Screening of Antiepileptic and Anxiolytic Activities of Poly Herbal Preparations

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ABSTRACT :
Herbal formulation in main advantage is no side effects. Ayurvedic system of medicine gives importance to strengthening of the body against different diseases for the promotion of health. There is a need to study the potential of poly Herbal formulations to counteract the side effects of modern therapy and to compare the cost Effectiveness of ayurvedic therapies with modern therapy. Development of poly herbal drugs which can improve immune state of the patient can have a significant impact on the disease and the patient it affects. The extracts of the individual plants in the poly herbal formulations have been evaluated for certain activities like antiepileptic & antianxeitic effects as shown in the review of literature. Thus the present study was undertaken to explore the antiepileptic & anxiolytic activities of poly herbal formulations.
Keywords: Anti-anxeitic, Ayurvedic and Antiepileptic.

I.INTRODUCTION

Epilepsy is the Third most common neurological disorder. Over 50% of patients with epilepsy, no apparent cause is found, despite full investigation .There are many allopathic medicines like benzodiazepines, barbiturates etc to manage the epilepsy but not permanent cure disease. Herbal formulations are more effectively working than to allopathic medicines in treatment of epilepsy. The allopathic medicines containing most common side effects that peoples had tiredness. They said different medications had made them feel 'drowsy', 'dopey', 'groggy' and 'sleepy'. People described generally 'lacking in energy' and 'fatigued'.

II.MATERIALS AND METHODS

Drugs: Diazepam (Valium™, Roche),Phenytoin ,PTZ
Chemicals, solvents and reagents: Ethanol
The following parameters were recorded during the test session of 5 min
Animals:

- Adult male Swiss albino mice (22-30 g) & Adult male Wister rats (180-200 g) were used
- They were housed in polypropylene cages at 25 ± 30C and 45-55% relative humidity, in a 12-h light-dark cycle.
- Allowed 2 weeks acclimatization period before commencement of studies.

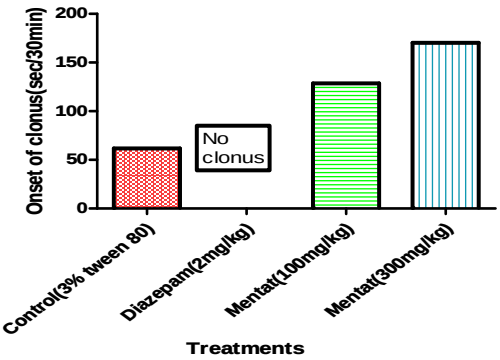
Methods:

A) Screening of Anti-epilepsy and Anti-anxiety Activities
B) Experimental Selection of Doses of Drug for Study

The lethal dose found is 2000mg/kg. So $1/10^{th}$ i.e 100mg/kg body weight taken as testing dose 300mg/kg- for dose dependent pharmacological effect.

Table.1 Effect of Mentat and Diazepam on onset of clonus in PTZ induced convulsions model

TREATMENTS	LATENCY(Onset of clonus) (Sec/30min)	ONSET OF TONIC (Sec/30min)	%PROTECTION AGAINST SEIZURES	%PROTECTION AGAINST MORTALITY
Control (3%tween 80)	51.83±5.48	369.16±23.64	0	0
Diazepam (5 mg/kg)	No clonus	No tonus	100	100
Mentat (100 mg/kg)	128.66±9.02**	451.66±30.03	0	16.66
Mentat (300 mg/kg)	170.33±14.10**	521.50±16.68*	0	50



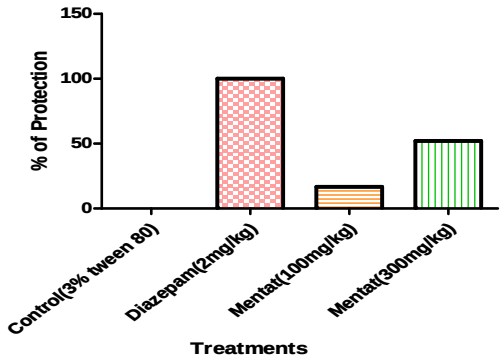
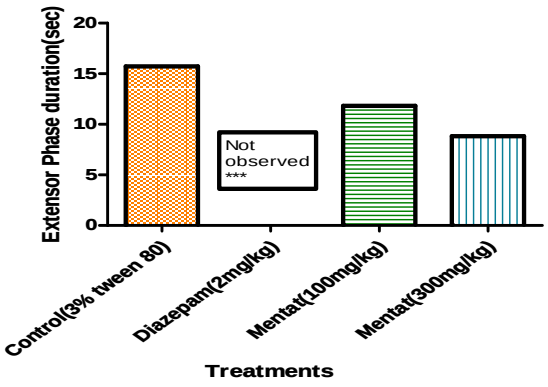


