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OCCURRENCE OF GOOSE BARNACLE *OCTOLASMIS* SPP. INFESTATION ON COMMERCIAL IMPORTANT CRABS FROM PARANGIPETTAI, TAMILNADU, SOUTHEAST COAST OF INDIA

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Six species of crabs under different genera were investigated for the infestation pedunculate barnacles Octolasmis during January to December 2011. Four species of Octolasmis were *O. angulata*, *O. cor*, *O. lowei* and *O. warwickii* identified. Prevalence of infestation was higher in *P. vigil* (60.55%) followed by *C. natator* (37.51%), *P. pelagicus* 26.07%, *C. lusifer* (25.17%), *C. feriatus* (24.6%) and *P. sanquinolentus* (20.04%). Sex wise higher prevalence was recorded in female than male.

Key words: Crabs, goose barnacles, symbiotic relationship and prevalence

Crabs support a sustenance fishery of appreciable importance, although, its present status is not comparable with that of those major crustacean fisheries such as prawns and lobsters. In addition to the marine fishery, large numbers of crabs are landed from the estuaries and brackish water lakes adjoining the coastal areas. Most of the edible crabs caught in the marine and brackish water regions belong to the family Portunidae. The calcified carapaces of decapod crustaceans appear to be one of the few suitable mobile habitats for epibiont attachment in this type of inhospitable, soft sediment bottom, as pointed out by Ross (1983) and Gili *et al.* (1993).

Furthermore, despite its relatively short lifespan due to moulting (shedding of the crab's exoskeleton), many organisms (protozoan, algae, barnacles, bryozoans, hydrozoans, bivalves) use this substratum as an alternative hard substrate (Abello and Corbera, 1996).

In most cases, the epibionts cause significant damage to the host, *Mytilus* attaching to the walking appendages and book gills of the horseshoe crabs, impeding the movement and breathing system of the host (Botton, 2009). This study was conducted to investigate the epibiont species infested on carapace and gill branchial of commercial important crabs such as *P. pelagicus, P. sanguinolentus, C. feriatus, C. lusifera, C. natator* and *P. Vigil* from Parangipettai, Tamilnadu southeast coast of India.

MATERIALS AND METHODS

Crabs were collected from Parangipettai landing center during Janaury to December 2011. The six species of (*P. pelagicus, P. sanguinolentus, C. feriatus, C. lusifera, C. natator* and *P. vigil*) were examined for the Goose barnacles attachment on the carapace, legs and branchial chamber. Sex was determined for each crab, based on the shape of abdomen. Crabs and barnacles were identified based on the description by Jayabaskaran *et al.* (2000) and Jeffries *et al.* (2005) respectively. For each host crab, the prevalence was calculated according to the sex and season. The prevalence (P) was calculated according to Margolis *et al.* (1982) and Bush *et al.* (1997).

RESULTS AND DISCUSSION

In the present study total 24529 (*P. pelagicus:* 3969, *P. sanguinolentus:* 3408, *C. feriatus:* 3825, *C. lusifera:* 4062, *C. natator:* 3850 and *P. vigil:* 5415) were investigated for pedunculate barnacle infestation for four season from January to

Table. 1. Investigate the six species of commercially important crabs (*P. pelagicus, P. sanguinolentus, C. feriatus, C. lusifera, C. natator and P. Vigil*) for goose barnacle infestation from Parangipettai, Tamilnadu southeast coast of India.

Season	No. of crab examined			Total no. of infested		
	Male	Female	Pooled	Male	Female	pooled
P. vigil						
Post monsoon 2011	642	813	1455	344	539	881
Summer	647	565	1212	175	193	368
Pre monsoon	726	901	1627	111	164	275
Monsoon	691	430	1121	316	298	614
P. sanquinolentus						
Post monsoon 2011	421	512	933	67	120	187
Summer	382	367	749	63	69	132
Pre monsoon	428	332	760	39	54	93
Monsoon	392	574	966	74	109	183
P. pelagicus						
Post monsoon 2011	529	453	982	124	132	256
Summer	444	543	987	67	102	169
Pre monsoon	395	614	1009	38	65	103
Monsoon	478	513	991	103	114	217
C. feriatus						
Post monsoon 2011	389	493	882	83	134	217
Summer	613	532	1145	63	68	131
Pre monsoon	473	422	895	71	68	139
Monsoon	524	379	903	75	103	178
C. lusifera						
Post monsoon 2011	524	489	1013	113	142	255
Summer	478	614	1092	69	84	153
Pre monsoon	582	444	1026	49	83	132
Monsoon	533	398	931	85	94	179
C. natator						
Post monsoon 2011	473	588	1061	155	243	398
Summer	572	379	951	122	121	243
Pre monsoon	444	392	836	95	92	187
Monsoon	509	493	1002	163	193	356

