IDENTIFICATION OF CELLULASE GENES IN FUNGI ISOLATED FROM THERMAL SPRINGS LOCATED IN THE STATE OF CHIHUAHUA, MEXICO.

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Introduction. There is few studies on the diversity of microorganisms in the eyes of water emerging through the desert areas. The Chihuahua desert, one of the largest in the world, presents addition thermal water eyes, which may select endemic species. The aim of this work is to analyze, by culture methods, the community fungal and his diversity present in the thermal waters of Ojo de Dolores Jimenez in Chihuahua, Mexico.
At present the search for microorganisms producing cellulolytic enzymes is of great importance for the development of new technology involving the use of cellulose as a raw material to be treated.

Methods. In this work the samples are collected from five sampling areas designated in the study area, of which three are springs originate where the thermal water of the place, the fourth place is a central point between the three previous springs, for Finally, the fifth, is a remote area of the above which designated as border zone. Of the samples obtained of water are seeded in triplicate culture medium Potato Dextrose Agar, Agar Sabouraud glucose, Agar-water and incubated at 40 ° C. Once having isolated fungal strains were performed the extraction of DNA using the technique of Hoffman and Winston (1987). And they were used for PCR amplification of the region D1-D2 of larger ribosomal subunit, ITS and 18S subunit. The amplified were sent to sequencing and analyzed to identification. The CBHII were used to amplify cellulose genes as been reported by Corinne et al 1994. In addition physicochemical analysis of water was made.

Results. The average temperature of water in the springs is 37°C, and the water samples had a high concentration of sulphur compounds, ammoniacal nitrogen and arsenic. Twenty one strains were isolated and amplified nine of isolates are corresponding with the order Hypocreales, seven with the order Pleosporales and five with order Eurotiales. On the other hand only one strain has present the cellulose gen, this strain is related with the family *Acarosporaceae* and especially the genus *Acarospora* (Fig. 1).

Fig.1. Fungus strain isolated present in the thermal waters of Ojo de Dolores Jimenez.

Conclusions. As a conclusion, the isolation seems to indicate that there is a selection with respect to the organisms present, maybe due to the water-physicochemical characteristics that could confirm with more studies at different levels. The prospects for application of these enzymes are very wide because the hydrolysis product is glucose which may be used in different fermentation processes or as food, in addition to these enzymes can play an important role in the resolution of the ecological problems and treatment of problems of cellulolytic material, that is to say a great interest in using the cellulose waste as nutrient substances in fermentation processes, allowing convert raw materials very reduced cost high value products.

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