

# **B.Sc 2<sup>ND</sup> SEMESTER**

## **Paper: Diversity of Chordates**

### **Topic:**

### ***Poison Apparatus of snake***

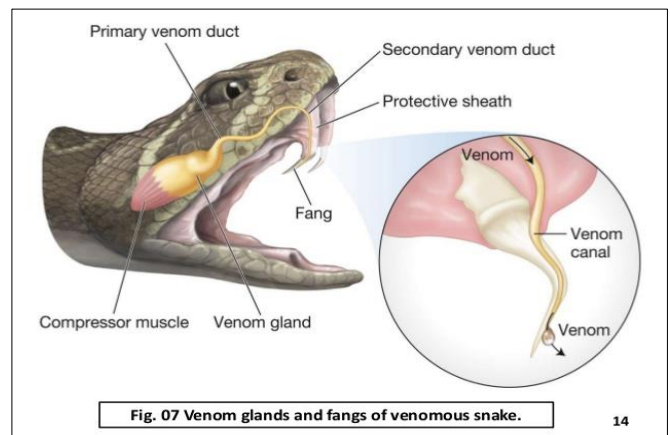
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## ***Poison Apparatus of snakes***

*All the poisonous snakes have poison apparatus in their heads, which is not found in non-poisonous snakes.*

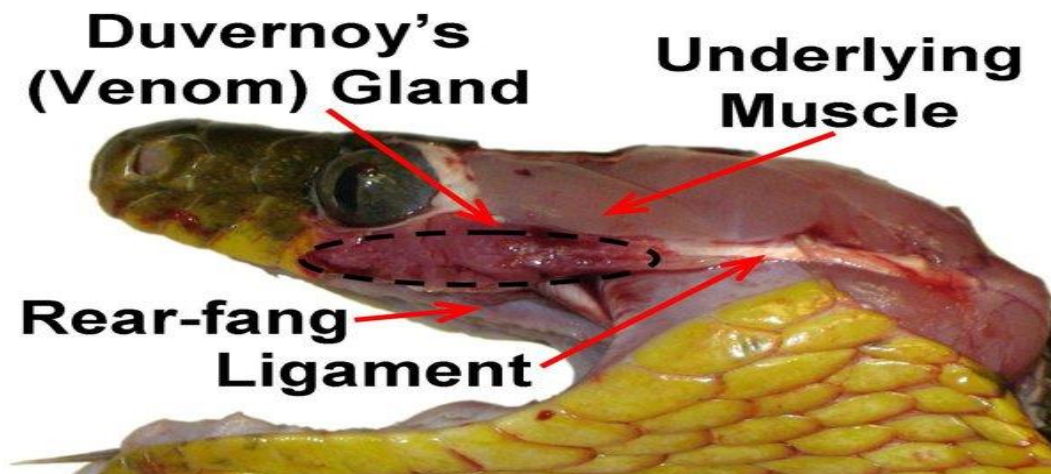
*This apparatus includes*

- (i) a pair of poison glands,*
- (ii) poison ducts,*
- (iii) fangs and*
- (iv) muscles.*



