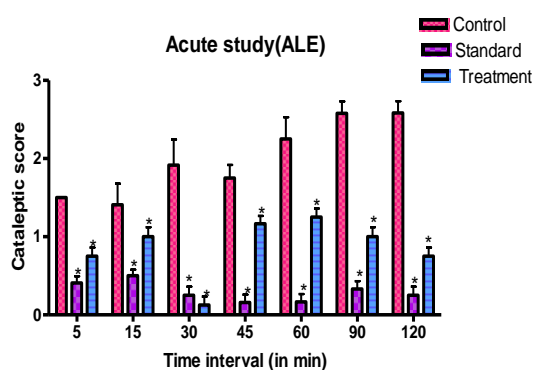
c- p < 0.001, when compared with control animals.

Groups	Effect of <i>Anogeissus latifolia</i> extracts on haloperidol induced catalepsy in mice( Acute Study)						
	Cataleptic scores at different time points (min)						
	5	15	30	45	60	90	120
1)Control	1.0± 0.22	1.5± 0	1.75± 0.11	2.0± 00	1.75± 0.11	1.66±0.10	1.83±0.10
2)Standar	0.41± 0.08	0.41± 0.08	0.08±0.08	0.25±0.11	0.25±0.11	0.25±0.11	0.08± 0.08
3)Treatme	0.41± 0.20	0.66± 0.21	0.5± 0.18	0.5±0.11	1.33± 0.16	0.33± 0.16	0.16± 0.10
	F- 3.5 P>0.05	F-18.78 P<0.001 <sup>c</sup>	F-42.76 P<0.001 <sup>c</sup>	F-58.64 P<0.001 <sup>c</sup>	F-40.39 P<0.001 <sup>c</sup>	F-36.89 P<0.001 <sup>c</sup>	F-100.2 P<0.001 <sup>c</sup>
Statistical analysis by One- way ANOVA followed by Dunnett's Multiple Comparison Test							

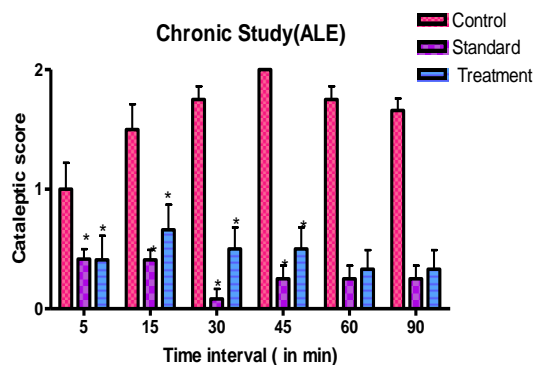
a-p < 0.05, when compared with normal animals.

b- p < 0.01, when compared with control animals.

c- p < 0.001, when compared with control animals.



**Graph 1:** Effect of acute administration of *Anogeissus latifolia* on haloperidol induced catalepsy in mice.



**Graph 2:** Effect of chronic administration of *Anogeissus latifolia* on haloperidol induced catalepsy in mice.

## Conclusion:

Results obtained in the protocol suggested that, *Anogeissus latifolia* showed a preventive effect against the haloperidol induced catalepsy. Probable mechanism involved in its protective action may be its anti-oxidant status. But furthermore battery of tests are required to be carryout to confirm the same.

## Conflict of Interest

The author(s) confirm that this article has no conflict of interest.

**Acknowledgment:**

Mrs.Deeparani and co-authors express deep sense of gratitude towards Aditya Bangalore Institute of Pharmacy Education and Research, Bangalore for their support in writing this article.

**References:**

1. Arjuman A, Nair V, Gopalakrishna HN, Nandini M. Evaluation of the antioxidant potential of NR-ANX-C (a polyherbal formulation) and its individual constituents in reversing haloperidol-induced catalepsy in mice. *Indian J Pharmacol* 2007; 39(3): 151.
2. Govindarajan R, Vijayakumar M, Rao CV, Shirwaikar A, Rawat AS, et al. Antioxidant potential of *Anogeissus latifolia*. *Biol. Pharm. Bull.* 2006; 27(8):1266-1269.
3. Kulkarni SK. *Hand Book of Experimental Pharmacology*. 3<sup>rd</sup> ed. Dehl: Vallabh Prakashan; 2006.

\*\*\*\*\*