Table: 2 Effect of Mentat and Phenytoin on duration of extensor phase in MES induced convulsions model

TREATMENTS	DURATION OF TONIC FLEXION (Sec/30min)	DURATION OF TONIC EXTENSOR (Sec/30min)	LATENCY (ONSET OF CLONUS) (Sec/30min)	% PROTECTION AGAINST MORTALITY (24h)
Control (3%tween 80)	Not observed	15.33±0.55	2.16±0.47	0
(Phenytoin 25 mg/kg)	6.83±0.79***	Not observed***	13.16±1.35***	100
Mentat (100 mg/kg)	Not observed	11.83±0.60	5.83±0.87	33.33
Mentat(300 mg/kg)	Not observed	8.83±0.70***	9.0±0.85***	66.66



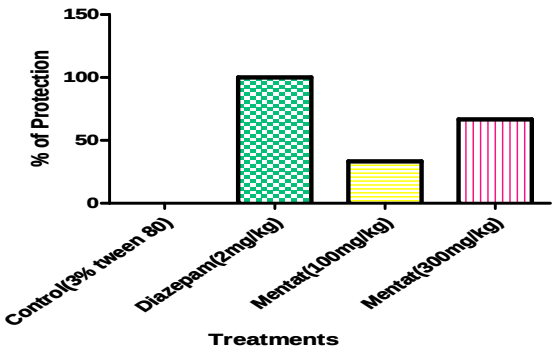
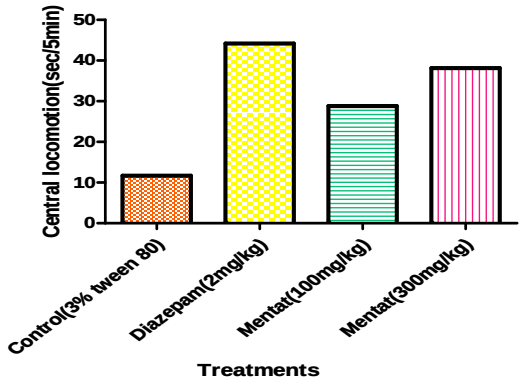


Table: 3 Effect of Mentat and Phenytoin on mortality in MES induced convulsions model

Treatments	Time taken to enter central compartment (Sec/5min)	Total locomotion (sec/5min)	Central locomotion (sec/5 min)	Ambulation (Counts/5min)	Rearing (Counts /min)
Control (3% tween 80)	44.50±8.08	164.16±19.52	11.16±2.52	61.83±6.95	7.33±1.60
Diazepam (2 mg/kg)	24.16±4.23	271.66±8.77***	44.16±6.43**	173.33±16.20***	14.66±1.54*
Mentat (100 mg/kg)	30.16±7.22	229.16±19.90*	28.83±4.06	129.33±17.97	8.66±0.71
Mentat (300 mg/kg)	25.83±4.84	260.33±15.12**	38.16±7.71*	159.83±14.89**	9.83±1.22

Effect of Mentat and Diazepam on ambulation in Open field test:



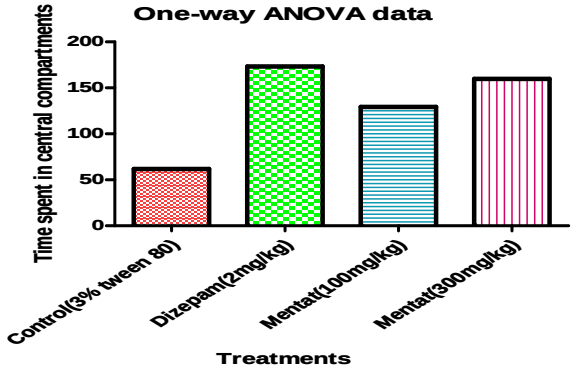
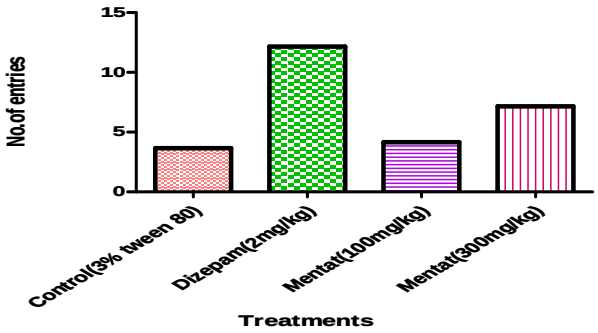


