

THE PHOSPHOLIPIDS IN MARINE INVERTEBRATES

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On a poursuivi la dynamique annuelle de 7 fractions de phospholipides de Mytilus galloprovincialis Lmk., ainsi que la variation mensuelle du phosphore total de 8 organes du gastéropode Rapana thomasiana Grosse et 2 organes du Mytilus.

This paper is a continuation of the studies on the lipids from the Black Sea molluscs carried out by MOLNAR et al., and the working techniques were described in these authors' works.

It was pointed out by thin layer chromatography that the fractions containing ethanolamine followed by those with choline and serine prevail in the phospholipids of mussels. The annual dynamics of phosphorus in different phospholipidic fractions is differentiated (Table 1).

Table 1

Phosphorus dynamics in the phospholipids of *Mytilus galloprovincialis* (P/100 g phospholipids).

Fraction:	MONTH											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Starting acids*	0.05	0.08	0.08	0.29	0.30	0.57	0.01	0.05	0.18	0.10	0.00	0.04
LPC	0.00	0.17	0.11	0.19	0.27	0.00	0.01	0.08	0.13	0.66	0.01	0.05
IP	0.00	0.24	0.32	0.37	0.29	0.27	0.08	0.03	0.11	0.14	0.40	0.14
PC	0.30	0.14	0.30	0.98	0.47	0.33	0.39	0.38	0.62	1.11	0.40	0.35
PS	0.04	0.03	0.21	0.44	1.17	0.50	0.39	0.48	0.37	0.03	0.05	0.04
PEA	0.05	0.26	0.53	0.38	0.50	1.10	0.65	0.70	0.44	0.66	0.05	0.05
GPL I (R _f 0.8)	0.13	1.44	1.15	1.23	0.61	0.52	0.05	0.12	0.12	0.86	0.05	0.07
GPL II (R _f 0.9)	0.01	0.18	0.26	0.13	0.39	0.81	0.08	0.12	0.12	0.15	0.13	0.87

* Fraction remaining at start during chromatography; LPC=Lysophosphatidylcholine, IP=Inositolphosphatides, PC=Phosphatidylcholines, PS=Phosphatidylserines, PEA=Phosphatidylethanolamines, GPL I=Glycophospholipid I, GPL II=Glycophospholipid II.

The annual phosphorus dynamics in the phospholipids is inverse as

against the total lipid dynamics. We have found the annual minimum for phospholipids in December-January. Beginning from February the concentration of total phospholipids rises and reaches the maximum in April, May or June. After a diminution in phospholipid concentration, in the middle of the summer (July-August), another maximum is noted in October. Phosphatidylcholine has two annual maxima, in April and October, which coincided with the spawning for *Mytilus*. Phosphatidylethanolamines fix a great number of ions Na, K, Ca and Mg in molluscs (MOLNAR et al., 1976). Increased phosphatidylethanolamine concentrations were found in our determinations in the warm seasons of the year, while low concentrations of this compound were found in the cold seasons. Dynamics with two annual maxima, in February-April and in October, is noted for a fraction of glycopospholipids ($R_f=0.8$) which, owing to the high concentration, seems to have an outstanding role in the metabolism of this mollusc.

Total phosphorus dynamics in the tissues of different organs of *Rapana thomasiana*, presented below, are given in g % P of the dried substance. The following maxima were recorded: hepatopancreas-3.1 % (March); vitellogenous gland-2.0 % (March); mantle-1.0 % (February); foot-1.6 % (February); branchia-2.8 % (July); testis-1.6 % (July); salivary gland-1.1 % (March). Total phosphorus in the organs of *Rapana* (except the hepatopancreas) had two annual minima distributed as follows: hepatopancreas-0.1 % (July); mantle-0.08 % and 0.2 % (April and September, respectively); vitellogenous gland-0.3 % (May and December); foot-0.2 % and 0.1 % (April and August, resp.); branchia-0.1 % and 0.7 % (April and November, resp.); salivary gland-0.08 % and 0.4 % (June and February, resp.).

The annual phosphorus minima in the tissues of *Mytilus* were distributed as follows: digestive diverticulum-0.3 % and 0.2 % (April and December, resp.); mantle-0.1 % and 0.5 % (April and October, resp.). The annual phosphorus maxima recorded in *Mytilus* for mantle and digestive diverticulum were 1.8 % (June) and 1.5 % (September).

BIBLIOGRAPHY

- MOLNAR, I.A.; M. MIRZA, et C. PANTELI, 1976.- L'étude des composants métalliques des phospholipides obtenus à partir des mollusques bivalves, *Mytilus galloprovincialis* Lmk. et *Mya arenaria* L., Cercetari Marine; 9: 239-246.