Biogeographical remarks about the Ascidian littoral fauna of the Strait of Gibraltar (Iberian Sector)

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The ascidians are considered excellent material for biogeographical studies, having an higher percentage of endemisms than other benthic groups (Pérès & Picard, 1964). The biogeography of ascidians has been little studied in the Mediterranean Sea. Peres (1958) establish the biogeographical elements (Atlantic -Mediterranean, Senegalense, endemic, paleomediterranean, Arctic, immigrated from the Red Sea, circumtropical and cosmopolitan, giving a necessary view of the whole.

Fifty-seven ascidians species have been collected on littoral hard-bottoms (0 to 30 m depth) in the Iberian sector of Gibraltar Strait and adjacent zones (from Càdiz to Fuengirola, Màlaga). These species have been divided in five biogeographical groups, according to Ramos (1988)

1. Atlantic-Mediterranean species (47.4%), from British Isles (western sector) to Dakar. Three elements may be separated: i) Lusitanian-Mauretanian components (26.4%) from British Isles to Cape Blanco (*C. nana, D. fulgens, D. lahillei, D. spongiforme, P. lacazei, P. canetense, L. perforatum, S. elegans, S. argus, A. coeruleum, A. densum, A. albicans, D. variolosus, S. socialis, P. squamulosa*); ii) Senegalense component (3.5%) from Senegal (*D. obscurum, P. dura*); iii) Mediterranean component (17.5%), which appears in Atlantic area (Canary and Azores Islands, Portugal) (*P. adriaticum, D. granulosum, S. blochmanni, R. neapolitana, C. edwardsi, P. ingeria, P. fumigata, H. papillosa, M. polymorphus, M. nudistigma*)
2. Endemic species (17.5%), signaled only in the Mediterranean sea (*D. coccineum, D. commune, T. inarmatum, Tridemnum pedunculatum n. sp., C. dellavallei, A. conicum, A. haouarianum, P. crucigaster, P. cyrnusense, M. savigny*).
3. Boreal species (17.5%), reaching north European waters (North Sea, Scandinavia) (*C. lepadiformis, P. crystallinus, D. maculosum, T. cereum, S. turbinatum, P. aurantium, A. mentula, P. rustica, P. pomaria, M. occulta*).
4. Tropical affinity species (8.8%) (*C. dellechiajei, D. candidum, P. viridis, E. turbinata, M. exasteratus*).
5. Cosmopolitan species (8.8%) (*D. coriaceum, D. listerianum, P. bilobatum, B. schlosseri, B. leachi*).

	Gibraltar	Alboran	Levante	Cataluña	Baleares
Atlantic-Mediterranean	47%	42.5%	42.5%	42%	42%
endemic (Mediterranean)	17.5	19.5	20.5	24	28
boreal	17.5	21	19	18	14
cosmopolitan	9	10	10	10	.9
tropical affinity	9	7	8	.6	.7

Table 1. Percentages of the biogeographical elements of the Gibraltar Strait in comparison with the different sectors of the Iberian Mediterranean (modified from Ramos,1988)

According to table 1,a strong presence of the Atlantic -Mediterranean component is observed, and a gradual decrease of the endemic one. The low percentage of the Boreal species is probably due to the shallowness of the bottom sampled (no more of the -30m depth).

The Mediterranean component (endemic + Mediterranean species reaching Canary and Açores Islands, and Portugal) is about 35%, that means an high influence of shallow mediterranean waters on this sector.

It is noted the presence of the Atlantic species *Polycarpa rustica* and *Stolonica socialis*, and Indopacific one *Didemnum candidum*.

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