Identification and partial characterization of an antibiotic from *Streptomyces paucisporogenes*

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Streptomyces, Antibiótics, secondary metabolites.

Introduction. Indiscriminate use and incorrect use of antibiotics has led some resistant strains, which forces to search new molecules that could fight these pathogens. The genus *Streptomyces* is responsible for at least 10,000 bioactive molecules of industrial interest and research (1). This work reports an aminoglycoside antibiotic produced by *Streptomyces paucisporogenes*.(2,3,4).

Methods. Different species of *Streptomyces* were assayed from a collection of soil samples collected around the world. Growth inhibitory activity of phytopathogenic and non phytopathogenic bacteria was determined. The active ingredient was obtained by liquid-liquid extraction with organic solvents. The active fraction was tested by infrared spectrum (dilution 2mg/ml), HPLC-ESI chromatography (mobile phase MeOH / water 55/45 Flow 0.2 mL / min) and HNMR (resonance spectra hydrogen nuclear magnetic dissolved in pyridine at 25 ° C).

Results. Growth inhibitory activity was detected in 3 of 9 different species within the genus *Streptomyces* (Figure 1). Results are summarized in Table 1. The active substance was extracted with dichloromethane and ethyl acetate and separated by thin layer chromatography to identify other elements that were extracted. Washings and purifications were performed for IR, HNMR and HPLC-ESI.

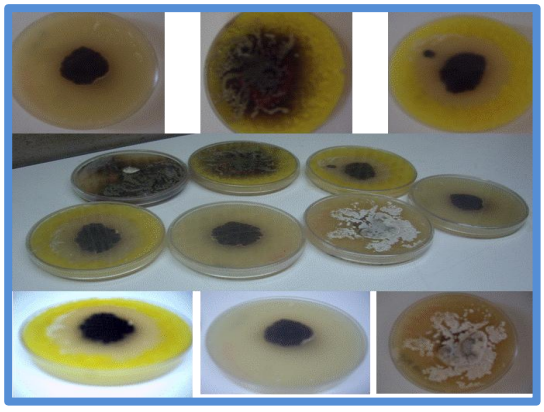

Figure 1. Halos of inhibition produced by *S. paucisporogenes* against *Xanthomonas sp* and *B. subtilis*.

cepa	B. subtillis	P. aureofaciens	P. florescens	Ralstonia sp.	P. syringae	Xanthomonas sp.
S. badius	no	no	no	no	no	no
S. platensis	si	parcial	no	no	parcial	si
S. paucisporogenes	si	no	parcial	no	parcial	si
S. espectabilis	si	si	parcial	no	parcial	si
S. lividans tk 24	no	no	no	no	no	no
S. violaciusniger	no	no	no	no	no	no
S. flavo	no	no	no	no	no	no
S. flavoviridis	no	no	no	no	no	no
S. gedanensis	no	no	no	no	no	no

Table 1. Bioassay of *Streptomyces* species in MS agar plate. Where si = inhibition of growth. No = no activity. Partial = partial inhibition.

a) b)

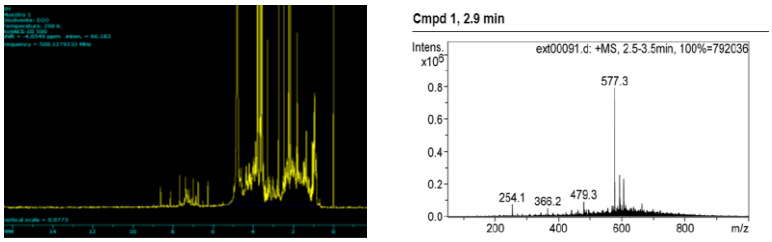

Figure 2. a) Nuclear magnetic resonance spectra of hydrogen dissolved in pyridine at 25 °C. b) Chromatography HPLC-ESI.

Conclusions. A new antibiotic producer was found. It was identified as *Streptomyces paucisporogenes*.
The IR spectrum shows a molecule with characteristics of aminoglycoside.
The analysis of HPLC-ESI mass indicates that the compound has a molecular weight of 577 or 596 g / mol, and HNMR showed the presence of 2 or more compounds in the sample, so for full characterization requires further purification.

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