

# CONTENT

- ❖ Introduction
- ❖ Guidelines
- ❖ Drugs
- ❖ Mechanism And Purpose
- ❖ Side Effects
- ❖ Screening Models

# INTRODUCTION

- ❖ Aphrodisiac is the word derived from **Aphrodite**, the Greek **word Goodness of sexual , Love and Beauty .**
- ❖ An aphrodisiac is **define as agent ( food & drug ) that** arouses (increase) sexual desire.
- ❖ The major **drawback (completely opposite action ) of** this agents are Erectile dysfunction.
- ❖ So, the basic concept of penile erection were obtain from different **in-vivo & in-vitro animals models.**
- ❖ Before study on animal models , Some **guidelines must** be follow during experiment which explain as....

# GUIDELINES

- ❖ Male animals were kept individually but female animals were kept in groups.
- ❖ Training of each male for 15 min. at a time was performed until sexual behaviour was elicited and when the behaviour was noticed , males were exposed to receptive females ( 1 male with 5 females).
- ❖ Repeated training to overcome the lack of sexual response in the presence of observers.

# GUIDELINES

- ❖ The study was conducted in a silent room under dim red light.
- ❖ Any jerking movements of the mating area was avoided to enable the rats to chase each other.
- ❖ Cleaning of the mating area was performed after each trial , since the urine trails left by one rat might affect the sexual behaviour of the next rat.

# APHRODISIACS DRUGS

- ❖ Sildenafil citrate
- ❖ Arginine
- ❖ Testosterone
- ❖ Crocin
- ❖ Phenethylamines
- ❖ Amphetamine
- ❖ Methamphetamine

# MECHANISM INVOLVED IN APHRODISIACS DRUGS

- ❖ These drugs acts by enhancing the sex organ sensation and performance.
- ❖ They improve the blood flow to the male sex organ, thus improving the male libido.
- ❖ A similar response in women may also produce an increased sexual stimulation.

# PURPOSE OF APHRODISIAC AGENTS

- To increase low libido.
- To improve sexual performance .
- In the treatment of impotence.
- To treat physiological problems that affect sexual activity.

# SIDE EFFECTS

- ❖ Arrhythmia of the heart
- ❖ Suicidal tendencies
- ❖ Mental disorders
- ❖ Tremors
- ❖ Headaches
- ❖ Fainting facial flushing
- ❖ Upset stomach
- ❖ Blurred vision
- ❖ Sensitivity to light usually occur with high doses.

# SCREENING METHODS OF APHRODISIAC AGENTS

## A) Physical Or Behavioral Methods (In Vivo Method)

- i. Mating behavior test
- ii. Libido test
- iii. Potency test
- iv. Orientation activity test
- v. Sexual and vital organ weight test

## B) Biochemical Or Hormonal Methods ( In Vitro Method)

- i. Estimation of cholesterol level
- ii. Estimation of sex hormones level
- iii. Assay for nitric oxide synthase
- iv. Assay for androgen receptor protein

# PHYSICAL OR BEHAVIORAL METHOD

## 1.) Mating behavior test :

- ❖ Healthy and sexually experienced male rats (200 – 300 gm) with brick sexual activity are divided into three groups (n =6)
- ❖ Group - 1 , receives distilled water
- ❖ Group - 2 , receives testing agents daily for 21 days.
- ❖ Group - 3 , receives standard drug i.e Sildenafil one hour prior to the experimentation .
- ❖ Then all the animals are exposed to dim light ( 1 w fluorescent tube in a laboratory of 14'x 14') at the stipulated time of testing daily for 6 days prior the test .
- ❖ Female rats treated with ethinyl estradioal 48hrs and with progesterone 6hrs before pairing (1:1 ratio)

❖ On 21<sup>st</sup> day , the experiment is conducted at 8pm and the male rats are observed for-

a. **Mount frequency :**

- Mounting is the climbing of one animal by another usually from the posterior end with the intention of introducing one organ into another.
- MF is define as the no. of mounts without intromission from the time of introduction of the female until ejaculation.

b. **Mount latency :**

- ML is the time interval between the introduction of the female and the first mount by the male.

c. **Intromission frequency :**

- Intromission is the introduction of one organ or part into another.

