CANAL SYSTEM IN SPONGES

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CANAL SYSTEM:- A distinguishing feature of all sponges is the perforation of body surface by numerous apertures for the ingress and egress of water current. Inside body, the water current flows through a certain system of spaces collectively forming the canal system.

FUNCTION OF WATER CURRENT:- The most vital role in the physiology of sponges is played by water current on which their life depends. All exchages between sponge body and external medium are maintained by means of this current. Food and oxygen are brought into body and excreta and reproductive bodies carried out. This current is caused by beating of flagella of collar cells.

Types of canal system:- The arrangement and complexity of internal channels vary considerably in different sponges. Accordingly, the canal system has been divided into three types: Ascon, Sycon and leucon.

1. Ascon type:- It is the simplest type of canal system which is found in ascoroid sponges, like Leucosolenia, and in olynthus stage in the development of all syconoid sponges. Its body surface is pierced by a large number of minute openings called

incurrent pores or ostia. These pores are intracellular spaces within tube-like cells, the porocyte, which extend radially into mesenchyme, and open directly into spongocoel. The spongocoel is the single, large, spacious central cavity in the sponge body. It is lined by the flagellated collar cells or choanocytes. Spongocoel opens to outside through a narrow circular opening, the osculum, located at the distal free end, and often fringed with large monaxon spicules.

Surrounding sea water enters the canal system through ostia. Flow of water is maintained by the beating of flagella of collar cells. Rate of water flow is slow. Because the large spongocoel contains much water which cannot be pushed out readily through a single osculum. Course taken by water current in the body of sponge may be shown as under:-