DETECTION OF L-ASPARAGINASE IN *SACCHAROMONOSPORA* SPECIES ISOLATED FROM HYPERSALINE ENVIRONMENTS IN MEXICO

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L- Asparaginase, Saccharomonospora, hypersaline environments

Introduction. The enzyme L-asparaginase is a chemotherapy agent used in the treatment of acute lymphoblastic leukaemia; the main sources of production are the Enterobacteria; *Escherichia coli* and *Erwinia carotovora*. Recently, evidence has been found for L-asparaginase activity in species of Actinobacteria such as *Streptomyces* spp. (1), *S. gulbargensis, S. noursei* (2) *S. parvulus* (3), *S. aureofasciculus, S. hawaiiensis, S. olivoviridis, S. canus, S. orientalis, S. chattanoogenesis, Amycolaptosis spp*. (4) and *Nocardia levis* (5). Halophilic actinobacteria represent a small group of microorganisms characterized by the ability to produce metabolites resistant to extreme salinity conditions.

In this work, a collection of halophilic actinobacteria strains was screened for the qualitative and cuantitative detection of L-asparaginase activity.

Methods. Enzyme activity was evaluated in 30 halophilic *Saccharomonospora* strains isolated from hypersaline environments in Mexico by the detection of ammonia, a by-product from the conversion of L-asparagine. Determination of L-asparaginase (endogenous and exogenous) was based on the detection of ammonia, consisting of adding Nessler reagent to the sample. 10 strains were selected to be genetically identified by gene sequencing analysis rRNA16S.

Results. 29 out of 30 strains showed enzymatic L-asparaginase activity. For the 29 positive strains, the values obtained for ammonia production from L-asparagine in the direct quantitative method were found in the range of 0.97 to 2.13 µg ammonia/mL. Genetic identification of 10 of the 22 halophilic actinobacteria strains showed similarity with Saccharomonospora xinjiangensis (98%) and Saccharomonospora halophila (99%).

Conclusions. The vast majority of halophilic actinobacteria strains in our collection were able to produce L-asparaginase. All determined strains belonged to genus *Saccharomonospora*, which may postulate to members of this genus as important alternative source for production of L-asparaginase.

Acknowledgements. This work was supported by the Secretaría de Investigación y Estudios Avanzados de la UAEM.

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