

Biochemical Composition of *Metapenaeus monoceros* in Egyptian Mediterranean Waters

by

A.M. MAGHRABY, A. EZZAT and T. TABAKL

Oceanography Department, Faculty of Sciences, Alexandria University (Egypt)

Protein content :

The protein content of *Metapenaeus monoceros* was determined as total nitrogen. It was found to be about 70.3 % in the males and 73.1 % in the females. The total nitrogen of the flesh decreases with length for small length groups (less than 105 mm.). For bigger length groups it increases with length. The nitrogen content in the flesh of females are slightly higher than those of the males, except for big lengths where the males show higher nitrogen content than the females. Table 1, Fig. 1.

Maximum nitrogen content values for both sexes were recorded in spring. Minimal values were in autumn and winter. There is a parallel trend in the seasonal variation in both sexes.

The water content for males increases with length till a maximum value is reached at 115 mm after which it decreases steadily. For small individuals the moisture content of the females are higher than the males, while in large prawns, the water content of the males are higher than the females. In the females water content is decreasing steadily with length.

Fat content of the females increases with length till a maximum value (3.4 %) is reached corresponding to length of 115 mm after which it decreases. For males, minimum value corresponds to length group 95 mm. It decreases progressively after this, till it reaches its maximal amount (2.65 %) at length of 145 mm.

The total lipids in the females decreased with season, namely from winter to summer and through autumn. The fat content for females were highest in winter and minimal in autumn. For males the fat content is more or less stable all over the year, with the exception of summer time where the lipid content showed a slight increase.

Concerning moisture content, it was found that this shows a maximum value in spring time. This corresponds with time of moulting, after which the animal shows very slight variation in moisture content.

The amount of glycogen was found to vary between 0.25 % and 0.663 % in the flesh. In the hepatopancreas the amount of glycogen varied between 0.06 and 1.34 %. Flesh glycogen does not undergo any seasonal variation, while hepatopancreas glycogen showed higher values in summer than in winter (Table 2).

