

AIM :

To study the central nervous system depressant property of Chlorpromazine on the locomotor activity of mice using Actophotometer.



REQUIREMENTS :

Animal : Mice (20-25 g)

Solutions : Chlorpromazine hydrochloride

Equipment : Actophotometer (INCO)

PRINCIPLE :

- Most of the central nervous system acting drugs influence the locomotor activities in man and animals.
- The CNS depressant drugs such as barbiturates and alcohol reduce the motor activity.
- The CNS stimulants such as caffeine and amphetamines increase the motor activity.
- In other words, the locomotor activity can be an **index of wakefulness** (alertness) of mental activity.

- The **locomotor activity** (horizontal activity) can be easily measured using an **actophotometer** which operates on photoelectric cells which are connected in circuit with a counter.
- When the beam of light falling on the photocell is cut off by the animal, a count is recorded.
- An actophotometer could have either circular or square arena in which the animal moves.
- Both rats and mice can be used for testing in this equipment.

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1. Weigh and number the mice.

2. Turn on the equipment and place individually each mouse in the activity cage for 10 min.

3. Note the basal activity score of all the animals.

4. Inject chlorpromazine (1mL/100g), and after 30 min re-test each mouse for activity scores for 10 min.

5. Note the difference in the activity, before and after chlorpromazine.

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SCORE BEFORE TREATMENT : 125



SCORE AFTER TREATMENT : 62



OBSERVATIONS :

Sr. No.	Body weight (g)	Treatment	Locomotor activity (score) in 10 min		
			Before drug	After drug	% change in score
1	22	Chlorpromazine	130	70	
2	20		125	62	
3	22		130	72	
4	23		125	60	
5	24		135	65	
6	20		120	75	
Mean					

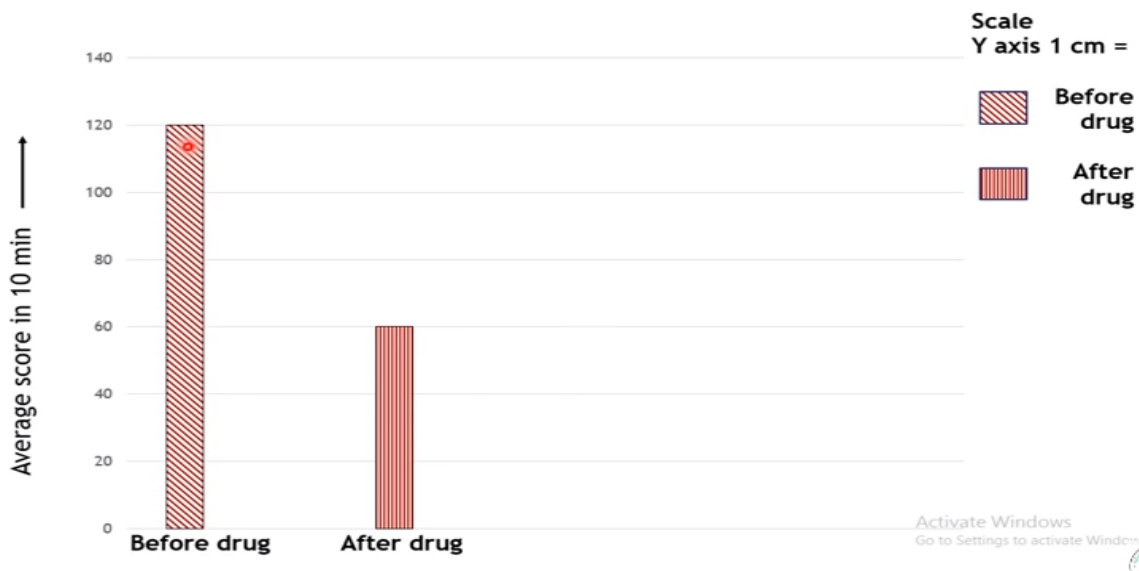
CALCULATIONS :

$$\% \text{ change in score} = \frac{\text{Score before treatment} - \text{Score after treatment}}{\text{Score before treatment}} \times 100$$

GRAPH :

Plot a graph of

y axis : Average Locomotor activity (score) in 10 min before drug treatment and after drug treatment



INFERENCE :

Reduction in the motor activity indicates the CNS depressant property of Chlorpromazine.

REFERENCES :

- 1) S. K. Kulkarni; Handbook of Experimental Pharmacology; 4th Edition; Vallabh Prakashan; 131 - 133.
- 2) S. B. Kasture; A Handbook of Experiments in Pre-clinical Pharmacology; 1st Edition (Reprint) July 2009; Career Publication; 104.
- 3) X-cology Experimental Pharmacology, Pragati Books Pvt. Ltd. Pune.