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New steroids isolated from the marine sponge *Acanthodendrilla* sp.

Margarida Costa[a], Rogelio Fernández[b] , Marta Pérez[b], Margrét Thorsteinsdottir[a]

[a]Faculty of Pharmaceutical Sciences, University of Iceland, Hofsvallagata 53, IS 107 Reykjavik, Iceland

[b]Research & Development Department, PharmaMar S.A., Pol. Ind. La Mina Norte, Avda. de los Reyes 1, 28770 Colmenar Viejo (Madrid), Spain

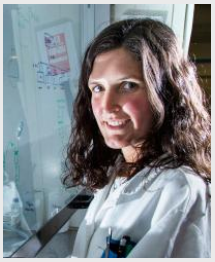
Abstract

Marine sponges are very simple sessile and filter-feeders animals; they remain as the oldest existent metazoan phylum. But besides their simplicity, marine sponges have shown, since the early 1950´s, to be a prolific source for the discovery and development of new drugs. Thousands of natural compounds, revealing a huge chemical diversity, were isolated from these organisms and a plethora of bioactivities were described, emphasizing their possible biotechnological and pharmaceutical applications. *Acanthodendrilla* is a relatively new genus, reported for the first time in 1995, on which only 2 species are described yet. Probably for those reasons, *Acanthodendrilla* is, chemically, not fully explored and the amount and diversity of the reported compounds is not as high as from other genera.

In this study, a sponge specimen was collected in Pulau, Indonesia, and morphologically identified as an *Acanthodendrilla* sp.. The sponge was submitted to an organic extraction followed by a liquid/liquid separation, and the moderately polar fraction revealed to contain two non-described new natural compounds. The faction was then submitted to a preparative/semi-preparative HPLC series for isolation of the compounds. Both structures were unambiguously established by 1D and 2D NMR and MS spectroscopy as two new carboxysteroids. A comparison with the published literature allowed characterizing them as agosterol congeners, a class of compounds that had been previously isolated from *Acanthodendrilla* genus. The compounds were tested for their anticancer activity on four different cancer cell lines, but the LC_{50} was found to be higher than 1 µg/mL and the compounds considered as non-active.

Biography

Margarida Costa has a bachelor degree in Biochemistry and a master in Environmental Toxicology and Contamination. She started working as a research technician in Interdisciplinary Centre of Marine and Environmental Research of the University of Porto (Portugal), in a project accessing the bioactive potential of marine cyanobacteria isolated from the Portuguese coast. At the moment, she is finalizing her PhD, studying marine sponge secondary metabolites and their possible bioactivities. The project is integrated in the Marie Curie action project, BluePharmTrain, at the Faculty of Pharmaceutical Sciences - University of Iceland. She did an internship at PharrmaMar (Madrid, Spain), another partner in the BluePharmTrain project, where she was able to learn more about marine chemistry and also access their sample collection.



email id: costa.anamarg@gmail.com

Mobile: +354-6591222