December 2011 from the parangipettai landing center, tamilnadu, southeast coast of India. Of these 6046 (*P. pelagicus:* 745, *P. sanguinolentus:* 595, *C. feriatus:* 665, *C. lusifera:* 719, *C. natator:* 1184 and *P. vigil:* 2138) were infested with four species of *Octolasmis* (*O. angulata, O. cor, O. lowei* and *O. warwickii*) shown in table 1.

Prevalence of infestation was higher in *P. vigil* (60.55%) followed by *C. natator* (37.51%), *P. pelagicus* 26.07%, *C. lusifer* (25.17%), *C. feriatus* (24.6%) and *P. sanguinolentus* (20.04%) were recorded. Sex

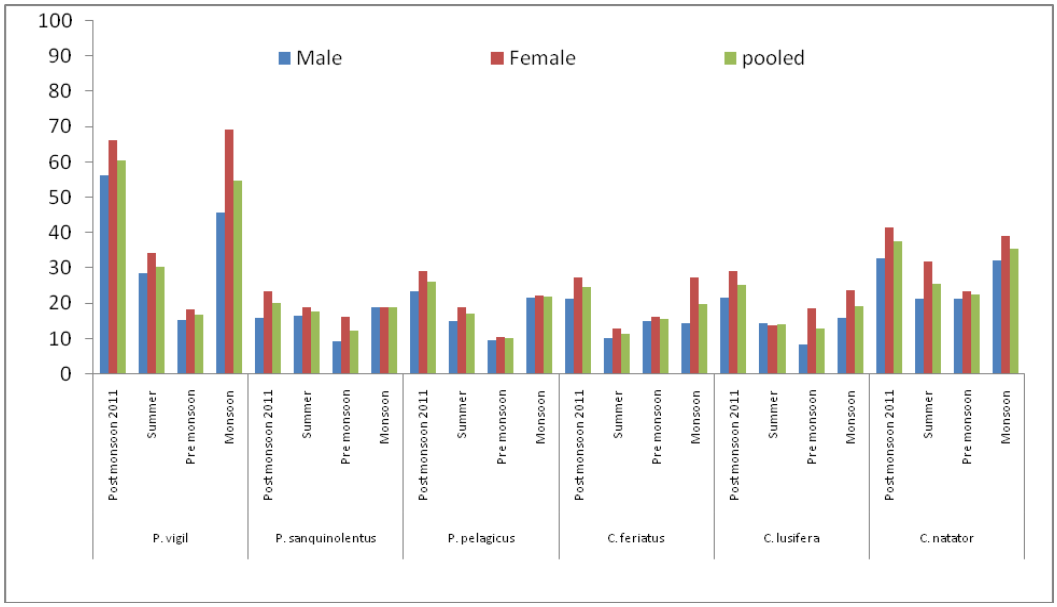

Figure. 1. Percentage of goose barnacle infestation on six commercial important crabs *P. pelagicus, P. sanguinolentus,* C. feriatus, C. lusifera, C. natator and *P. vigil*

wise higher prevalence of infestation was recorded in female than male crabs in all six species and season wise higher during post monsoon followed by monsoon, summer and premonsoon for all six species (Figure.1).

