

Utilization of cuttlebone by aquafarmers at Visakhapatnam

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Cephalopods represent an important group of molluscs and form an important component of the exploited marine fishery resources of the state. Cephalopods include squids, cuttlefishes and octopuses.

Cuttlefish (family Sepiidae), along with *Nautilus* spp. (Nautilidae) and *Spirula spirula* (Spirulidae), are the only extant cephalopods with a chambered,

gas filled shell that provides skeletal support and acts as a buoyancy regulation device and is composed primarily of aragonite (Denton, 1974). Visakhapatnam is the major fishing harbour where cuttlefish is brought from different landing centres and transported for export. The annual average landings of cuttlefish during 2008-2012 at Visakhapatnam ranged from 632 t to 1853 t. Their

fishery at Visakhapatnam is contributed chiefly by *Sepia pharaonis* and *S. aculeata* with small amounts of *Sepiella inermis*. They are mainly exploited by mechanized trawlers. *S. pharaonis* and *S. aculeata* are the two major species of cuttlefish landed. They are locally called 'Kandavalu' and support a regular fishery. Samples of *S. aculeata* and *S. pharaonis* were collected during June to December, 2012 to estimate the amount of cuttlebones generated (Fig. 2). The weight range of *S. aculeata* was 98-634 g with cuttlebone weight in the range of 4-47 g. Similarly in *S. pharaonis* the weights were in the range of 127-1057 g and range of cuttlebone weight being 4-59 g. In *S. aculeata* cuttlebones constituted 6% of the body weight and in *S. pharaonis* 5.5% of the total body weight. The amount of cuttlebone removed from a ton of cuttlefish was about 58 kg and constitutes about 5.8% of the body weight. The present report emphasizes on utilizing the huge resource of cuttle bone in a better way rather than it getting wasated.



Fig. 1. Cuttlefish landings at Visakhapatnam fishing harbour



Fig. 2. Cuttlebones removed from cuttlefish



Fig. 3. Cuttlebone observed

The cuttle bone collected near the fishing harbour is commonly used by school children as a duster for cleaning chalk dust from slates, at Visakhapatnam. Cuttlebone is used in making polishing powder, added to toothpaste, and are used as an antacid or as an adsorbent. As cuttlebone is able to withstand high temperatures and is easily carved, it serves as mold-making material for small metal casting for the creation of jewellery and small sculptural objects. Recently they are commonly used as feed additive for caged birds, chinchillas and reptiles. Cuttlebones are put in the domesticated birds' cage at Zoological parks to promote beak and jaw exercise for wearing down of overgrown beaks.

Cuttlefish bones can be used as decorative materials in fish aquariums. In large fish aquariums (freshwater and marine), cuttlebones can be released for periphyton settlements which in turn will provide detritus and plankton to the aquarium fish. In mariculture, large sized cuttlebones can be used as natural scrubs to rub and clean the biofouling organisms settled over the cultured pearl oysters in hatcheries, pens and cages. In open sea cage culture of marine fin fishes cuttlebones can be tied in nets into small packets and hanged inside at different places for settlements of diatoms and other periphytic organisms. Cuttlebones can also be used as a dietary supplement for hermit crabs thus increasing its functional utility. Bioactive compounds like polysaccharides isolated from the cuttlebone of *S. aculeata* and *S. brevimana* has both antibacterial and antifungal activity (Shanmungam *et al.*, 2008).