

DIODONTIDAE

(PORCUPINEFISHES)

kingdom: animalia
 phylum: chordata
 subphylum: vertebrata
 class: osteichthyes
 order: tetraodontiformes
 family: diodontidae

As a part of the diodontidae family, porcupinefish is a creature that has the amazing ability to increase its size as a defense against predators. The word diodontidae means "two teeth", the porcupinefish is classified as such because of its two teeth that are fused into their upper and lower jaws. Their upper jaw is referred to as a crushing plate, which assists in the crushing of hard bodied prey, such as molluscs and sea urchins.

The porcupinefish inflates by swallowing water. It does this when it senses danger, making it harder for some predators to attack, due to their size. The fish has many spines on its body, around its eyes, and around its mouth that stick up when the fish expands. This is yet another defense mechanism used to defend against those predators which are large enough to ingest them. These spines are held in by a series of roots, commonly either two roots or three. Also in some of the fish the roots are known to contain tetrodotoxin a chemical found in the skin, spines and intestines that will poison them.

- Porcupinefish have spines over their bodies, which are actually modified scales, which lay flat against its body most of the time unless it feels threatened.
- The spines of the fish have roots, either two rooted or three rooted.
- The roots generally touch each other under the skin to provided a layer of armor under the skin.
- The fish swim by making a wave like motion with their dorsal fins.
- Swimming power is compromised by the development of spines.
- They have fused front teeth, rather than separated teeth typical of other puffers.
- The vertebral column is also highly flexible, it bends in an arc towards the dorsal side of the fish, allowing the fish to attain its characteristic spherical shape upon inflation.
- The stomach, which has lost its digestive function, plays a key role in the inflation process.
- In addition to the elastic stomach, generous peritoneal space and skeletal structure, porcupinefish skin is also specialized for inflation. The skin of the fish is highly elastic because of microfolds in the epidermis and collagen fibers of the dermis. These allow the fish to extend through 40% of its initial length before it begins to stiffen.

