{rokbox title=|Spatangus purpureus :: Foto: Carmen Barberá (COB-IEO)| thumb=|images/stories/ieo/imagenespublicaciones/spatangus_barberaetal_640_thumb.jpg|}images/stories/ieo/imagenespublicaciones/spatangus_barberaetal_640.jpg{/rokbox}

C. Barberá, D. Fernández-Jover, J.A. López Jiménez, D. González Silvera, H. Hinz and **J. Moranta**
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Trophic ecology of the sea urchin Spatangus purpureus elucidated from gonad fatty acids composition analysis
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Abstract: Irregular sea urchins such as the spatangoid *Spatangus purpureus* are important bioturbators that contribute to natural biogenic disturbance and the functioning of biogeochemical cycles in soft sediments. In the coastal waters of the Balearic Islands *S. purpureus* occurs in soft red algal beds, and can reach high densities. The diet of *S. purpureus* is unknown and it is particularly difficult to analyze the stomach contents of this group; therefore, we analyzed the fatty acid (FA) composition of the gonads and potential food resources in order to assess the trophic relationships of this species. The FA profiles of the gonads of *S. purpureus* agree well with the FA composition of the potential trophic resources (algae and sediment) and reveals changes between localities with different available resources. Three polyunsaturated FAs mainly contributes in the composition in the *S. purpureus* gonads: eicosapentaenoic acid (C20:5n-3) and arachidonic acid (C20:4n-6), both abundant in the macroalgal material, and palmitoleic acid (C16:1n-7), which is characteristic of sediment samples. Trophic markers of bacterial input and carnivorous feeding were significantly more abundant in sea urchins caught on bottoms with less vegetation. The current study demonstrates that the FA content of *S. purpureus* gonads is a useful marker of diet, as differences in the profiles reflected the variations in detritus composition. The results of this study show that this species has omnivorous feeding behavior; however, viewed in conjunction with available abundance data the results suggest that phytodetritus found within algal beds is an important carbon source for this species.

Keywords: Sea urchins; Fatty acids; Feeding; Diet; Soft red algae; Sandy bottoms; Sediment;

Detritus; Bioturbation; Deposit feeder; Mediterranean sea.