

# Isolation, selective screening, identification and metabolic profile study of the endophytic marine actinomycete strain *Streptomyces sundarbansensis* WR1L1S8

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Although strongly studied, actinomycetes continue to prove themselves as reliable sources of new bioactive compounds. During the last decade, research was oriented towards the study of marine origin actinomycetes strains in order to identify new bioactive molecules for the treatment of infections caused by MRSA.

The main objective through this study was to evaluate the metabolic potential of *Actinomycetales* strains isolated from two marine algae species *Fucus* sp. and *Ulva lactuca* as well as marine sediments in the region of Bejaia (North East of Algeria). The use of selective five different culture media resulted in the isolation of 22 isolates. Preliminary screening based on the antibacterial activity of the strains against some pathogenic bacteria, led to the selection of an efficient strain denoted WR1L1S8. The combination of morphological, chemotaxonomic, physiological and molecular parameters via the sequencing of the 16S rDNA, revealed its relationship to the species *Streptomyces sundarbansensis*. In addition, the selected strain was subject to the production of these bioactive secondary metabolites on SCA medium previously optimized and an analysis of the metabolic profile of the crude extract by HPLC-DAD-ELSD coupled with mass spectrometry (ESI-MS). This analysis helped to highlight, first, the presence of polyketides of phaeochromycines group, isolated for the first time from the species *Streptomyces sundarbansensis*, but also the influence of culture conditions (culture medium, concentration seawater, pH) on their production. It was thus possible to isolate a novel compound having an anti MRSA activity confirmed by the use of pure compounds previously isolated and structurally characterized.

**Keywords:** Endophytic actinomycetes, Marine actinomycetes, *Streptomyces sundarbansensis*, Polyketides, Phaeochromycines, HPLC-DAD-ELSD/ESI-MS.