



Siboglinidae from the Gulf of Cadiz - an update

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Siboglinid tubeworms are ecologically important members of hydrothermal vents, cold seeps and whale carcasses communities. The family Siboglinidae is composed of four groups: Vestimentifera, Frenulata, Monilifera and *Osedax*. Vestimentiferans, because they are keystone species in eastern Pacific hydrothermal vent habitats and in Pacific and Caribbean seeps, have been, in general, better studied. The discovery of a high diversity of frenulate species in mud volcanoes in the Gulf of Cadiz, and the possibility to explore these habitats through several European research programs has been an excellent opportunity to extend our knowledge on this understudied group of siboglinids. Due to their small size and difficulty of retrieving the animals from their tubes, molecular tools have proved essential to the identification of species. Eight species have been found so far, of which at least 2 are new to science, one being from a new genus. Molecular tools are also being used to identify the endosymbiont bacteria of each species from the different mud volcanoes. Although most of the species harbour thiotrophic endosymbionts, methanotrophic endosymbionts have been found in one species from the Captain Arutyunov mud volcano. The diversity, distribution patterns and reproductive biology of these species are being studied in parallel with colonization experiments deployed in selected mud volcanoes.