Table: 4 Effect of Mentat and Diazepam on Time taken to enter centeral compartments in Open field test

TREATMENTS	Elevated plus maze model			
	NUMBER OF ENTRIES (COUNTS/5MIN)		TIME SPENT IN(SEC/5MIN)	
	OPEN ARM	CLOSED ARM	OPEN ARM	CLOSED ARM
Control (3%tween 80)	3.66±0.55	13.16±1.22	29.16±7.94	218.16±14.28
Diazepam (2 mg/kg)	12.16±1.04***	15.16±1.04	137.16±9.33***	142.83±7.71***
Mentat (100mg/kg)	4.16±1.0	12.17±1.90	37.17±11.81	216.33±15.71
Mentat (300 mg/kg)	7.66±0.84*	12.0±0.93	89.83±12.13**	170.66±8.55*

Effect of Mentat and Diazepam on number of entries in open arm in Elevated plus maze modelEffect of Mentat and Diazepam on time spent in open arm in Elevated plus maze mode.



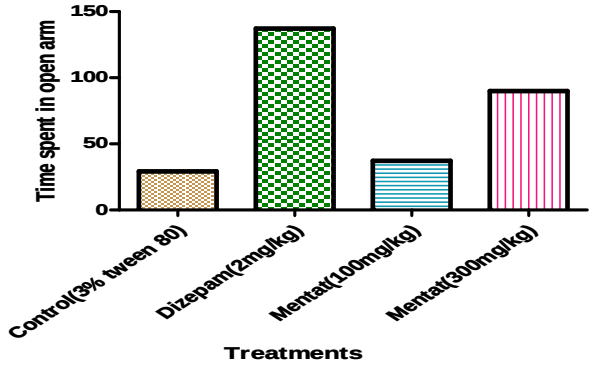
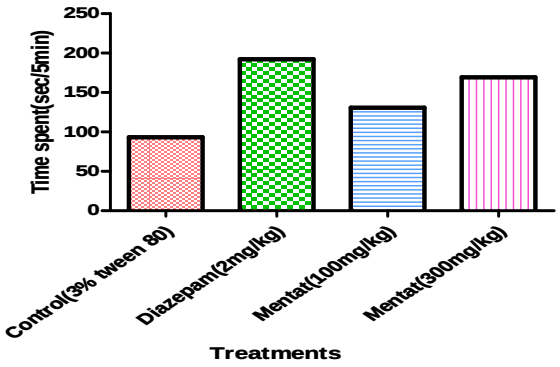


Table: 5 Effect of Mentat and Diazepam on time spent in light zone in Light-Dark transition model

Treatments	Latency (sec)	Time spent in dark zone (sec/5 min)	Time spent in light zone (sec/5 min)	No. of crossings (Counts/5min)	Rearing (Counts/5min)
Control (3%tween 80)	10.16±1.86	206.83±9.30	93.16±9.30	4.83±0.70	7.66±1.40
Diazepam (2mg/kg)	19.16±3.13	107.83±8.91***	192.16±8.91***	11.33±0.98*	9.66±0.95
Mentat (100 mg/kg)	15.66±3.31	157.66±9.60	130.66±11.01	8.66±1.20	7.83±0.94
Mentat (800 mg/kg)	22.16±4.45	124.33±12.40	169.33±13.41***	10.83±0.90*	8.83±1.32



