SL- 235

Track: Anti Infectives

ANTIBACTERIAL POLYKETIDE FROM THE MARINE ALGA-DERIVED ENDOPHITIC *STREPTOMYCES SUNDARBANSENSIS*: A STUDY ON HYDROXYPYRONE TAUTOMERISM

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Polyketide **13** [=2-hydroxy-5-((6-hydroxy-4-oxo-4H-pyran-2-yl)methyl)-2-propylchroman-4-one] and three related known compounds **7, 9** and **11** were obtained and structurally characterized from *Streptomyces sundarbansensis* strain, an endophytic actinomycete isolated from the Algerian marine brown algae *Fucus* sp. Compound **13** was obtained as the major metabolite from optimized culture conditions, by using Agar state fermentation. Due to tautomeric equilibrium, Compound **13** in CD_3OD solution was able to incorporate five deuterium atoms, as deduced by NMR and ESI-MS/MS analysis. The 2-hydroxy-γ-pyrone form was established for these metabolites based on the comparison of their experimental IR spectra with the DFT calculated ones, for both the corresponding 4-hydroxy-α-pyrone and 2-hydroxy-γ-pyrone forms. During antibacterial evaluation, compound **13** stood out as the most active of the series, showing a selective activity against the Gram positive pathogenic methicillin-resistant *S. aureus* (MRSA, MIC = 6 µM), with a bacteriostatic effect.

Keywords: Marine *Streptomyces,* antibacterial activity, ensity functional calculations, hydroxypyrone tautomerism.