

Guillem Mateu-Vicens, Antonio Box, Salud Deudero and Beatriz Rodríguez, (2010). [Comparative analysis of epiphytic foraminifera in sediments by seagrass *Posidonia oceanica* and invasive macroalgae *Caulerpa* spp.](#)

The Journal of Foraminiferal Research; April 2010; v. 40; no. 2; p. 134-147.

Abstract: Mediterranean shallow-water soft bottoms are characterized by extensive meadows of the endemic seagrass *Posidonia oceanica* (L.) Delile that support abundant benthic biota including numerous epiphytic foraminiferal taxa. The biomass of the epiphytic communities varies with the *P. oceanica* cycle, especially influencing those taxa with higher abundances in summer, when the foliar surface is maximum. During the past decades exotic macrophyte species have invaded habitats formerly dominated by *P. oceanica*. Two of these taxa are the green algae

Caulerpa taxifolia

(Vahl) Agardh, 1817 and

C. racemosa

(Forsskål) Agardh, 1873, that, along with the non-invasive

C. prolifera

(Forsskål) Lamouroux, 1809, produce defensive, secondary metabolites such as caulerpenyne that affects turnover rates of

P. oceanica

leaves. As a consequence of different architectural features of the algal substrate, replacement of

P. oceanica

by

Caulerpa spp

. results in the change from a complex three-dimensional, long duration substrate into a simpler, two-dimensional one with a shorter life span.

Epiphytic foraminifers can be clustered into functional groups according to their shape, structure, behavior and life span. The foraminiferal dead assemblage includes a total of 110 species, that included 43 species in sediments colonized by *P. oceanica*, 82 species in sediments with *C. prolifera*, 78 in sediments invaded by *C. taxifolia*, and 55 in sediments invaded by *C. racemosa*.

Taxonomic composition of all assemblages is similar, though differences occur in the relative abundance of each taxon. Sediments in

P. oceanica

meadows are characterized by flat, encrusting, long life-span species (e.g.,

Planorbulina mediterraneensis

d'Orbigny, 1826), whereas in

Caulerpa spp

. habitat, temporarily motile, shorter life-span taxa (e.g.,

Lobatula lobatula

(Walker and Jacob, 1798) and

Rosalina bradyi

Cushman, 1915) tend to dominate. Multivariate analysis shows that only the thanathocoenosis of

P. oceanica

sediments is representative of the

P. oceanica

epiphytic foraminiferal assemblage (

Planorbulinatum medi-terranensae

Colom, 1942). Hence, differences among the foraminiferal assemblages in sediments colonized by different phytal substrates occur prior to taphonomic and dissolution processes and may be applicable to paleoecological interpretations.