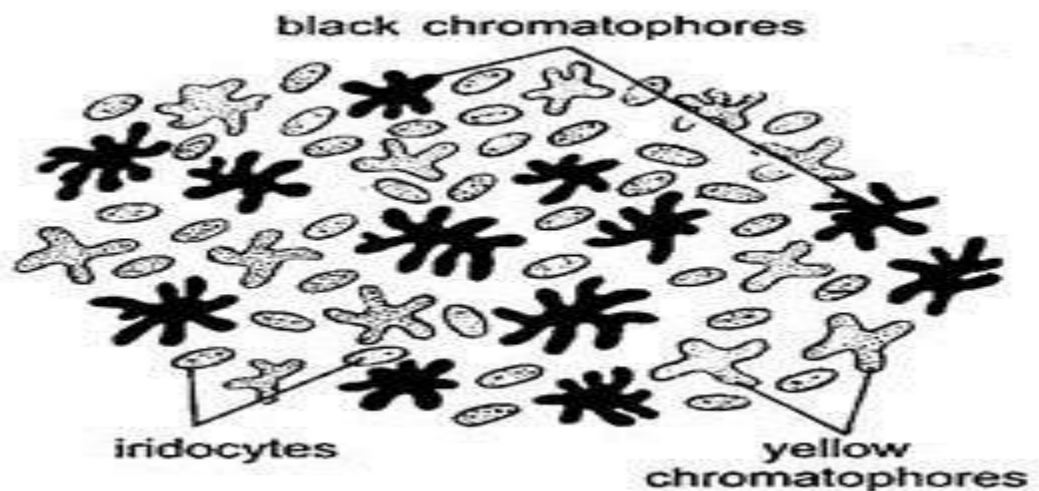


Structure of skin of Amphibia:

- The epidermis is multilayered; the outermost layer is a stratum corneum made of flattened, highly keratinised cells.
- Such a dead layer appears first in amphibians, and is best formed in those which spend a considerable time on land.
- The stratum corneum is an adaptation to terrestrial life; it not only protects the body but prevents any excessive loss of moisture.
- In ecdysis, the stratum corneum is cast off in fragments or as a whole in some.
- The dermis is relatively thin, it is made of two layers, an upper loose stratum spongiosum and a lower dense and compact stratum compactum.
- Connective tissue fibres run both vertically and horizontally.
- There are two kinds of glands, they are multicellular mucous glands and poison glands in the dermis, but they are derivatives of the epidermis.
- The mucous glands produce mucus which not only forms a slimy protective covering but also helps in respiration.

- The poison glands found in toads as parotid glands produce a mild but unpleasant poison which is protective, keep the enemies away.
- In the upper part of the dermis are chromatophores which have black melanophores and yellow lipophores, these produce the colour of the skin.
- The ability of the skin for changing colour to blend with the environment is well developed.
- Skin of labyrinthodontia, the stem Amphibia had a armour of dermal seales.
- Bony dermal scales are found embedded in the skin of some Gymnophiona (Apoda) and a few tropical toads.
- These scales are absent in modern Amphibia.



- Fig. Colour producing cells of skin of amphibia.

- The skin is sensitive to light in amphibians, especially in cave-dwelling forms.
- It is an important organ of respiration, and also enables the frog to respire under water for long periods, during hibernation or aestivation it is the only organ of respiration.

