A SURVEY OF THE INVERTEBRATE POPULATIONS INHABITING *Ritiphloea tinctoria* (CLEM.)C.AG. *aegagropyla* IN THE STAGNONE SOUND (WESTERN SICILY)

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Resumé - *Remarques sur la fauna à invertebrés associée a* Ritiphloea tinctoria *(Clem.)C.Ag.* aegagropyla *dans la lagune cotière du Stagnone de Marsala (Sicile occidentale).* La partie centromeridionale de la lagune marine du Stagnone de Marsala est caractérisée par la présence d'una vaste étendue d'algues rouges et vertes croissant en forme égagropile. *R. tinctoria* est l'espèce le plus frequemment repandue en forme de boule. L'examen de la fauna associée à cette algue rouge met en évidence l'existence constante d'ensembles de petits invertébrés appartenant à un petit nombre de groupes taxonomique - Mollusques Gastropodes, Crustacés Tanaidacés, Amphipodes et Polychètes - chaque échantillon étant représenté par plusières centaines d'individus. Una périodicité saisonnière est aussi très évidente en ce qui concerne l'abondance des peuplements. La comparaison avec d'autres espèces algales présentes dans le même milieu telle que *Dasycladus vermicularis* (Scop.)Krass., montre une étroite spécificité de la faune existant dans les boules de *R. tinctoria*. Une particularité très remarquable est la capacitè de la plus grande partie des espèces de survivre dans des conditions d'intense reduction du milieu.

One of the most intriguing biotic features in the Stagnone Sound is the presence in its central and southern section of a thick layer of benthic red and brown algae growing in the *aegagropyla* form and drifting on the soft bottom under the impact of whirling water motions and Southwards directed currents (CALVO et al., 1980; DI PISA e RIGGIO, 1982; RIGGIO & al., 1983).

Ritiphloea tinctoria is the most frequent species growing in ball-shape and it is very often associated to the Poriferan *Spongia officinalis* L. which makes the core of the balls. The "balls" change their shape with the seasons and become quite spherical in summer, whereas in wintertime they may return to the usual seaweed shape. We have undertaken a faunistic survey of the *aegagropylae* with the purpose of putting into evidence a possible role of such forms in the living system of the lagoon. Examination of the *aegagropylae* is carried out by random sampling of the algal balls with a seasonal periodicity. Samples are thoroughly dissected and washed in sea water, then sieved. The fauna is sorted out, taxonomically determined and counted. Volume and weight of each ball are recorded. In case the ball core is a sponge, the fauna living inside the sponge is carefully isolated from that inhabiting within the algal felt; very few species common to both microhabitats have been censused.

The results of our survey so far show a very rich invertebrate fauna represented by hundreds individuals per each sample, however restricted to a low number of species from few taxonomic groups which are remarkably constant .

Gastropod Molluscs are most frequent with one species, *Nodulus contortus* Jeffr., by far dominant with numbers as high as 500 individuals per sample.

Peracarid Crustacea follow with Amphipoda and Tanaidacea making the bulk of the settlement. Cumacea, Isopoda and few Copepoda follow with smaller populations. The Amphipoda include about 25 species, all of which are euryoecious and widely distributed with the dominance of *Leptochirus* sp. Five taxa, for the most part Apseudidae are identified in the Tanaidacea. *Parapseudes latifrons* Grube and *Apseudes* spp. are represented by the hundreds of individuals per sample. A competitive exclusion is evident between Amphipoda and Tanaidacea: complementary cycles of abundance in fact appear from seasonal plots of population densities. Syllid Polychaetes are a constant, however less abundant component : *S.armillaris* Müll., *S.hyalina* Gr., *S.prolifera* Krohn and *S.variegata* Gr. are usually found in small numbers. Nereids with *Perinereis cultrifera* Gr. and *Platynereis dumerili* Aud.&M.E. together with some Aphroditids are also present. Examination of the samples along the year shows a marked seasonality in the appearance of the taxa as well as a regular alternation in the degree of dominance of the single species or groups. An example of such an alternation is provided by *Apseudes* sp. and *P.latifrons* which are more frequent respectively in summer and winter. The great majority of species, particularly of Peracarida and Polychaeta are found elsewhere in muddy habitat or even in strongly reduced bottoms, such as those of harbours, *Caulerpa* and *Cymodocea* beds. A need to withstand reduction of oxygen content during the night or overheating of water in summer is very likely the main selective factor for the search of refuge in the algal balls. Comparison with the fauna associated to normally growing *Dasycladus vermicularis* (Scop.)Krass. shows the presence of quite different invertebrate populations with also different relative distributions and seasonal dynamics. A conclusion can therefore be drawn that the algae growing in the *aegagropyla* form in the Stagnone Sound are more than just a refuge to small-sized invertebrates. They are rather a peculiar erratic habitat with drifting on the bottom as a major ecological factor. They shelter a closely related and self-reproducing animal community which in the association with the alga finds an uncommon adaptation to a harsh coastal environment.

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