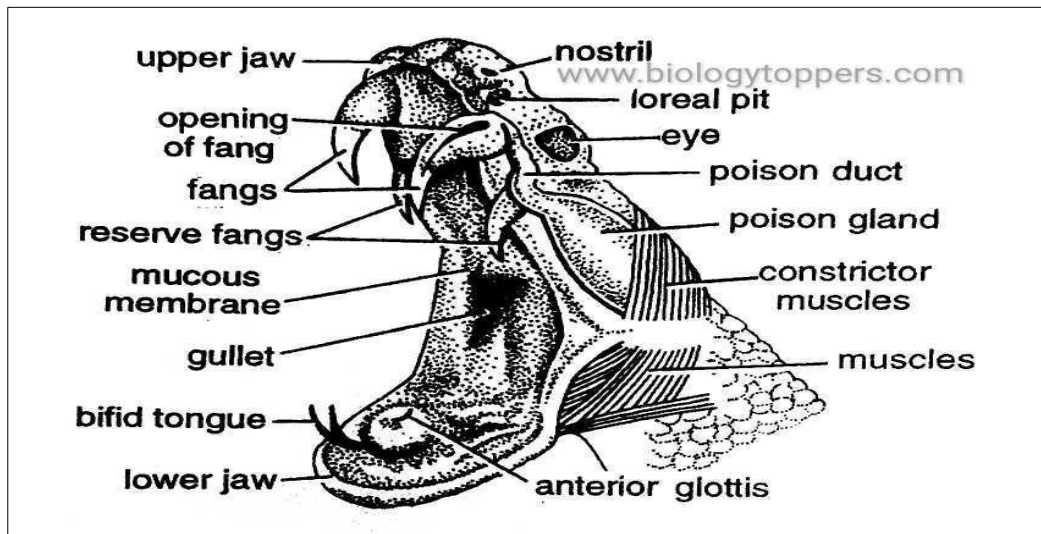
### **1. Poison glands:**

- *Two sac-like poison glands are situated one on either inner side of the upper jaw, below the eyes.*
- *These are possibly the **modified parotid glands**.*
- *The glands may be **small and oval (sea snakes) or large and tubular (vipers)** depending on species.*
- *Poison gland is **held in position with the help of ligaments**.*
- *Each gland is **thickly encapsulated with fibrous connective tissue***
- ***Mostly covered by constrictor muscle**, often referred to as **temporal or masseter**. Its stretching during biting squeezes poison from gland into its duct.*



## 2. Poison ducts.

- A narrow poison duct leads anteriorly from each poison gland to the base of a poison fang to enter its groove or canal.



## 2. Fangs.

- Fangs are certain **specialized teeth** attached to maxillary bones.
- They are **long, curved, sharp and pointed**.
- They serve as **hypodermic needles** for injecting poison into the body of victim.
- When a **functional fang is lost or damaged**, it is replaced by one of the reserved fangs.

**On the basis of structure and position 3 types of fangs occur in poisonous snakes:**

### (a) Solenoglyphous

- It is a **large functional fang** that occurs on **the front of each maxilla** with small reserve fang at its base.
- The fangs are **movable and turned inside to lie close to the roof of mouth when it is closed**.
- A hollow poison canal, lined with enamel runs through the fang opening at the tip.

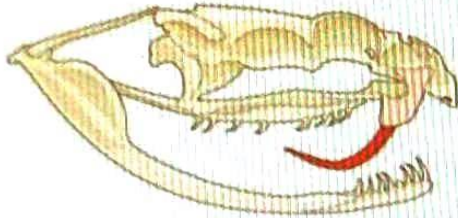
**Example: Vipers and rattle snakes**



### Rattle snake

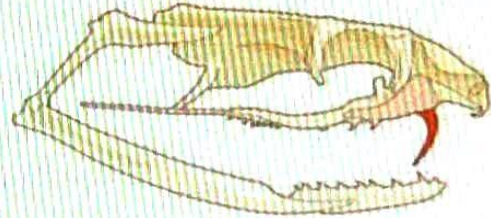
The rattle is composed of a series of hollow, interlocked segments made of keratin, which are created by modifying the scales that cover the tip of the tail.