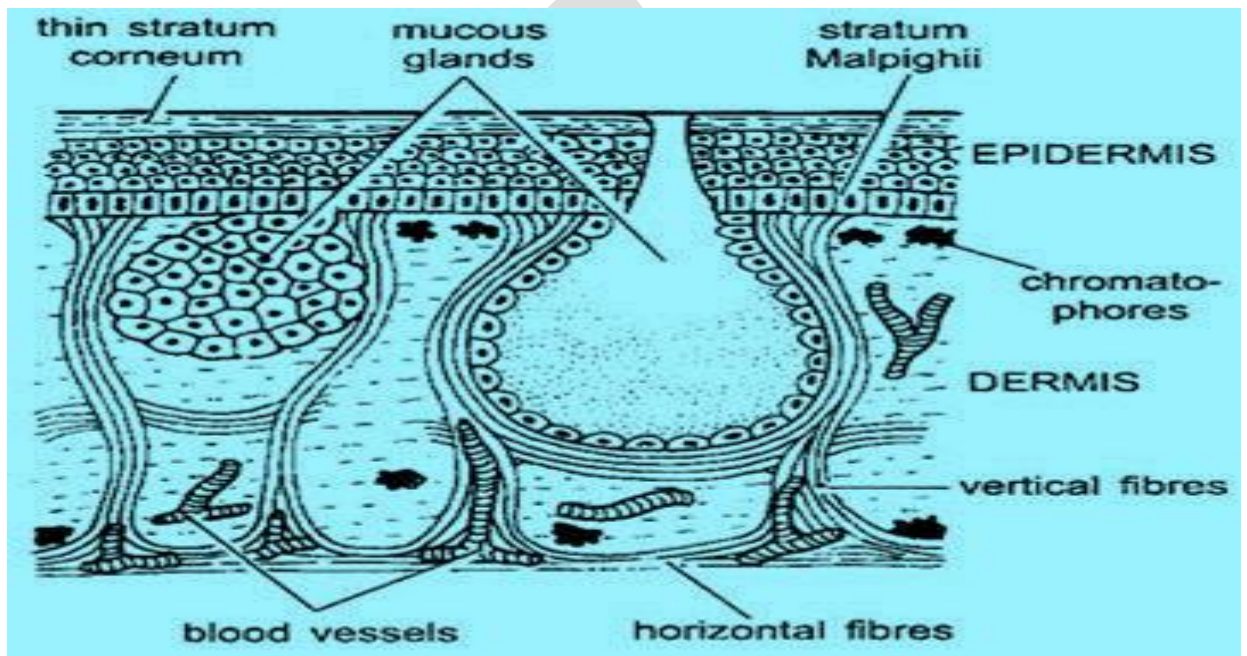


Fig. V.S. skin of Frog.

- The skin is loose being attached to muscles only at certain places by connective tissue septa which mark the boundaries of subcutaneous lymph spaces.

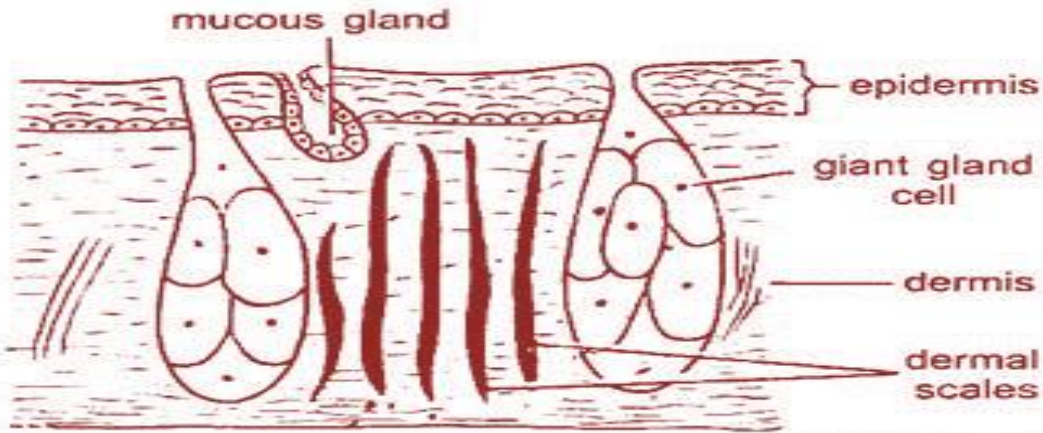


Fig. V.S. of skin of Ichthyophis showing dermal scales.

Kinds of Glands:

i. Mucous Glands:

1. They may be unicellular or multicellular.
2. The unicellular glands are mucous gland cells, granular cells and beaker cells of amphioxus, cyclostomes and fishes.
3. They secrete mucus which keeps the skin moist and slippery, and also affords protection against bacteria and fungi.
4. Mucous cells and granular cells lie near the surface, but the beaker cells lie more deeply and extend from the Malpighian layer to the surface.
5. Multicellular mucous glands are alveolar found in some fishes and **amphibians**.

6. They occur all over the surface of the body and produce mucus for lubricating the skin and in amphibians they keep the skin moist to aid in respiration.

ii. Poison Glands:

1. Amphibians also have alveolar poison glands which are larger but less numerous than mucous glands.
2. In toads masses of poison glands form parotoid glands behind the head.
3. The secretion of poison glands has a burning taste and is used as a defence.
4. Caecilians (limbless amphibian) have giant poison glands.
5. Some tubular glands are found on the feet and suction discs of tree frogs which aid in climbing.
6. Tubular glands are also found on the swollen glandular thumb parts of male frogs and toads during the breeding season.
7. They aid in clasping the female during amplexus (mating position of frogs & toad in which male clasps the female about the back.).



Parotoid gland