

Budding Induction in a Marine Sponge: A cue for cultivation purposes

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Abstract

*Experiences of sponge cultivation never exploited the capability of these organisms to reproduce asexually. Indeed, many sponge species produce buds, which consist of cellular bodies emerging from the external surface of the parent sponge. In this study, the budding process in the Mediterranean demosponge *Tethya citrina* (Sarà and Melone) was induced, using ten parent sponges. Then the differentiation of the choanocyte chambers, a feature that expresses the functionality of a newly produced sponge, was monitored. In addition, the adhesive properties of the induced buds were tested using artificial substrates. Our results proved that in *T. citrina*, the budding process is induced by an increase of the water temperature of about seven degrees, without any further manipulation. Buds are functional within five weeks after their release and are able to adhere to the artificial substrate. Thus, the budding induction can promisingly contribute to solve the seed supply problem, and at the same time to mitigate the environmental impact of wild sponge collection for aquaculture purposes.*

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² Ibid.

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