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## **Jullienella foetida Schlumberger, the largest shallow-water agglutinated foraminifer in modern oceans**

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*Jullienella foetida* is probably the largest agglutinated foraminifer in modern oceans and can reach a length of up to ~14 cm. Because of its large size, the species was initially considered to be a bryozoan, but later correctly described as a single-chambered (monothalamous) foraminifer with a large, flat or slightly undulating plate-like test, leaf-like, or fan-like in overall shape and with the chamber interior subdivided by longitudinal partitions. It occupies a restricted geographical range around part of the NW African margin where it is found in eutrophic settings with a preference for energetic environments.

We have applied a suite of non-destructive methods, namely light microscopy, SEM, X-ray and high-resolution micro-computed tomography (micro-CT) to 1) explore its external and internal test characteristics and 2) to provide a first-order estimate of its possible contribution to sea floor biomass. High-resolution SEM images show the test wall to comprises a smooth, outer veneer of small mineral grains that overlies the much thicker inner layer, which has a porous structure and is composed of grains measuring several hundreds of microns in size. X-ray images of the test reveal an elaborate system of radial partitions that subdivides the test interior into channels that may serve to direct the flow of the cytoplasm, and perhaps increase its surface to volume ratio. Micro-CT scans suggest that much of the test interior is filled with cytoplasm with a biomass comparable to that of slightly larger xenophyophores. This remarkable species appears to play an important, perhaps keystone, role in benthic ecosystems where it is abundant, providing the only common hard substrate on which sessile organisms can settle.