

HARPACTICIDS (CRUSTACEA, COPEPODA) ASSOCIATED WITH MACROPHYTES FROM THE ROMANIAN BLACK SEA WATERS

Manuela Diana Samargiu * and Daciana Sava

"Ovidius" University , Faculty of Natural Sciences, Blvd. Mamaia 124, RO- 900581, Constanta, Romania - manuelasamargiu@rdslink.ro

Abstract

The paper presents the qualitative composition and makes a synecological evaluation (F %, D %, W %) of harpacticoids variation living associated with macrophytes in the north sector of the Romanian Black Sea shallow waters. Some data about their density in different sites from quantitative algae samples will be analyze, in order to highlight characteristic species and their distribution.

Keywords : *Algae, Black Sea, Copepoda, Crustacea.*

Most of the former studies of Romanian marine harpacticoids associated with macrophytes contain taxonomic observations or represent descriptions of new species. There are only few quantitative data which can explain the modification of qualitative and quantitative state of benthic communities of the Black Sea as result of increasing eutrophication and pollution, mainly in its NW corner [1].

Quantitative samples were taken from the hard substratum, in the north sector of the littoral, seasonally (during a period of five years) from a depth of 0, 5 - 5 m, using a metal scarp and plastic bags, on a 20 cm² area. The most frequent species of algae were *Ceramium rubrum*, *Enteromorpha intestinalis*, *Cladophora sp.*, and in spring *Bryopsis plumosa* and *Porphyra leucosticta*. The locations were: Cap Midia - Navodari, Mamaia - Cazino, Mamaia - Fishery, Constanta - Cap Singol. The samples were processed under standard techniques and results were reported at 1 m² area. Data from the south sector were presented in a previous paper [2].

26 harpacticoids species were identified. Density values are the greatest for Cap Midia with populations of more than 2000 ind. ·m⁻² in case of *Ameira parvula* and *Mesochra pontica*. *Canuella perplexa* and *Ectinosoma normani* recorded around 1000 ind.·m⁻² and another three more than 1500 ind.·m⁻² (from artificial dams with *Cladophora* and *Enteromorpha*). In Mamaia Casino infralittoral waters, even we recorded the most numerous species (20), only five of them have densities values from 700 to 1600 ind.·m⁻². *Canuella perplexa* has the highest number of individuals in this zone and it can be considered as characteristic species (Table 1). At Mamaia Fishery density values are less than 600 ind.·m⁻². *Mesochra pygmaea* presents the most numerous individuals being a eudominant, characteristic species for this biocoenosis. Recording great densities is *Ameira parvula* with a frequency of 60% and an ecological relevance (W %) of 9.05, on rank 2. In Cap Singol (Constanta) zone, *Harpacticus littoralis* attend more than 750 ind.·m⁻², comparing to the other species which have very low densities values.

From synecological data (Table 1, 2) results that the most frequent harpacticoid was *Ectinosoma melaniceps* even it is only an accessory species for most studied zones; the greatest dominance value was recorded in Mamaia Casino for *Canuella perplexa* and the lowest is in the same zone for *Thalestris longimana*; *Mesochra pontica* records a constant dominance in the first three studied sites; the highest ecological relevance value - W% - is registered for *Harpacticus littoralis* in Constanta shallow waters- as eudominant, characteristic for this zone.

Tab. 1. Synecological analysis (frequency, dominance) of most encountered harpacticoids. Legend: (1. Navodari - Cap Midia= N.C.M.; 2. Mamaia Casino = M.C.; 3. Mamaia Fishery = M.F.; 4.Constanta - Cap Singol = C.C.S.).

Species	F (Frequency %)				D (Dominance)			
	1. N.C.M.	2. M.C.	3. M.F.	4. C.C.S.	1. N.C.M.	2. M.C.	3. M.F.	4. C.C.S.
<i>Canuella perplexa</i>	100	100	40		8,08	17,28	3,38	
<i>Ectinosoma melaniceps</i>	100	100	60	80	3,96	7,86	7,45	4,27
<i>Harpacticus littoralis</i>				100	12,43			50,32
<i>Altheuta typica</i>		100	80	40	4,66	9,95	8,88	
<i>Thalestris longimana</i>		60		80		0,54		7,24
<i>Paradactylopadia brevicornis</i>		40		80		2,81		13,81
<i>Ameira parvula</i>	100	60	60		15,6	4,93	15,08	
<i>Mesochra pygmaea</i>	100	80	80		16,06	5,8	19,49	
<i>Mesochra pontica</i>	100	80	20		13,77	11,27	10,34	

The identified harpacticoids species which are living associated with macrophytes algae are not strictly phytophyle, many of them being encountered on other rocky faces, among mussels or stones fragments; they have eurybiontic particularities, being adapted to great variations of environmental conditions.

The actual algal communities consist only of species belonging to some genera like: *Ulva*, *Enteromorpha*, *Cladophora* and *Ceramium* which per-

sist and proliferate in eutrophic waters, covering the hard substratum up to 90%.

Tab. 2. Synecological analysis (ecological relevance, rank) of most encountered harpacticoids. Legend: (1. Navodari - Cap Midia= N.C.M.; 2. Mamaia Casino = M.C.; 3. Mamaia Fishery = M.F.; 4.Constanta - Cap Singol = C.C.S.).

Species	W (Ecological relevance %)				R (Rank)			
	1. N.C.M.	2. M.C.	3. M.F.	4. C.C.S.	1. N.C.M.	2. M.C.	3. M.F.	4. C.C.S.
<i>Canuella perplexa</i>	17,29	3,39	1,35		6	1	11	
<i>Ectinosoma melaniceps</i>	3,96	7,86	4,47	2,56	9	3	4	7
<i>Harpacticus littoralis</i>	12,44			50,32	4			1
<i>Altheuta typica</i>		4,66	7,59	3,55		6	3	5
<i>Thalestris longimana</i>		0,32		5,79		20		3
<i>Paradactylopadia brevicornis</i>		1,13		11,05		14		2
<i>Ameira parvula</i>	15,6	2,96	9,0		2	10	2	
<i>Mesochra pygmaea</i>	16,06	4,64	15,59		1	7	1	
<i>Mesochra pontica</i>	13,77	9,02	2,06		3	2	10	

References

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