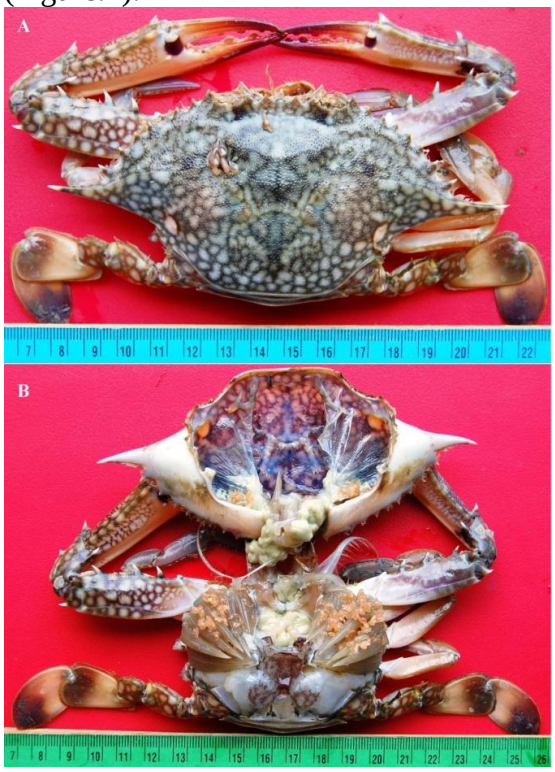

Figure. 2. *Octolasmis* on carapace of *P. pelagicus* (A), in branchial chamber (B)

The intensity of infestation was higher. The infestation occurs entire body of the host such as; carapace, gill chamber, legs and eye stalk and the intensity were higher in the gill chamber (Figure. 2 and 3). The utilization of decapod crustaceans as hosts by crustacean parasites constitutes one of the most intriguing relationships among this marine fauna.

Figure .3. *Octolasmis* attached in gill lamellae (A) and eye stalk (B) of the *P. pelagicus.*

All barnacles of the family Lepadidae (goose barnacles) are pelagic, commonly found associated with floating objects, e.g., ships, buoys, wood, animals, marine debris and macroalgae, and only members of one genus

(Dosima) can produce a float of their own (Skerman 1958, Cheng and Lewin 1976, Arnbom and Lundberg 1995, Minchin 1996, Gollasch 2002, Sano *et al.* 2003). Present study shows that the four species of *Octolasmis* such as *Octolasmis angulata, O. cor, O. lowei* and *O. warwickii* attachment occurs on the carapace, legs and branchial chamber of the crabs. The barnacle's attachments were higher in branchial chamber than the carapace of the crabs also in the gill filament. Similarly Santos and Bueno (2002) reported that the most O. lowei were attached to the gills, some were found affixed to the internal walls or to the floor of the branchial chambers. In some cases the attachment found only in the branchial chamber not in the carapace and legs and also found in the eye stalk of the crabs. Kumaravel *et al.* (2009) reported 6 species of *Octolasmis*; *O. tridens, O. neptuni, O. angulata, O. warwicki, O. lewei* and *O. cor* goose barnacle occurred on the gills, anterior branchial chamber wall in the epibranchial space, occasionally on the walls of the branchial chambers beneath the gills and on the scaphognathite within the branchial chambers of five commercial important crabs. Six barnacle species of the genus Octolalsmis were found in Edible crabs and lobsters (Jeffries *et al.,* 2005).

Present result shows that the post monsoon and monsoon season were recorded higher prevalence than the pre monsoon and summer season for six species. Season, species, sex, crabs carrying eggs, lack of available hard and stable substrate are the main factor for attachment of the goose barnacle.

Some earlier studies reported that the stalked barnacles attach in various species and various region. The commensal pedunculate barnacle Octolasmis can be found attached to many decapods and isopod crustaceans, to chelicerate horseshoe crabs, corals, echinoids, mollusks, sea snakes and fish (Colon-Urban et al., 1979; Jeffries and Voris, 1979, 1996; Jeffries et al., 1982; Key et al., 1996). *O. muelleri* was infested in *C. sapidus* and *C. danae* as well as species of *Libinia, Portunus,* and *Calappa* (Causey, 1961). Gooseneck barnacle *O. muelleri* infested Callinectes spp., *Libinia spinosa, Portunus spinicarpus, P. spinimanus, Hepatus pudibundus,* In Brazil Majidae (Young 1990)

O. hoeki was reported in the branchial chamber of *L. spinosa* (Milne-Edwards, 1834), O. lowei was found attached to the branchial chambers of *L. spinosa* and *P. spinimanus* (Latreille, 1819), *P. spinicarpus* (Stimpson, 1871), *H. pudibundus* (Herbst, 1785), *Callinectes* spp., and in an unidentified majid crab (Young, 1990). *O. lowei* infestation on the gills of 11 crabs (7.5%). Only 3 crab species (36.6% of *C. danae*, 9.0% of *C. ornatus*, and 7.7% of *P. spinimanus*) carried the typical barnacle, *Chelonibia patula*, on their dorsal carapaces (Mantelatto *et al.,* 2003). The barnacle's attachment in crabs does not kill the crab but it may affect the crab respiration, normal activity and normal growth of the crabs.

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