TITLE: BIOPROSPECTION OF alkB GENE IN BACTERIA ISOLATED FROM CAVE SAMPLES

AUTHORS: MARQUES, E.L.S.[1], DIAS, J.C.T.[1] , PIROVANI, C.P.[1], REZENDE, R.P.[1]

INSTITUTION: [1] UESC – UNIVERSIDADE ESTADUAL DE SANTA CRUZ (RODOVIA JORGE AMADO KM 16 CEP 45662-900 ILHEUS-BA, BRAZIL)

ABSTRACT:

Caves are isolated environment that the main contact with surface are from the entrance. However, some caves have huge amount of water dripping inside them. These water percolate in the rock from the surface and could carry several nutrients. Among them, alkanes from partial degradation of lignin or other composts could be transported inside the cave. These compounds could be an important source of energy in a starve environment. The present work aimed to prospect alkB gene in bacteria isolated from drip water and saturated sediment from two caves. Studied caves were Furna do Fim do Morro do Parafuso (FFMP, 10º38'25.89''S, 37º52'04.13''W) and Gruta do Bom Pastor (GBP, 10º39'05.99''S, 37º55'26.87''W), both caves are located in Paripiranga, Bahia. Bacteria were isolated in tryptic soy agar and 1% soil/drip water medium. One bacteria for each morphotype in each sample and medium was isolated. DNA were extracted for each bacteria isolated and PCR using specific primers for alkB gene were performed. Positive amplification for 600 pb amplicons were sequenced the alkB and 16S rDNA genes. 46 bacteria were isolated in these two media. But only three of them presented the gene. All positive isolates were from FFMP. One isolated were from drip water sample and medium, one from sediment with TSA medium and one from sediment using 1% soil medium. Sequencing of alkB primers amplicons showed all isolated associated with *Acinetobacter* alkane 1-monooxygenase. Similar results were observed in the 16S rDNA gene sequences. Despite all positive isolates were related with *Acinetobacter*, differences in sequences indicated that sediment bacteria obtained in TSA and soil medium aren't the same. The presence of alkB gene in caves gives an alternative source of carbon and energy from microorganism that inhabit caves improving the understanding of life in this environment and it could provide new source of bacteria for bioremediation.

Keywords: alkane monooxygenase, bacteria, caves

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