## TYPES OF FANGS



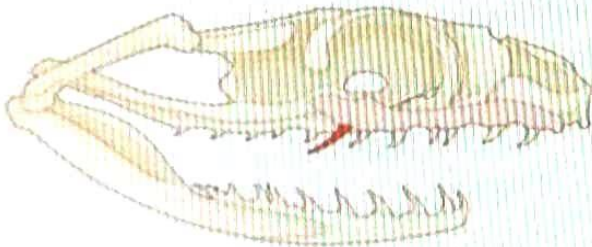
### Solenoglyphous

Long, hollow & moveable fangs  
Eg - Russell's Viper



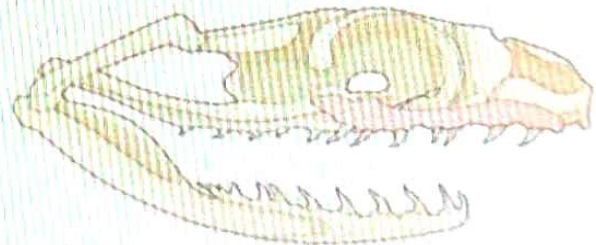
### Proteroglyphous

Front, fixed fangs  
Eg - Spectacled Cobra



### Opisthoglyphous

Rear-fanged  
Eg - Green Vine Snake



### Aglyphous

Fangs absent  
Eg - Rat Snake

### b) Proteroglyphous:

- Fangs are small, at the front of the maxillae and permanently erect.
- Each fang is grooved all along its anterior face

*Example:* cobras, kraits, coral snakes and sea snakes,



Cobra

### c) Opisthoglyphous:

- Fangs are small, lie at the back of maxillae and each grooved along its posterior border.
- venom is weak

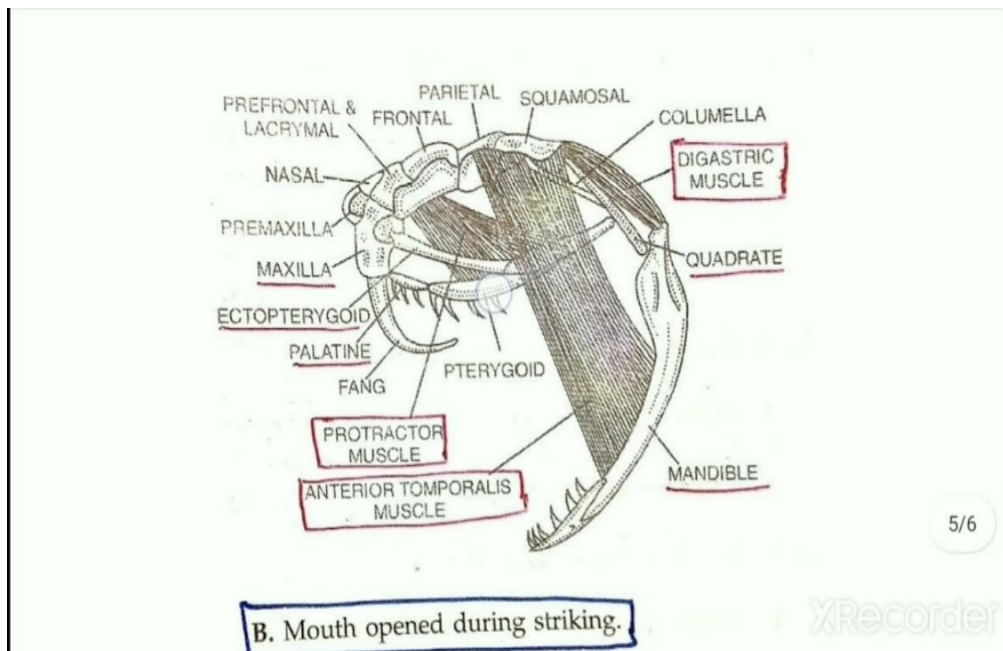
*Example:* some poisonous snakes (family Colubridae)- Dryophis, Elapops



Dryophis

#### 4) Muscles:

The Poison apparatus is associated with different types of muscles:



##### 1. Anterior and posterior temporalis muscle

- Anterior and posterior temporalis muscle are attached to the sidewalls of the cranium and the lower jaw.
- These muscles when contracts help in closing the lower jaw

##### 2. Digastric muscles.

- It is attached to the squamosal of the skull at one end and articular of the lower jaw at one end.
- By contraction of this muscle, mouth opens and lower jaw moves forward

##### 3. Sphenopterygoid or protractor pterygoid muscles

- It is attached anteriorly to the sphenoidal region and posteriorly to the dorsal surface of the pterygoid.
- Protractor pterygoid muscle when contracts, pterygoid moves forward maxilla rotates 90° as a result fangs raised.

##### 4. Masseter muscle or constrictor muscles

- Constrictor muscles are present in the poison gland
- When it contracts poison squeezed from poison gland.