

Isolation of a New Epidioxy Sterol with antituberculosis activity and Sepesteonol from the Marine Sponge *Aplysina gerardogreeni* (Demospongiae).

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A new sterol peroxide, 5 α ,8 α -epidioxy-24R,25S-27a-homocampest-6-en-3 β -ol, (**1**, **Cordobol**) and sepesteonol (**2**) were isolated from the marine sponge *Aplysina gerardogreeni* collected in the Sea of Cortés, Mexico. The steroidal skeleton and the side-chain of **1** were identified as those of aplysterol by NMR, EIMS, and HRESMS. The structure of the sepesteonol was established by comparison with the published data. The antimycobacterial activity of the new sterol peroxide was assayed in vitro using the Alamar Blue Microplate Method. The Minimum Inhibitory Concentration (MIC) against *Mycobacterium tuberculosis* H37Rv strain and a clinical isolate that is resistant to all five first-line antituberculosis drugs (Streptomycin, Isoniazid, Rifampin, Ethambutol, and Pyrazinamide) was determined. The MIC values were 13.13 μ g/mL for the H37Rv strain and 26.25 μ g/mL for the clinical isolate. Sepesteonol showed, by the bioautography assay, activity against *Bacillus subtilis*.

Keywords: Antimycobacterial, marine sterols, *Aplysina gerardogreeni*

Marine organisms are the source of numerous sterols and their oxygenated analogs [1]. The 5 α , 8 α -epidioxy sterols have been found in tunicates [2], sea anemones [3], ascidians, lower terrestrial organisms [4], and marine sponges [5, 6, 7]. Epidioxysterols have been reported to possess antimycobacterial activity [8], antifungal and antibacterial activities [9], and cytotoxicity against cancer cells [7, 10, 11].

As part of an evaluation of bioactive compounds from Mexican marine organisms, our attention was drawn to the sponge *Aplysina*

gerardogreeni, Gómez and Bakus (Porifera; Demospongia) [12] which resulted in the isolation and characterization of isoxazole alkaloids including the novel calafianin [13].

Tuberculosis is considered the most important transmissible disease because of its prevalence and mortality [14]. There are 30 million people who have the disease [15]. This is partially caused by the increase of multidrug resistant *Mycobacterium tuberculosis* strains (the main causal agent of tuberculosis) [16]. First- and second-line antituberculosis drugs are relatively