

**A PRELIMINARY STUDY ON THE BIOMETRIC COMPARISON OF
CERTAIN MERISTIC CHARACTERS OF *DECAPTERUS RUSSELLI*
(RUPPELL) AND *CARANGOIDES MALABARICUS* (BLOCH AND SCHNEIDER)
FROM TWO LOCALITIES ALONG ANDHRA COAST**

ABSTRACT

The frequency distribution of six meristic characters of samples of two carangid species *Decapterus russelli* and *Carangoides malabaricus* are compared from two localities, Visakhapatnam and Kakinada on the east coast of India. The comparison shows that the two samples of *D. russelli* from these two localities belong to one homogeneous stock since there is no significant difference at 5% level. But the samples of *C. malabaricus* from these two regions differ significantly with regard to the number of gill rakers in the upper arm, lower arm and the total number of gill rakers and hence they belong to two different stocks.

THE SCAD *Decapterus russelli* and the Malabar trevally *Carangoides malabaricus* constitute a significant element in the commercial catches along the east coast of India. Several studies have been conducted on the systematics, biology and fishery of these fishes (Nekrasov, 1969; Reuben, 1969; Talwar, 1973; Williams and Venkataramani, 1978; Sreenivasan, 1979). In the present study the

samples of these two fishes collected from two localities, Visakhapatnam (I) and Kakinada (II) on the east coast of India are compared.

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Chi-square test was employed in the comparison of samples since it gives accurate results.

Material and methods

The samples were collected and identified to species level; an incision was made on the

The samples of *D. russelli* collected from Visakhapatnam and Kakinada do not show

TABLE 1. Frequency distribution of meristic characters in samples of *Decapterus russelli* from Visakhapatnam (I) and Kakinada (II)

A. Dorsal fin rays										
Locality	27	28	29	30	31	32	n	\bar{x}		
I	4	10	19	17	10	1	61	29.36		
II	2	4	15	12	4	1	38	29.39		
B. Anal fin rays										
Locality	22	23	24	25	26	27	28	n	\bar{x}	
I	0	2	11	19	21	4	1	58	25.29	
II	1	1	4	20	10	2	0	38	25.13	
C. Pectoral fin rays										
Locality	18	19	20	21	22	n	\bar{x}			
I	1	7	23	26	3	60	20.38			
II	0	4	10	17	2	33	20.51			
D. Gill rakers, upper arm										
Locality	11	12	13	14	n	\bar{x}				
I	7	20	22	4	53	12.43				
II	1	14	12	4	31	12.61				
E. Gill rakers, lower arm										
Locality	31	32	33	34	35	36	37	n	\bar{x}	
I	0	5	13	18	8	8	1	53	34.07	
II	3	4	7	11	3	3	0	31	33.51	
F. Gill rakers, total										
Locality	44	45	46	47	48	49	50	51	n	\bar{x}
I	3	4	9	8	13	10	4	2	53	47.50
II	4	1	5	9	6	2	3	1	31	47.12

belly and then stored in 5% formalin. The meristic data were counted on 6 characters viz. (a) dorsal fin rays (b) anal fin rays (c) pectoral fin rays (d) gill rakers in upper arm (e) gill rakers in lower arm and (f) total gill rakers.

any significant difference in the meristic characters (Tables 1 and 3). But the samples of *C. malabaricus* from these two localities show significant differences in three characters, namely, the gill rakers in the upper arm, gill

TABLE 2. Frequency distribution of meristic characters in samples of *Carangoides malabaricus* from Visakhapatnam (I) and Kakinada (II)

A. Dorsal fin rays								
Locality	20	21	22	23	n	\bar{x}		
I	0	56	78	8	142	21.66		
II	1	21	31	3	56	21.64		
B. Anal fin rays								
Locality	16	17	18	19	n	\bar{x}		
I	1	39	98	4	142	17.73		
II	0	21	34	1	56	17.64		
C. Pectoral fin rays								
Locality	17	18	19	20	n	\bar{x}		
I	0	32	87	14	133	18.86		
II	2	9	36	6	53	18.86		
D. Gill rakers, upper arm								
Locality	9	10	11	12	n	\bar{x}		
I	29	74	21	0	124	9.93		
II	12	34	1	2	49	9.85		
E. Gill rakers, lower arm								
Locality	22	23	24	25	26	n	\bar{x}	
I	4	40	56	23	1	124	23.81	
II	2	30	16	1	0	49	23.32	
F. Gill rakers, total								
Locality	32	33	34	35	36	37	n	\bar{x}
I	2	18	27	49	18	10	124	34.75
II	1	10	20	16	1	1	49	34.18

TABLE 3. Significance of the observed difference in the meristic characters in samples of *Decapterus russelli* from Visakhapatnam and Kakinada applying the 'Chi-square' test

Character	D. F.	Table value	X^2 value	Significance at 5% level
Dorsal fin rays	5	11.07	1.821	Not significant
Anal fin rays	6	12.59	6.230	Not significant
Pectoral fin rays	4	9.48	1.255	Not significant
Gill rakers, upper arm	3	7.81	2.906	Not significant
Gill rakers, lower arm	6	12.59	6.795	Not significant
Gill rakers, total	7	14.07	6.140	Not significant

TABLE 4. Significance of the observed difference in the meristic characters in samples of *Carangoides malabaricus* from Visakhapatnam and Kakinada applying the 'Chi - square' test

Character	D. F.	Table value	X ² value	Significance at 5% level
Dorsal fin rays	3	7.81	1.98	Not significant
Anal fin rays	3	7.81	1.98	Not significant
Pectoral fin rays	3	7.81	5.58	Not significant
Gill rakers, upper arm	3	7.81	12.11	Significant
Gill rakers, lower arm	4	9.48	13.84	Significant
Gill rakers, total	5	11.07	12.11	Significant

rakers in the lower arm and the total gill rakers, but there is no significant difference in other characters namely the dorsal, anal and pectoral fin rays (Tables 2 and 4).

It is observed that atleast two separate stocks may be involved in the fishery of

C. malabaricus and *D. russelli* constitutes a single stock along Andhra Coast. However, any definite conclusion is not reached, unless a large number of a series of samples are examined all along the east coast of India.

Marine Living Resources Department,
Andhra University,
Visakhapatnam 530 003, India.

A. SHAMEEM

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