The Eggs of Marine Crabs - An Unexploited Resource

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Abstract

Marine crabs belonging to the family Portunidae form bycatch of shrimp trawlers in India. They are sold at low prices and consumers discard eggs and consume the meat. The paper details the nutritional value of eggs of *Portunus pelagicus.*

Fig. 1. Crab market at Paul Phata.

Crab fishing has not attained the status of a major fishery in India, though the estuarine mud crab *Scylla serrata* has been utilized and exported on a large scale. The crab fishery is centered on *S. Serrata*, although there are huge quantities of marine portunid crabs that could find a good market.

Most of the marine crabs occurring along the Indian coast belong to the family Portunidae. Among them *Portunus pelagicus*, *P. sanguinolentus* and *Charybdis feriata* form schools in inshore waters and are fished by commercial trawlers along with penaeid prawns. These crab species are sold at low prices in the local markets as they are considered a secondary catch. Egg-bearing females dominate in certain seasons. The consumers simply discard the eggs and use the meat. The fact that the eggs are a good source of protein, glycogen and fat is often ignored.

P. pelagicus and *P. sanguinolentus* breed round the year along the Indian coast, with some peak seasons (Pillai and Nair 1973; Radhakrishnan 1979). Individuals with brood reach the market during the summer months. The seed of these species enter the waters of Cochin, (Kerala, India) from November onwards. The post-monsoon conditions of high salinity and temperature make the backwaters an ideal nursery ground. The crab seed subsisting on the zooplankton grow very fast and remain in the backwaters until the first showers of the southwest monsoon in May-June. The abrupt fall in the temperature and salinity causes the crabs to migrate to inshore areas. By this

Table 1. Protein, glycogen, and lipid (wet weight basis) in different stages of eggs in P. pelagicus.

Stage of eggs	Protein %	Glycogen %	Lipid %
Yellow	20.68 (± 0.6)	0.64 (± 0.5)	6.2 (± 0.6)
Orange	20.12 (± 0.4)	0.72 (± 0.7)	6.84 (± 0.6)
Brown	18.50 (± 0.8)	0.59 (± 0.5)	8.3 (± 0.7)

Note: figures in parenthesis are standard error

time the individual crabs attain marketable size and have completed the pubertal moult stage. Subsequent broods are formed in the same breeding season. The eggs are attached to the pleopods and need to undergo a short period of incubation before hatching.

The variation in the biochemical composition at different stages of eggs of *P. pelagicus* is presented in Table 1. The eggs are classified into three stages based on yolk content and ova diameter (Radhakrishnan 1979). Peak protein content with less fat is observed during the yellow and orange stages, while fat value increases and protein value drops during the advanced stages of development. This may be due to the storage of lipids for the early nutrition of the larvae. The eggs deteriorate if detached from the spawner in the early stages. The heavily yolked eggs, i.e., yellow and orange stages, are recommended for consumption, while the spawners with subsequent brown and black eggs that are ready to hatch can be let out in the sea or used for crab culture.

The total weight of the eggs depends on the carapace width of the crab. Usually crabs with a carapace width of 130-140 mm yield an average of 20 to 25 g of eggs. Although this is a small quantity per crab, the total number of crabs with brood that are being landed is huge and it is possible to extract several kilograms of eggs from a single landing station. The eggs can be easily separated from the abdominal pleopods with a knife, stored in polythene bags, and refrigerated or deep-frozen. Prolonged storage is not recommended as the lipids may become rancid. Besides direct consumption, the eggs are suitable for the preparation of sausages and protein concentrates.

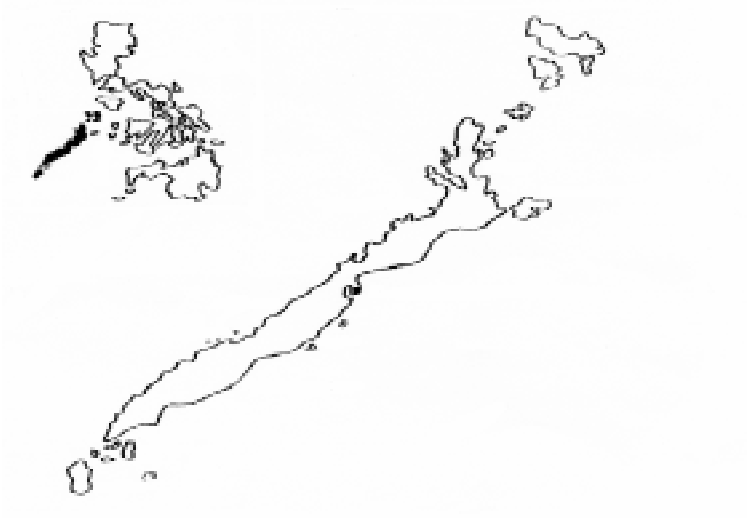

Fig. 2. Sale on the basis of weight.

Fig. 3. Crab lot in a bag.

Fig. 4.A crab seller - with crabs tied in a bunch.

The more oceanic portunid crabs such as the *Portunus* species are not inferior to mud crabs in terms of nutrition. The comparatively larger size and higher meat content make the mud crab more attractive to the exporter. However, mud crabs have become less abundant while the *Portunus* and *Charybdis* species have an enormous potential that is as yet underexploited.

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