**d. Intromission latency :**

- IL is time interval from the time of introduction of the female to the first intromission by the male;

**e. Post ejaculation interval :**

- PEI is the time interval between ejaculation and the first intromission of the following series.

**f. Copulatory rate :**

- $CR = \frac{\text{no. of mounts} + \text{no. of intromission}}{\text{time from first mount till ejaculation}}$

**g. Index of libido :**

- $\%IOL = \frac{\text{no. mated}}{\text{no. paired}} \times 100$

#### h. Computed male sexual behaviour parameter :

• Some mathematical formula for to observe male sexual behaviour are explain as following,..

$$\text{➤ \% Mounted} = \frac{\text{no. mounted}}{\text{no. paired}} \times 100$$

$$\text{➤ \% Intromitted} = \frac{\text{no. of intromissions}}{\text{no. paired}} \times 100$$




$$\text{➤ Intromission ratio} = \frac{\text{no. of intromission}}{\text{no. of mounts} + \text{no. of intromission}} \times 100$$

$$\text{➤ \% Ejaculated} = \frac{\text{no. of ejaculation}}{\text{no. paired}} \times 100$$

$$\text{➤ Copulatory efficiency} = \frac{\text{No. of intromission}}{\text{no. of mounts}} \times 100$$

➤ Intercopulatory efficiency = average time between intromission

## 2.) Test for libido :

- In which male albino rat should be kept singly in separate cages during experiment with the receptive female rat in same cage.  

- To apply 5% xylocain ointment at 5,15,30 min before starting observation to male rat.  

- To female rat should be made receptive by hormonal treatment.  

- Then to observed the mounting frequency (MF) at dim red room condition.

## **EVALUATION :**

- No. of mounting should be noted.
- The animal should also be observed for intromission and ejaculation.

### 3.) Test for potency:

- The male animal are kept single in cage.
- The extracts of aphrodisiacs are administered before half or one hour of the experiment.
- On the 8<sup>th</sup> day test for penile reflexes would be carried out by putting the animal on its back in a **glass cylinder** with partial restrain.
- The perpetual sheath would be pushed behind the glans (the vascular body which forms the apex of the penis) for **15 min** to stimulate genital reflexes.

- Total penile reflexes are obtained as sum of **erections(E)**, **quick flips (QF)** and **long flips (LF)**.

### **EVALUATION :**

- **Statically significant increase in the frequency of penile reflexes suggests with aphrodisiac potential.**

# IN VITRO TEST

## ESTIMATION OF SEX HORMONES LEVEL :

- The positive effect of male sexual behaviour must have been brought about by to identify level of some reproductive hormones like **testosterone**, luteinizing hormone (**LH**) , follicle stimulating hormone (**FSH**) and **prolactin**.
- Testosterone supplementation has been shown to improve sexual function and libido.
- Luteinizing hormones (**LH**) and Follicle Stimulating Hormone (**FSH**) produced by anterior pituitary lobe, they are necessary for maintaining testosterone levels. An Increase in the concentrations of **LH** and **FSH** should normally increase the testosterone concentration.

# IN VITRO TEST

- Normally, prolactin is made by specialized pituitary cells called lactotrophs. Prolactin increases the production of breast milk and suppresses secretion of **LH** and **FSH**. The role of prolactin in men is not known.
- If high levels of prolactin in men, may cause hypogonadism, low blood testosterone levels and decrease in sex drive (libido) and sexual function/
- Aphrodisiac agents shows reduction in the concentrations of prolactin in males which would enhance the levels of **LH** and **FSH** by extension the testosterone concentration.