

# Study of the sponge spicules from the coastline of Raigad district, Maharashtra, India

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## Introduction

**Phylum Porifera** includes multicellular, pore bearing invertebrate animals commonly known as sponges. These animals lack definite tissues and thus are considered as primitive multicellular animals as per cellular grade of organization. They show presence of spicules which provide structural support and deter predators. Large spicules are referred to as megascleres, while smaller, are termed microscleres.

## Structure of spicules

Spicules are made up of silica or Calcium carbonate and are found in different symmetry. Monaxons form simple cylinders with pointed ends. Monactinal monaxons always have one pointed end; they are termed styles if the other end is blunt, tylostyles if their blunt end forms a knob; and acanthostyles if they are covered in spines. Diactinal monaxons are classified by the nature of their ends: oxea have pointed ends, and strongyles are rounded. Spine-covered oxea and strongyles are termed acanthoxea and acanthostrongyles, respectively.

Triaxons have three axes; in triods, each axis bears a similar ray; in pentacts, the triaxon has five rays, four of which lie in a single plane; and pinnules are pentacts with large spines on the non-planar ray.

Tetraxons have four axes, and polyaxons. Sigma-C

spicules have the shape of a "C".

Dendroclones might be unique to extinct sponges and are branching spicules that may take irregular forms, or may form structures with an I, Y or X shape.

For the present study, the sampling was carried out at the coastline of Raigad district, Maharashtra. A variety of sponge samples were collected and sponge spicules were studied.

## Materials And Methods

The fresh samples of sponges with different colours were collected from the coastline of Raigad district. A piece of sample was boiled with 10% KOH and was allowed to settle for 10 minutes. After cooling, upper part of the solution containing KOH was carefully extracted out using dropper and distilled water was added. A drop of this solution was taken on the slide and the sponge spicules were observed under a light microscope.

## Result and Discussion

The study of sponge spicules of various types of sponges with different pigmentation such as orange yellow, red golden, yellow green was carried out. For all the 3 samples, the sponge spicules found out to be monaxon spicules of tylostyle type with one end knobbed and other pointed end.

### Microscopic observation of spicules: (Magnification 450x)



Spicules of Orange Yellow pigmented sponge



Spicules of red golden pigmented sponge



Spicules of yellow green pigmented sponge

**Conclusion**

All the samples sponge spicules observed during the study were of monoaxons type subtype tylostyle.

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