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Diploma in Pharmacy 2nd Year

Pharmacology

Experiment

To study the laboratory animal Rat

Aim:

To study the laboratory animal Rat

Reference :

‘ Dr. P.Mudagal Manjunatha , “Practical Manual of Pharmacology”

Published by Nirali Prakashan, Page no 8 - 10

Theory :

Description

- **Typical Adult Weight:** 250 gm
- **Average Life Span:** 2-3 years
- **Gestation Period:** 21-23 days
- **Average Litter Size:** 8-10
- **Oestrous Cycle:** 4-5 days
- **Heart Rate:** 300-500 beats/min
- **Respiratory Rate:** 65-180/min
- **Tidal Volume:** 1.5 ml
- **Daily Food Intake:** 10-20 gm

Housing

- 1) Many different designs of rat and no one pattern should be the standard.
- 2) Aluminium box around 6x12x6 inches deep with tapering side should be provided to facilitate stacking.

- 3) Lids should be made of steel sheet or of strong wire mesh and should be designed so that hopper is built into them and there should be accommodation to hold the drinking bottle.
- 4) The cages should be light, durable and easily sterilised by dry or moist heat.

Feeding

1. Pelleted diets, such as diet 86 of Howie (1952) or diet 41 of Bruce (1950), should be provided.
2. Fresh water in drinking bottles should be provided.

Different Strains of Rats

1. ACI Rat
2. Albino Rat
3. Brown Norway Rat
4. DA Rat
5. Hwy Rat
6. IS kyo Rat
7. Khr Rat
8. Lec Rat
9. LEJ Rat
10. Lewis Rat
11. Lxf Rat
12. Res Rat



Handling of Rats

- 1) The rat should be lifted out of the cage by grasping the base of the tail and placed on the soft surface.
- 2) Index and middle finger should be placed along the rats head and the thumb and ring finger should be placed under its forelegs. Index and middle finger should be used to secure its head and the remaining fingers should be used to support the body
- 3) The complete body should be held by grabbing the back using complete palm

Experimental Procedures on Rats

- 1) Study of analgesics and anti-convulsants.
- 2) Study of oestrus cycle, mating behaviour, and lactation.
- 3) Gastric acid secretion
- 4) Hepatotoxicity studies
- 5) Study on mast cells
- 6) Bioassay of various hormones (insulin, oxytocin, and vasopressin)

Applications

- 1) Rats resemble man in several organ function and nutrition.
- 2) Rats are sensitive to most of drugs, thus are very useful experimental animals.
- 3) Rats do not have vomiting centre (cant study about emetics).

Result :

The laboratory animal rat was studied.

