Petrarctus rugosus (H. Milne Edwards, 1837)

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IDENTIFICATION

Order	:	**Decapoda**
Family	:	**Scyllaridae**
Common/FAO Name (English)	:	**Hunchback locust lobster**

Local names: Kal madakka erral (**Tamil**)

MORPHOLOGICAL DESCRIPTION

Carapace surface is very uneven with raised tubercles. There are few tubercles and many smooth areas between the post rostral and branchial carinae. The abdomen shows a distinct median longitudinal carina. Somite 1 is quite smooth, and has the transverse groove slightly noticeable in the extreme lateral parts. The exposed part of the following somites shows no arborescent pattern, but in each somite there is a wide transverse groove. The species is characterized by a smooth broad ridge before and after the transverse groove on somite 2. In the subsequent somites, these ridges are tuberculate. In somites 4 to 6, the posterior margin is tuberculate. The fourth antennal

Source of image : RC of CMFRI, Chennai

segment has a row of tubercles and a sharp and highly oblique median carina. The outer margin of the segment has 4-5 teeth and the inner margin has 5-7 teeth of different sizes. The anterior margin of the thoracic sternum is U-shaped. Thoracic sternites have a rounded median tubercle. Body is greyish or purplish brown in colour with dark spots. The distal segment of the antenna is often lighter. The first abdominal somite is dark blue colour dorsally.

PROFILE

GEOGRAPHICAL DISTRIBUTION

Petrarctus rugosus has been reported from east Africa, specifically from the Red Sea to Mozambique, including northern Madagascar, Comoros and Socotra; the south China Sea, from Taiwan to the Philippines and Indonesia and also from Malaysia, Thailand, Cambodia, Vietnam and China; off northern Queensland, Australia; Pondicherry and Tamil Nadu, India.

HABITAT AND BIOLOGY

It is found to occur between 20 and 60 m, and also occasionally at 100 to 200 m depths. It prefers muddy or sandy substrates that can contain coral, shell grit or rubble. Their length ranges from 2.5 to 6 cm (males and females); with ovigerous females between 3-6 cm.

BREEDING IN CAPTIVE CONDITIONS

Captive breeding of *Petrarctus rugosus* was achieved at the National Institute of Oceanography, Chennai, India. Adult *P. rugosus* (9 females and 5 males) were stocked in 1 m^3 FRP tank with sand covering half the bottom. They were fed @ 5 % body weight with live marine clam meat (*Donax cuneatus*) and green mussel (*Perna viridis*). Mating usually occurred at night, followed by spawning. Newly spawned eggs were yellow-orange and changed to dark orange before hatching. Repetitive breeding was achieved. Number of eggs in a single brood varied from 2,747-22,619 and fecundity ranged from 4,117-39,518. The brooding period varied from 11-17 days with hatching rate ranging from 0-88 %.

LARVAL REARING

First three instars were fed with freshly hatched *Artemia* nauplii (6 nauplii/ml). A combination of feeds (*Artemia* nauplii with frozen Cyclop-eeze and shrimp post larval pellets) was added along with live clam meat (*Donax cuneatus*) and green mussel ovary (*Perna viridis*) one after the other, from fourth instar onwards. Survival was 100 % up to instar III, 50 % up to instar IV, 25 % up to instar VI and 17% up to instar VIII. Larval development of *P. rugosus* was completed within 51 days. Research at Madras R. C. of CMFRI on larval rearing revealed good success with *Artemia* nauplii bioenriched using cod liver oil and freshly extracted sardine oil. Shortening of inter-moult period between various larval stages was a significant feature of larval rearing at CMFRI.

FOOD AND FEEDING

Lobsters preferably accept shellfishes, mussels, soft clams and chopped trash fishes. Lobsters being nocturnal in feeding habit, food should be supplied at dusk.

GROWTH RATE

Information not available

DISEASES AND CONTROL MEASURES

Tail fan necrosis and shell disease reported from the species was due to unhygienic conditions of the tank bottom, poor water quality and improper sanitation in the culture facility. Gaffkemia reported during fattening in indoor systems was also due to poor water quality.

PRODUCTION, MARKET AND TRADE

PRODUCTION

Information not available

MARKET AND TRADE

Information not available

CHALLENGES TO MARICULTURE

More research is required to standardize the broodstock development protocol and for larval and nursery rearing of *P. rugosus*.

FUTURE PROSPECTS

Standardization of technology for mass scale seed production of *P. rugosus* for marine ornamental culture will go a long way in enhancing the ornamental trade of this species.

SUGGESTED READING

Holthuis, L. B. 1991.Marine Lobsters of the World. FAO species catalogue, vol 13. FAO Fisheries Synopsis, Food and Agriculture Organization, Rome, 125 (13): 1-292.

Kumar, T. S., Vijayakumaran, M., Murugan, T. S., Jha, D. K., Sreeraj, G. and Muthukumar, S. 2009. Captive breeding and larval development of the scyllarine lobster *Petrarctus rugosus*. New Zealand J. Mar. Freshw. Res., 43(1): 101-112.

Yang, C. H., Chen, I. S. and Chan, T. Y. 2008. A new slipper lobster of the genus *Petrarctus* (Crustacea: Decapoda: Scyllaridae) from the west pacific. Raffles Bull. Zool., 19: 71-81.

Raghu Prasad, R. and Tampi, P. R. S. 1968. On the distribution of Palinurid and Scyllarid lobsters in the Indian Ocean. J. Mar. Biol. Ass. India, 10(1): 78-87.

Booth, J. D., Webber, W. R., Sekiguchi, H. and Coutures, E. 2005. Diverse larval recruitment strategies within the Scyllaridae. New Zealand J. Mar, Freshw. Res., 39: 581-592.

Chan, T. Y. 2011. *Petrarctus rugosus*. IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. Accessed through: www.iucnredlist.org on 15 January 2014.

Kizhakudan, J. K., Thirumilu, P., Rajapackiam, S. and Manibal, C. 2004. Captive breeding and seed production of scyllarid lobsters-opening new vistas in crustacean aquaculture. Mar. Fish. Info. Serv. Tech. Ext. Ser. (181): 1-4.