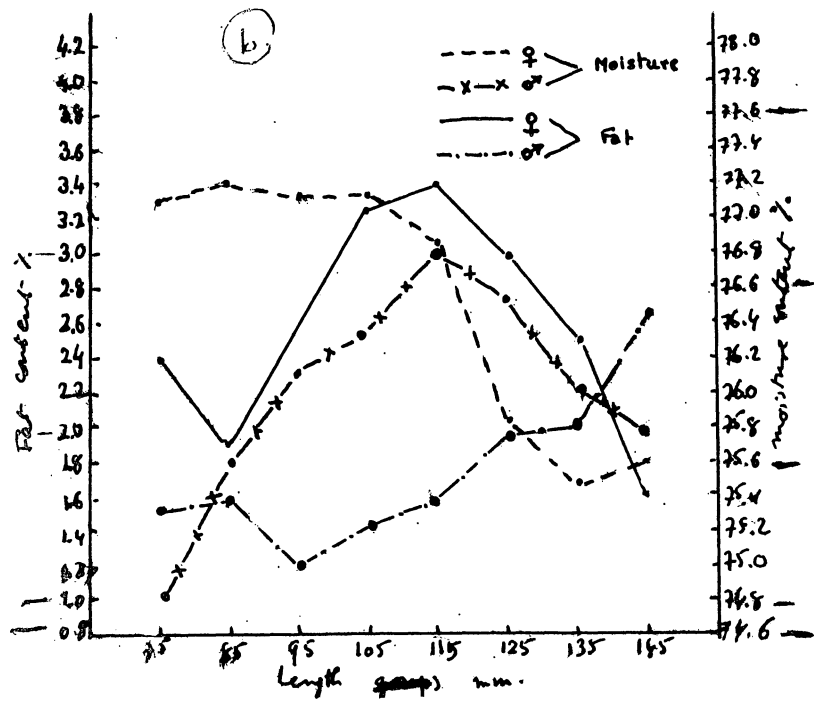
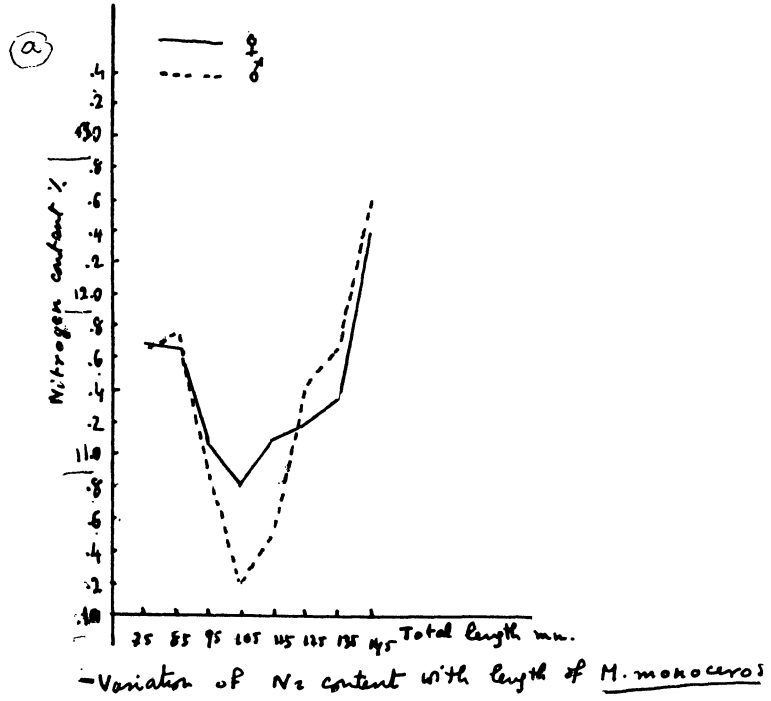
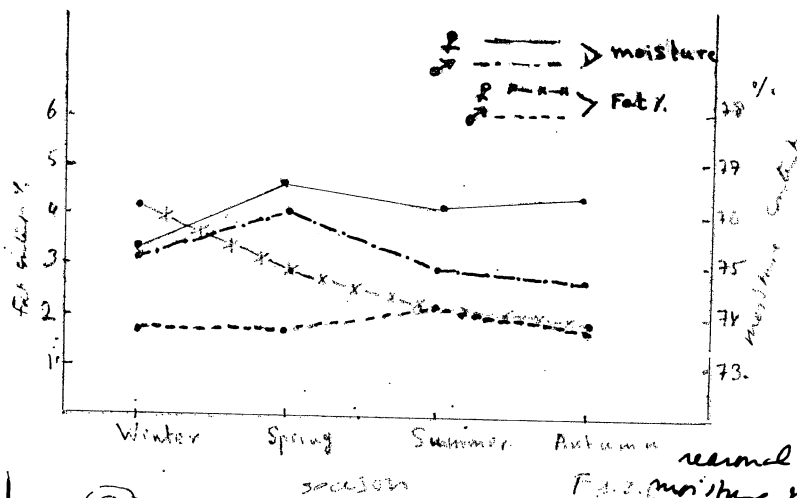
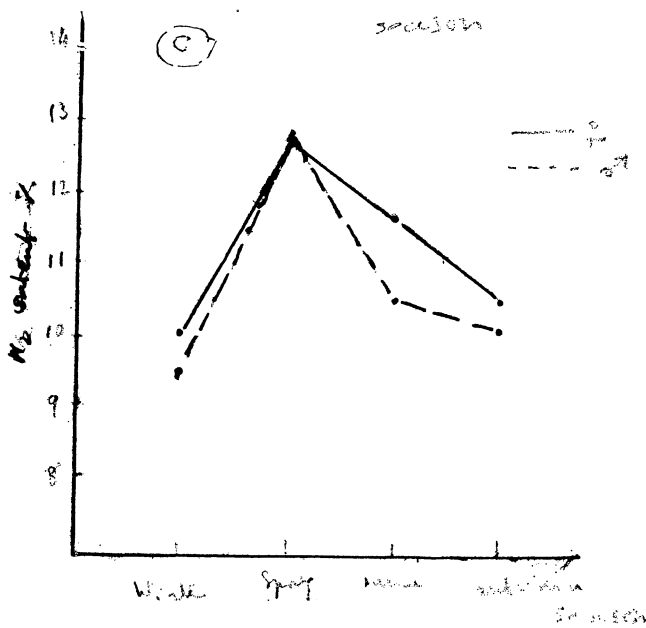


FIG. 1. — Variation of N₂ lipides and moisture in *M. monoceros*.



seasonal variation in moisture & fat content of *M. monoceros* in Egyptian waters.



seasonal variations in N₂ Lipids content of *M. monoceros* in Egyptian waters.

FIG. 2. — Seasonal variation in N₂ Lipids and moisture in *M. monoceros* in Egyptian waters.

TABLE I : Biochemical composition of *Metapenaeus monoceros* in function of length.

Total length mm	Nitrogen content % dry weight		Water content %		Fat content %	
75	11.86	11.65	77.12	74.76	2.40	1.53
85	11.80	11.77	77.20	75.56	1.90	1.60
95	11.06	10.90	77.13	76.13	2.56	1.20
105	10.81	10.20	77.14	76.35	3.27	1.42
115	11.10	11.53	76.87	76.80	3.40	1.58
125	11.17	11.45	75.84	76.53	2.98	1.95
135	11.37	12.70	75.46	76.00	2.45	2.00
145	12.41	12.60	75.60	75.76	1.61	2.65

TABLE II : Seasonal variation in biochemical composition in *Metapenaeus monoceros* in Egyptian waters (1970-1971)

Season	Nitrogen content % (dry weight)		Fat content %		Water content %		Carbohydrates % (both sexes)	
							Hepato- pancreas	Muscles
Winter	10.0 ± 3.2	9.5 ± 3.2	4.2	1.7	75.3	75.1	0.085 %	0.087 %
Spring	12.7 ± 2.5	12.8 ± 2.4	2.9	1.7	76.6	76.0		
Summer	11.7 ± 3.2	10.6 ± 2.4	2.1	2.1	76.1	74.9	2.19 %	0.103
Autumn	10.5 ± 2.9	10.1 ± 2.5	1.8	1.7	76.3	74.6		