



FAMILY:
CONIDAE
(Cone shells)

Conidae currently (March 2015) contains over 800 recognized species. Cone snails are typically found in warm and tropical seas and oceans worldwide, and they reach their greatest diversity in the Western Indo-Pacific region.

Cone snails, cone shells, or cones are common names for a large group of small to large-sized **extremely venomous predatory sea snails**, marine gastropod molluscs.

Behaviour: Normally, by the day they hide in the sand; at night they emerge and feed-mainly on marine worms.

Attack mechanism: The tooth (1) is hollow and barbed, and is attached to the tip of the radula in the radular sac (2), inside the snail's throat. When the snail detects a prey animal nearby, it extends a long flexible tube called a proboscis (3) towards the prey. The radula tooth is loaded with venom from the venom bulb (4) and, still attached to the radula, is fired from the proboscis into the prey by a powerful muscular contraction.



Venom: The venom consists of a mixture of peptides, called **conopeptides**. It is estimated that more than 50,000 conopeptides can be found, because every species of cone snail is thought to produce its own specific venom.

Danger for humans: There are approximately 30 records of humans killed by cone snails. Human victims suffer little pain, because the venom contains an analgesic component. Some species reportedly can **kill a human in under five minutes**, thus the name "cigarette snail" as supposedly one only has time to smoke a cigarette before

Ziconotide, a pain reliever 1,000 times as powerful as morphine, was initially isolated from the venom of the magician cone snail, *Conus magus*. It was approved by the U.S. Food and Drug Administration in December 2004 under the name "Prialt". Other drugs are in clinical and preclinical trials, such as compounds of the toxin that may be used in the treatment of Alzheimer's disease, Parkinson's disease, depression and epilepsy.

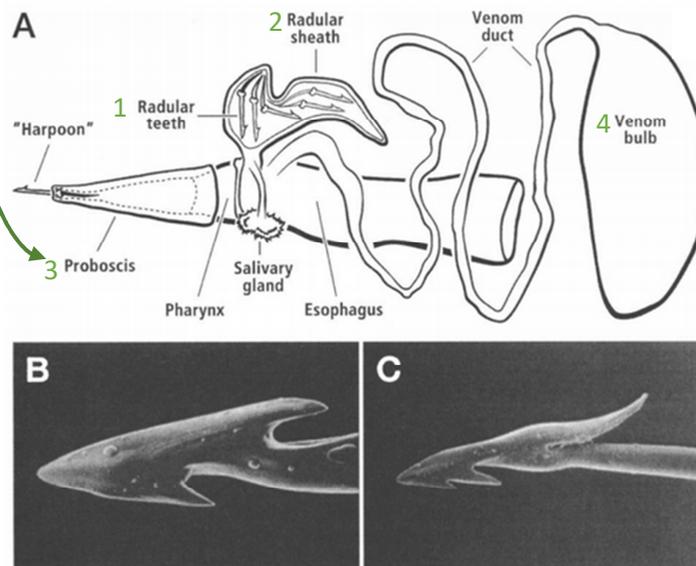


Figure 1 (Top) The venom apparatus of *Conus*. The venom bulb (extreme right), the venom duct (long thin tube) and the radular sac in which harpoon-like teeth are stored. A single tooth is moved into the proboscis (shown in place at left). (Bottom) Scanning electron micrographs of the anterior end of harpoon-like radular teeth from two *Conus* species, *C. purpurascens* (left) and *C. obscurus* (right).