

# Investigation Of Secondary Metabolites from the Antarctic Sponge *Dendrilla Membranosa* – Isolation, Chemical Modifications, and Biological Evaluation.

BORY Alexandre

Master in Chemistry

**ABSTRACT:** Antarctic sponge *Dendrilla membranosa* is known to possess some interesting chemistry and previous work has already been done<sup>1-3</sup>. Thus, secondary metabolites originating from this particular sponge were isolated and their biological evaluation gave encouraging results. In this study, we started with a considerably larger amount of freeze-dried material and aimed to isolate several compounds. Purification techniques generated pure extracts and numerous structures were identified by extensive NMR spectroscopy methods as well as the use of mass spectrometry. Two were known but have never been described in *Dendrilla membranosa* before, both belonging to the glaciolan skeleton class. Membranoid G, a natural product, was never described before and only its diastereoisomer was published as a semisynthetic derivative of aplysulphurin<sup>4</sup>. Moreover, a new norditerpene compound was isolated and its structure is reported in the present work. Chemical modifications of abundant secondary metabolites gave a terpenoid library suitable for SAR study. All the identified compounds, either isolated from the sponge or resulting from chemical modifications of a naturally occurring precursor, were then submitted to biological evaluation. In total, 15 compounds were evaluated against a variety of bioassays targeting activity against MRSA biofilms, Malaria, and Leishmania. Promising results are discussed in this work and attest the great importance of Marine Natural Product in drug discovery campaigns.

Prof. C. Bochet