

strands. These secrete lime.

### SKELETON IN SYCON

**Q. 5. Give an account of skeleton in Sycon and describe the development of spicules.** (Sri Venkat 1994; Karnataka 96)

The soft body of calcareous sponges is supported by an endoskeleton made of a large number of minute, crystalline spicules. Calcareous spicules are megascleres, i.e. they are large. They are of various shapes and sizes. The spicules are mainly located in the mesohyal and are often project out through the pinacoderm.

#### Types of Spicules in Scypha

Spicules in *Scypha* or *Sycon* are of following types :

**1. Monaxon spicules**— These are large, needle-like and straight or may be curved. These may be (i) **monactinal** in which growth takes place in one direction only and (ii) **diactinal** in which growth occurs in both directions. These may be of the following types :

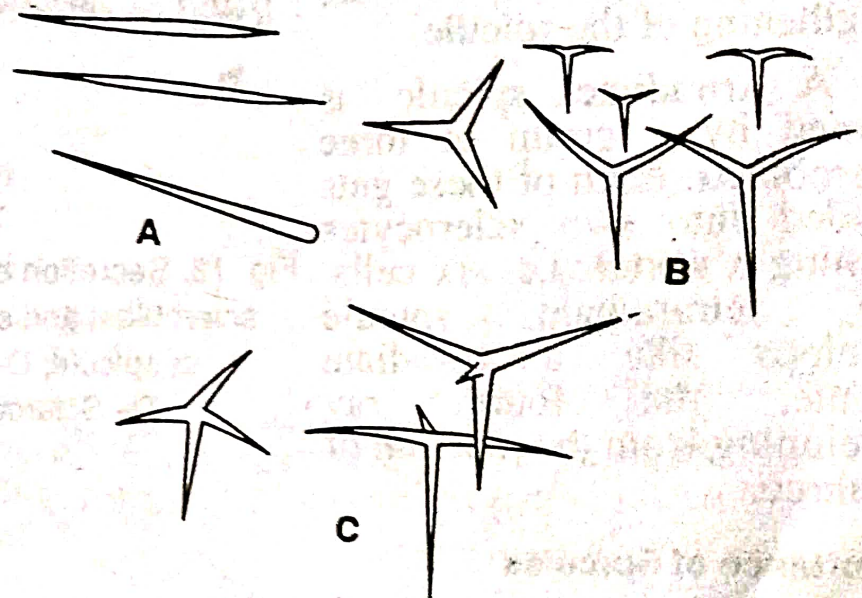


Fig. 11. Different types of spicules found in the skeleton of sponge :

A—Needle or spear-shaped monaxon spicules; B—Tri-radiate spicules; C—Tetra-radiate spicules

- (a) Large one-rayed monaxon spicules found around the osculum and are arranged in a circlet.
- (b) Small, simple, spear-like or club-shaped found projecting out from it in dense masses, giving it a bristly appearance.

**2. Tetraxon**—These are also known as **tetraradiates**. Each consists of four rays or axes but in different planes. These occur surrounding the spongocoel.

**3. Triaxon spicules**—These are triradiate spicules consisting of three axes. These occur along the radial canals. Their one end points towards the closed end of the canals.

**Development of Spicules**

Spicules develop by the secretion of special amoeboid cells, the **scleroblasts**, located in the mesohyal of the sponge body. A monaxon spicule is formed by two sclerocytes produced by the division of a single scleroblast. Outer sclerocyte is called the **thickener cell** and the inner one as **founder cell**. Thickener cell is responsible for the lengthening of the spicule.

A triradiate spicule is formed by a group of three scleroblasts. Each of these gets divided into two sclerocytes forming a **sextet**, i.e. six cells. The **tetraradiate** spicule develops like a triradiate spicule, the fourth ray developing from the junction of the three.

