EXPERIMENTAL CULTIVATION OF A MEDITERRANEAN BATH SPONGE IN THE OPEN SEA

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The native Mediterranean bath sponge *Spongia officinalis,* harvested intensely since antiquity in the eastern Mediterranean, is threatened for the past decades due to unregulated harvesting and outbreaks of disease incidents. However, it still attracts worldwide commercial interest and is being actively exploited. Since late 2014, an experimental aquaculture of this sponge has been maintained in the Underwater Biotechnological Park of Crete, an open-sea experimental platform operated by the Hellenic Centre for Marine Research. Sponge specimens from 4 native populations have been transported to the cultivation platform and attached on vertical cultivation units. Following initial acclimatization, a total of 36 maternal individuals were fragmented into explants, resulting in a total of 118 cultivation clones with an initial average size of 91 cm^3. Daily monitoring immediately after the fragmentation event showed a quick recovery process, with explants covering exposed tissue with epithelium (pinacoderm) and developing new exhalant pores within 48 h. Regular monitoring followed, at bimonthly intervals for a maximum of 212 days since initial deployment, individually assessing the size of each cultivating explant, as well as incidents of mortality and partial necrosis. A long-term assessment of growth and mortality was also performed, 595 days after initial deployment. Overall, growth was observed for all cultivated explants, at rates ranging from 0.13 to 1.01 cm^3 of volume gain per day. Especially at early stages following fragmentation, explants showed the capacity to double their volume over the course of three months. Mortality was generally low, with maximum percentages reaching 4% of the total population during the warm months. The outcomes of this experimental study are encouraging for the potential of sustainable open-sea sponge aquaculture at the operational level. This is an important outlook because of the existing commercial and biotechnological interest of certain sponge species. Moreover, since natural populations of *S. officinalis* are currently degraded and scarce, it provides a means for maintenance of stocks that may support transplantation efforts to promote the reestablishment of this iconic Mediterranean marine species in its natural habitat.

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