

3rd International Congress on

Bacteriology and Infectious Diseases

August 04-06, 2015 Valencia, Spain

Antibacterial properties of new bacterium isolated from date palm leaves affected by the brittle leaf disease

Mouna Jrad¹, Ben choba Ines¹, Ben BachaAbir^{1,2}, Drira Nourredine and Gharsallah Néji¹

¹University of Sfax, Tunisia

²King Saud University, Saudi Arabia

An actinomycete strain was isolated from date palm leaves affected by brittle leaf disease. The strain was classified as a new bacterium, an endophytic strain. Identification was based primarily on the morphological characteristics. This strain was grown on a medium rich tryptic soy broth (TSB) with K_2HPO_4 (1 mM) and $MgSO_4 \cdot 7H_2O$ (2 mM) at 28°C and neutral pH. It is a Gram-positive filamentous bacterium with broad spectrum antimicrobial activity. The optimum pH for the product was 7 to 7.4. The highest product yield was with glucose and tryptone at 1 % (w/v) as carbon and nitrogen sources, respectively. Incubation between 25°C and 30°C for 24 hours was optimal for the bioactive metabolites production. The product remained stable up to 50 hours. The bioactive metabolites produced by endophytic bacteria was partially purified and studied for antibacterial characteristics using the wells technique. Analysis by bio-autography and gas chromatography/mass spectroscopy (GC/MS) of the supernatant from precipitation with 100% ammonium sulphate indicated that the strain produced a high percentage of fatty acid. Additionally, a cyclic compound could be involved in the antibacterial activity. After silica plate scraping, bioactivity disappeared at 70°C. Bioactive molecules may be involved in the brittle leaf disease because its product by a strain isolated from date palm leaves affected by the brittle leaf disease enough. In addition, this endophytic has been a best lipolytic activity and produces a lipidic biomolecules, this results explain the implication of metabolites in the brittle leaf disease. Finally, determination of MIC and MBC of bioactive molecules against Strains (*Bt*, *Bs*).

Biography

Mouna Jrad from Laboratory of Plant Biotechnology Applied to Crop Improvement, Faculty of Science of Sfax. University of Sfax, Sfax 3038, Tunisia.

jradmouna@yahoo.com

Notes: