BIOCHEMICAL GENETICS OF THE PINK PRAWN, *ARISTEUS ANTENNATUS* RISSO, IN THE WESTERN MEDITERRANEAN

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Aristeus antennatus is one of the most important crustacea species in the Western Mediterranean as regards its commercial value. It supports important fisheries in this area as well as many on the Portuguese coast of the Atlantic Ocean (SARDÁ & DEMESTRE, 1987). Despite this, this species has not been studied in depth and most papers are about the fishery problems (BAS, 1960, MASSUTÍ & DAROCA, 1978; MAURIN, 1965). In the late 1980's, several studies were carried out on the pink prawn with the aim of elucidating the reason for the spatial-temporal fluctuations of its populations (RELINI & SEMERIA, 1982; ARROBAS & RIBEIRO, 1984; SARDÁ & DEMESTRE, 1985, 1987). This paper shows the first, and preliminary, biochemical data of *Aristeus antennatus* in the Western Mediterranean and it dovetails with a study that was initiated to correlationate biometric and genetic data with the aim of checking differences between local populations of an area. We studied three different populations : Sant Carles de la Ràpita and Alicante (in the Northeastern Spanish Mediterranean coast) and Palma de Mallorca (in the Balearic Island). For each sample, 30 individuals were analyzed by electrophoresis according to the method of AEBERSOLD *et al.* (1987). Table 1 shows details of enzyme systems analyzed, of sampled tissue used and of electrophoretic running conditions. We have used the terminolgy of SHAKLEE *et al.* (1990) to make the description of enzyme systems and isozyme loci. Of 27 enzyme systems studied, 4 showed no activity and 14 showed a bad resolution. Of the rest, 11 loci were monomorphic and 4 polymorphic (GPI*, IDHP*, MDH-2* and PGM*) in all three populations. Of these, only GPI* and PGM* were polimorphic at 5% level. Electromorph frequencies at both polymorphic loci are presented in Table 2. Heterogeneity X^2 tests were conducted on these two polimorphic loci for all three populations. Analysis results were not significant in either of the loci (GPI*, X^2=2,71, df=4; PGM*, X^2=9,31, df=4).

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Table 1. Enzyme systems analyzed in muscle (M) and hepato-pancreas (H) of *Aristeus antennatus*.. Buffers: TC/LB(1); ACT (2); Poulik (3); TBE+NAD (4). Resolution: na=no activity; br= bad resolution; m=monomorphic; p=polymorfic (the number indicates number of alleles).

Enzyme	Number	Locus	Resolution	Buffer	Tissue
Aspartate aminotransferase	E.C. 2.6.1.1	AAT*	na	1	H
Acid phosphatase	E.C. 3.1.3.2	ACP*	m	1	H
Alcohol dehydrogenase	E.C. 1.1.1.1	ADH*	m	1	M
Creatine kinase	E.C. 2.7.3.2	CK*	m	1	M
Diaphorase	E.C. 1.6.4.3	DIA*	br	1	H
Esterase	E.C. 3.1.1.-	EST*	p (br)	1,3	M, H
Fumarate hydratase	E.C. 4.2.1.2	FH*	br	1,4	M
Glutamatedehydrogenase	E.C. 1.4.1.2	GLUDH*	m	1	M
Glyceraldehyde-3-phosphate dehydrogenase	E.C. 1.2.1.12	GAPDH*	br	4	M
Glycerol-3-phosphate dehydrogenase	E.C. 1.1.1.8	G3PDH*	m	1,4	M
Glucose-6-phosphate isomerase	E.C. 5.3.1.9	GPI*	p (3)	2,3	M
b-Glucuronidase	E.C. 3.2.1.31	bGUS-1*	p (br)	1	H
		bGUS-2*	p (br)	1	H
L-Iditol dehydrogenase	E.C. 1.1.1.14	IDDH*	br	1	M
			na	1	H
Isocitrate dehydrogenase	E.C. 1.1.1.42	IDHP-1*	p (3)	2	M
		IDHP-2*	m	2	M
L-Lactate dehydrogenase	E.C. 1.1.1.27	LDH*	br	2,3	M
Lactoylglutathione lyase	E.C. 4.4.1.5	LGL*	m	1	M
		LGL*	na	1	H
Leucine aminopeptidase	E.C. 3.4.11.1	LAP*	p (br)	1	H
Malate dehydrogenase	E.C. 1.1.1.37	MDH-1*	m	2	M
		MDH-2*	p (2)	2	M
Malic enzyme (NADP+)	E.C. 1.1.1.40	MEP*	m	1	M
		MEP*	br	1	H
Mannose-6-phosphate isomerase	E.C. 5.3.1.8	MPI*	br	3	M
Peptidase-LGG	E.C. 3.4.-.-	PEP-LGG*	br	1	M
Peptidase-LT	E.C. 3.4.-.-	PEP-LT*	p (br)	1	H
Phosphoglucomutase	E.C. 5.4.2.2	PGM*	p (3)	1,2	M
		PGM*	na	1	H
Phosphogluconate dehydrogenase	E.C. 1.1.1.44	PGDH*	m	1	M
Pyruvate kinase	E.C. 2.7.1.40	PK*	p (br)	1	M
Tyrosine aminotransferase	E.C. 2.6.1.5	TAT*	m	4	M
Xanthine oxidase	E.C. 1.2.3.2	XO*	br	1	M

Table 2. Allelic frequencies of GPI* and PGM* loci in the three sampled populations. N = size of the sample.

Allele	Samples		
GPI*	Sant Carles	Alicante	Palma
90	0,367	0,433	0,400
100	0,633	0,550	0,600
120	0,000	0,017	0,000
N	30	30	30
PGM*			
95	0,017	0,133	0,050
100	0,917	0,733	0,867
105	0,066	0,133	0,083
N	30	30	30