Isolation and partial characterization of antimicrobial compounds from a new strain *Streptomyces sp.* CN207.

Nedra Slama [1], Hadeer Lazim [1], Insaf Barkallah [1] and Fèrid Limam [2]

(1) Unité de Microbiologie et biologie moléculaire. Centre National des Sciences et Technologies Nucléaires de Sidi Thabet, 2020 Technopôle de Sidi Thabet, Tunisie. (2) Laboratoire Interactions Légumineuses-Microorganismes, Centre de Biotechnologie de Borj Cedria, BP910-2050 Hammam-Lif, Tunisie.
E-mail: nedracnstn@yahoo.fr

Abstract:

A distinct Streptomycetes strains were isolated from Tunisian soil. The isolate designated CN207, was assigned to the genus *Streptomyces* on the basis of morphological and chemotaxonomic criteria. A 16S rDNA sequence of the isolate was determined. *Streptomyces sp* CN207 secreted large amount antibiotic against Gram positive bacteria, gram negative bacteria, yeast and fungi on his barley (HB) medium. HB medium was found to be suitable substrate of the medium for CN207 production. Maximum yield of CN207 product (700 mg/ml) after optimize fermentation process. Bioactive molecules from strain CN207 were extracted with ethyl acetate and analyzed by PTLC using silica gel plates. The separated compounds were visualized under UV at 254 nm and the active spots were detected by bioautography on silica gel plates using *Salmonella thyphimurium* NRRL B4420 and *Staphylococcus aureus* CDC 103 as indicator microorganisms.

The crude extract (8.36 g) was fractionated on Sep-pack® column (C18 cartridge) and elution was performed using a discontinue gradient of methanol-water. Two active fractions eluted by 20% and 40% of methanol were obtained. The bioactive compounds were separated by preparative high performance liquid chromatography (HPLC) on a C18 reversed phase column and eluted with a linear gradient of acetonitrile-water in presence of 0.1% formic acid. The peaks were collected separately, concentrated and bioassayed against the routine indicator microorganisms.

The absorption spectrum of the active molecules was determined with a Shimadzu UV-160 A spectrophotometer. Determination of the chemical structure of these compounds on the basis on their IR, COSY and ^{1}H/ ^{13}C NMR is in progress.