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Study on Food and Feeding Habit of Two Hermit Crabs Species at Veraval Coast

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ABSTRACT

The studies on food and feeding of hermit crabs at Veraval Coast was carried out to find out food selection by intertidal species. Since, food is one of the limiting factor for intertidal species. Simple numerical method for stomach content analysis was used and it was found that the species at Veraval coast are omnivorous with presence of detritus as well as plants and animal remains within stomach.

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INTRODUCTION

Hermit crabs are anomuran decapod crustaceans that have adapted to occupation of empty gastroped shells (Molluscan shells). The strong association of these two greately influenced almost all aspects of their biology. The evolution of shell-carrying behaviour in hermit crabs has been accompanied by a number of morphological modifications of the basic decapod body plan. However, hermit crabs enlerence into the shell is a complex series of movement of the abdomen and cephalothoracic appendages (Hazlett, 1981). Hermit crabs react to the chemical stimular of a food item before they react to any visual stimulus associated with the item (Hazlett, 1968). The studies on food and feeding behaviour of hermit crabs (Orton, 1927 : Root, 1967 and Reese, 1969) have suggested that they are amnivorous detritivers and they can be assigned to the "benthic detritus-feeding guild". Observations of Robert (1968) and Caine (1975) illustrated that hermit crabs are highly dependent on benthic detritus as a food source. However, other hermit crabs are able to feed on suspended material without sacrificing their mobility (Boltt, 1961), (Scully, 1978) as well as they are able to remove Artemia naupli and unicellular algae from suspension (Gerlach *et al.*,1976). However, individuals of many species of hermit crabs feed on macroscopic pieces of animals, both living worms (Mc Laughlin and Bailey, 1975) and dead detritus (Hazlett, 1979) seems to be rather primary source of nutrients.

Feeding behaviour of different species of hermit crabs ranges from extreme specialization, accompanied by major morphological modifications to highly opportunistic foraging behaviour that is well adapted to unpredictable environment (Scully, 1983).

MATERIALS AND METHODS

The food analysis of two hermit crab species was carried out by dissecting digestive tract and observing its content under the microscope. For this 10-15 animals of different size group were dissected and food contents were analysed. From this, selectivity of food by hermit crabs was determined.

RESULTS AND DISCUSSION

Studies on food and feeding behaviour of hermit crabs (Reese, 1969) have suggested that they are omnivorous detritus feeders. They are also able to feed on suspended material (Scully, 1978).

TABLE 1

Analysis of stomach contents.

Species	*C. zebra*	*C. nathi*
Algae		
Corolina	3.11%	4.01%
Spores	20.01%	9.20%
Diatoms		
Navicula	30.13%	31.10%
Fragilaria	00.18%	10.20%
Chaetoceros	45.08%	45.09%
Rhizosolenia	1.49%	00.00%
Sand particles	Rarely	00.40%
Nitzia	—	Rarely
Others	Numerous	Rarely

The observations made on food and feeding bahaviour of the present two hermit crab species, *C. zebra* and *C. nathi* are represented in Table 1. The stomach content alalysis indicated presence of various types of diatoms, forming the major part of the food of the hermit crabs (about 70.00 per cent). However, spores also noticed to a considerable amount (9 to 20 per cent) in the food. As found in the other crab species, sand particles were invariably recorded in the food because of its general habit of detritus feeding.

For hermit crabs food is also equally important resource required for the existance of hermit crabs, as well as it has been well recognised as one of the limiting factors for the distribution of intertidal organisms (Newell, 1976). Moreover, the acclaimed means of ecological segregation is that of food partitioning (Lack, 1971).

Studies on food analysis from the stomach contents of the present hermit crab species *C. zebra* and *C. nathi* showed that they are omnivorous detritus feeders, and food mostly consists of detritus, diatoms, algal filaments, crustaceans remaining and organic matter. Thus, the feeding habit of these two species is like that of other *Clibanarius* spp., *C. longitarsus* described by Ajmal Khan and Natrajan (1982). In the case of the present two species of hermit crab, food does not seemed to be a limiting factor for competition, as abundance of detritus and algae in the intertidal zone is considerably very high (Author's personal observation, Ramkrishna, 1982), at Veraval coast.

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