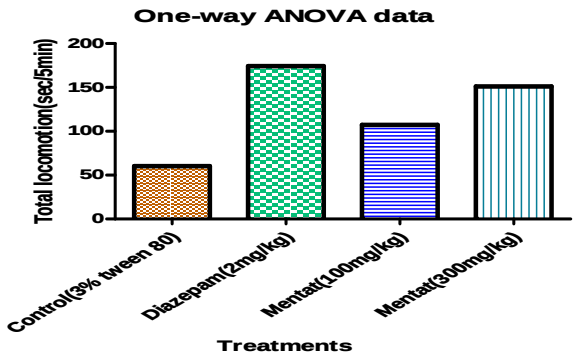
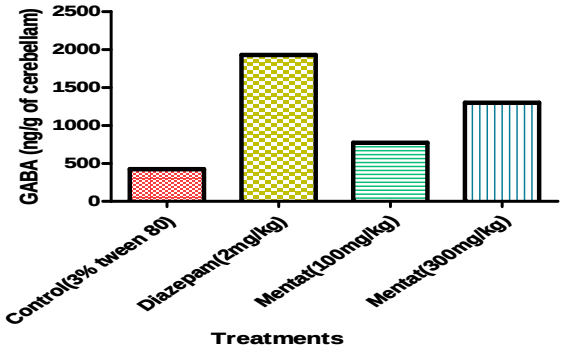


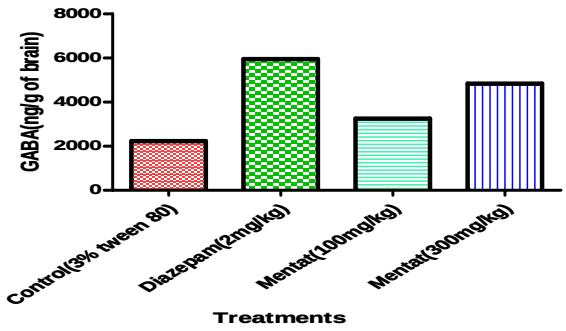
Table: 6 Effect of Mentat and Diazepam on total locomotion in light zone in Light-Dark transition model

TREATMENTS	IN CEREBELLEM(mg/g of brain)	IN WHOLE BRAIN OTHER THAN CEREBELLEM (m g/g of brain)
Control (3%tween 80)	423.83±16.61	2228.83±48.01
Diazepam (2 mg/kg)	1929.13±51.86***	5946.74±56.46***
Mentat (100 mg/kg)	772.90±25.05***	3248.74±60.03***
Mentat (300 mg/kg)	1299.74±73.61***	4835.36±96.72***

Effect of Mentat on GABA contents in cerebellum



Effect of Mentat on GABA contents in whole brain except cerebellum



III.RESULTS AND DISCUSSION

Mentat is a remedy developed and marketed by The Himalaya Drug Co., for the treatment of common behaviour problems at all ages. The psychopharmacologic effects of Mentat have been evaluated and established according to standard test batteries of modern medicine. Epileptic effect Study of Mentat Low dose and high dose using 2 validated models of epilepsy viz. PTZ test,MES tests in mice's.

Mice's were treated orally with vehicle (0.3 % CMC suspension), Mentat, low dose, high doses and Diazepam (2 mg/kg; positive control), respectively, 1h before evaluation of behavioural parameters.

The results of the present study indicate that Mentat low dose and high dose demonstrated a significant antiepileptic effect in mices tested on all the 3 validated behavior paradigms. Moreover, mentat high dose (300mg/kg) has shown more significant anxiolyticeffect compared to Mentat low dose (100mg/kg) .

However, the activity of these two formulations was found to be less marked than that of the common benzodiazepine anxiolytic agent, Diazepam.

Anxiolytic effect Study of Mentat Low dose and high dose using 3 validated models of anxiety viz.

A.open field exploratory behavior,

B.elevated plus maze behavior,

C.Light-Dark Transition model test in mice's

Mice's were treated orally with vehicle (0.3 % CMC suspension), Mentat,low dose ,high doses and Diazepam (2 mg/kg; positive control), respectively, 1h before evaluation of behavioural parameters. The results of the present study indicate that Mentat low dose and high dose demonstrated a significant anxiolytic effect in mices tested on all the 3 validated behavior paradigms.

Moreover, mentat high dose (300mg/kg) has shown more significant anxiolytic effect when compared to Mentat low dose (100mg/kg).

However, the activity of these two formulations was found to be less marked than that of the common benzodiazepine anxiolytic agent, Diazepam.

CONCLUSION

Findings from this study showed that mentat contain constituents which possess anticonvulsant and anxiolytic-like activities. Studies aimed at isolating the anticonvulsant constituents are ongoing.

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