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Chemical characterization of saponins contained in the body wall and the Cuvierian tubules of the sea cucumber *Holothuria (Platyperona) sanctori* (Delle Chiaje, 1823)



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ABSTRACT

Holothuria (Platyperona) sanctori is a common sea cucumber of the Mediterranean Sea. Although its ecology and molecular phylogeny have been investigated in previous works, nothing is known about its saponin content, contrarily to other Mediterranean holothuroids. Saponins are bioactive triterpene glycosides that present interesting pharmacological/biological properties, and which can be used as taxonomic markers. This work highlights the different saponins produced by *H. sanctori*. Mass spectrometry (MALDI-MS and MS/MS) analyses highlighted a total of 18 different saponins, including eight new congeners. Presumptive molecular structures are proposed for all these molecules. A higher diversity of saponins is found in the body wall (12) than in the Cuvierian tubules (8). In addition to this qualitative difference, saponins were also 2–3 fold more concentrated in the Cuvierian tubules than in the integument. Our results demonstrate that *H. sanctori*, in accordance with its phylogenetic position, is the second species of *Holothuria* described to date possessing exclusively non-sulfated saponins. The species presents its own mix of saponins, acting as a true chemical signature.

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