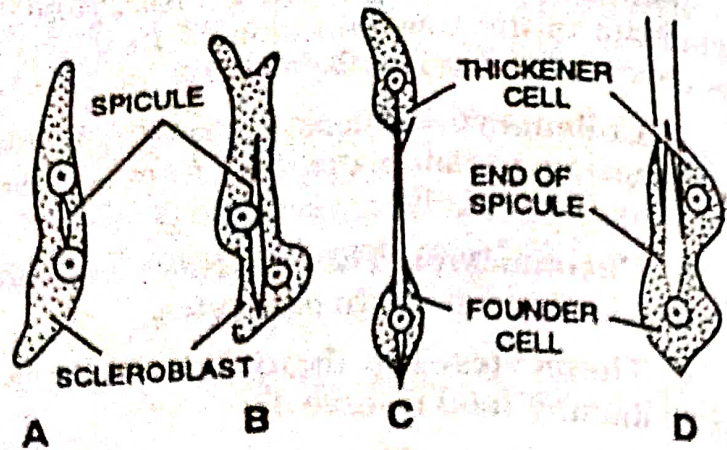


Fig. 12. Secretion of a triradiate spicule : A—Three sclerocytes; B—Three sclerocytes fuse to form a trio; C—Trio divides and secretion of spicule begins; D—Fully formed spicule and sclerocytes moving away.

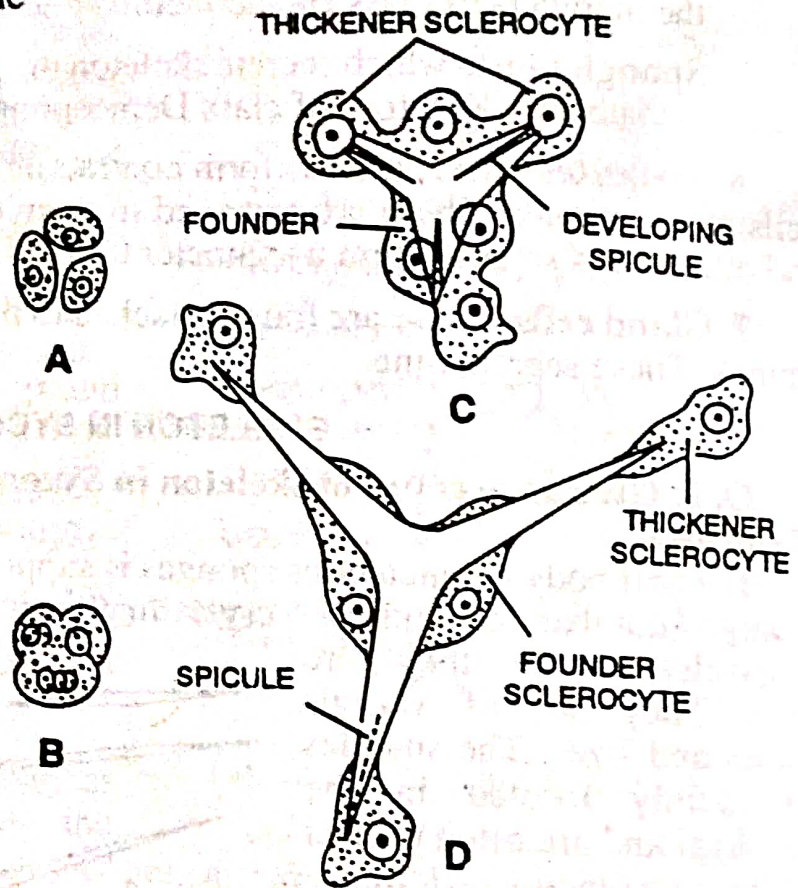


Fig. 13. Secretion of monaxon spicule : A— Division of scleroblast and secretion of spicule; B— Growing of spicule; C— Sclerocytes moving away; D— Sclerocytes leaving the spicule.

**Importance of Spicules**

- 1. These provide a supporting framework and stiffness to the sponges.
- 2. These are protective in function.
- 3. These are of variety of shapes and help in the identification of different species of sponges.