EXPERIMENT NO.: 10 **DATE:**

AIM: TO STUDY THE EFFECTS OF SKELETAL MUSCLE RELAXANTS USING ROTA-ROD APPARATUS.

Apparatus: Rota rod

Drug: Diazepam

Animal: Mice

Principle:

Generally, anxiolytics are known as minor tranquilizers and neuroleptics or antipsychotics known as major tranquilizers. Minor tranquilizers or anti-anxiety agents like benzodiazepines produce specifically the skeletal muscle relaxation. The site of activity is CNS. Disturbance in maintenance of tone and posture is the 1st sign of centrally mediated skeletal muscle relaxation. A mouse when allow to stay on a slow rotating rod fails to stay on the rod maintaining its posture, when a skeletal muscle relaxant is given. This property is utilized in the rotarod test.

Theory:

Skeletal muscle relaxants are drugs that are used to relax and reduce tension in muscles. They are more simply referred to as muscle relaxants.

Some work in the brain or spinal cord to block or dampen down excessively stimulated nerve pathways. These are called centrally acting muscle relaxants and examples include baclofen, methocarbamol, and tizanidine.

Others act directly on muscle fibers and are classified as peripherally acting muscle relaxants. Examples include dantrolene and the different types of botulinum toxin. Although dantrolene acts directly on the muscle itself, it also appears to indirectly act on the central nervous system and can cause drowsiness.

Cannabis extract also has muscle relaxing properties and is thought to act both centrally and peripherally.

Procedure

In this practical fall of time is being recorded when the mice falls from the rod.

Turn on the rotarod apparatus and perform the below phases

a) **Training phase:**
   - It consists of 3 trials at 20 rpm constant speed.
   - All trials being performed 10 minutes of intervals.
   - Note the fall in time from rod for mice and take mean of obtained value.

b) **Test phase:**
   - Now, inject the test drug (Diazepam 2mg/Kg).
   - After 30 minutes place the mice on rotarod.

- Note the fall in time from rod for mice and take mean of obtained value.

Dose calculation:

Mice weight 30 G = 30 X 10^{-3}Kg

Dose of diazepam is 2 mg/Kg

1 Kg animal required ---------- 2 mg dose

30 X 10^{-3}Kg animal required ---------- (?) = 60 X 10^{-3} mg

Stoke solution = 0.2 mg/mL

0.2 mg drug required -------- 1 mL dose

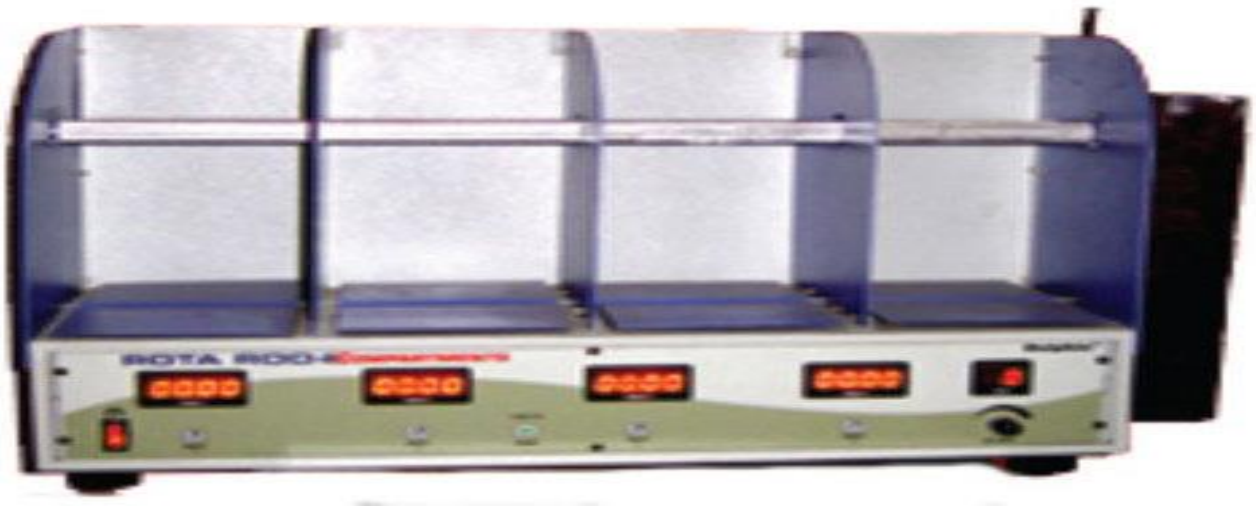
60 X 10^{-3}mg drug required ------- (?) = 0.3 mL dose

OBSERVATIONS:

S.NO	Body weight (GM)	Drug treatment dose	Volume of drug injected (mL)	Fall of time (in sec)		% decrease in activity
				Before drug	After drug	
1.	40	Diazepam 2mg/kg (i.p)	0.40	305	68	77.7
2.	34		0.34	266	78	70.67
3.	30		0.30	209	55	73.68
4.	30		0.30	321	103	67.91

DISCUSSION:

Motor co-ordination in mice is found to be decrease when administered the drug diazepam. Hence we can conclude that the diazepam have skeletal relaxant property.



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