PRELIMINARY DATA ON CONSUMERS FOOD WEB IN A *POSIDONIA OCEANICA* (L.) DELILE BED

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Résumé. L'analyse des contenus gastriques de 45 espèces animales vagiles associées aux Posidonies permet d'identifier différents groupes trophiques. Une étude statistique permet aussi de confirmer le rôle central du débris de Posidonie et de mettre en évidence l'importance des Crustacés dans le transfert de l'énergie aux niveaux supérieurs de la chaîne alimentaire.

The *Posidonia* prairie represents an ecosystem in which the energy seems to flow primarily through the vegetal detritus (OTT, 1981). Although some data are available on both herbivores and detritus feeders (TRAER, 1980; NEDELEC et al., 1981), the "higher" consumer food web structure is practically unknown. In the present paper we summarize the preliminary results on the functional role of some vagile macrofaunal elements of the prairie, on the basis of data obtained from gut content analysis.

Seven samples were made at night in a prairie near Alghero, Sardinia (CHESSA, 1980), by using a beam trawl net at depths comprised between 5 and 10 m. Fourtyfive species and 23 food items were identified. Data were analyzed by the "RQ" autovectorial technique for the simoultaneous ordination of variables (food items) and observations (species). The resulting ordination model (fig. 1a) shows three clusters of variable-points: the first cluster contains the vegetal components (AL, PM, MV), the second cluster contains the mixed diet components (BR, PV, PF, ID) and the third one includes the animal components (CO, PE, AM, DE, BI). The observation-points (fig.1b) are arranged in two main groups located in the IV and in the II quadrant. In the IV quadrant, there are species such as *Hippolyte inermis*, *Galathea squamifera*, *Holothuria impatiens* and *Cerithium vulgatum*. In the lower part of the second quadrant there are species such as: *Astropecten spinulosus*, *A. platyacanthus*. Species such as *Palaemon xiphias*, *Syngnathus tenuirostris* and *Processa edulis* are found in the vicinity of axes origin. This model shows two "feeding poles", a vegetarian and a carnivorous one, between which there is a transition zone containing true omnivores (e.g. *Macropipus arcuatus* and *Maja verrucosa*) together with debris and detritus feeders. In this zone are also represented a number of carnivores (e.g. *Symphodus ocellatus*, *S. cinereus* and *Diplodus annularis*) in which the presence of vegetal material can be explained with their unselective feeding mode. Preys such as CO and OS, in fact, constantly appear together with the "epiphytic felt" or the *Posidonia* debris in which they live. True herbivores (e.g. *C. vulgatum* and *C. rustica*)are scarcely represented, while true carnivores are numerous and show a defined specialization gradient. Many of them feed primarily or exclusively on AM and

DE (e.g. *P. xiphias, Sepia officinalis, Hippocampus guttulatus*).
From the above results, the following conclusions can be drawn: a) the direct energy transfer from *Posidonia* to the consumers is probably poor; b) the central role of the debris in the food web is confirmed; c) it can be inferred that the energy transfer to higher consumer levels takes place mainly *via* the Crustacea, especially Amphipods and Decapods.

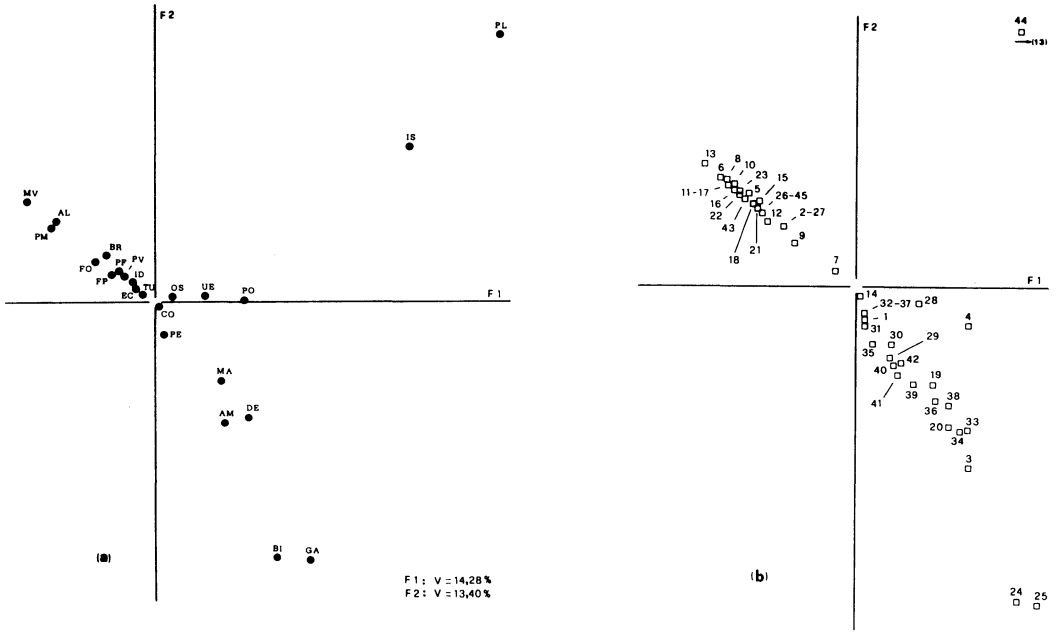

Fig. 1. RQ analysis: ordination model of food items (a) and of species (b). AL=Algae; PV=living *Posidonia*; PM=detrital *Posidonia*; MV=unidentified vegetal material; FO=Phoraminifera; DE=Decapoda; AM=Amphipoda; CO=Copepoda; OS=Ostracoda; BI=Bivalvia; GA: Gasteropoda; PL=Polyplacofora; PO=Polychaeta; UE= eggs and larvae; FP=fecal pellets; MA=Unidentified animal material; BR=Bryozoa; TU=Tunicata; EC=Echinodermata; PF=Porifera; IS=Isopoda; PE=Pisces; ID=Hydrozoa. 1=*H. hystrix*; 2 =*H. inermis*; 3 =*P. xiphias*; 4=*P. edulis*; 5 =*A. macrocheles*; 6=*G. squamifera*; 7 =*M. arcuatus*; 8 =*P. hirtellus*; 9=*M. verrucosa*; 10 =*P. corallina*; 11=*P. tetraodon*; 12=*P. nodipes*; 13=*P. platycheles*; 14 =*A. lunulatus*; 15 =*I. hectica*; 16=*G. ardens*; 17=*C. rustica*; 18. =*C. vulgatum*; 19 =*S. rondeleti*; 20=*S. officinalis*; 21=*H. polii*; 22 =*H. impatiens*; 23 =*H. tubulosa*; 24 =*A. platyachanthus*; 25 =*A. spinulosus* 26=*P. microturbeculatus*; 27 =*P. lividus*; 28=*G. ater*; 29=*S. ymphodus sp.*; 30=*S. rostratus*; 31=*S. ocellatus*; 32 =*S. cinereus*; 33 =*S. cabrilla*; 34 =*G. mediterraneus*; 35=*L. lepadogaster*; 36=*H. guttulatus*; 37 =*D. annularis*; 38 =*S. porcus*; 39 =*M. surmuletus*; 40=*O. barbatum*; 41=*S. typhle*; 42=*S. tenuirostris*; 43 =*E. occultus*; 44=*S. arctus*; 45=*T. cranchii*

References

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