ISOLATION OF *Aspergillus terreus* AND QUANTIFICATION OF LOVASTATIN PRODUCED BY SOLID STATE FERMENTATION

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Introduction. Lovastatin belongs to a group of secondary metabolites of fungal origin called statins. Today, various statins may be obtained using a wide range of microorganisms such as filamentous fungi. Lovastatin is mainly obtained in cultures of *Aspergillus terreus*, which is a filamentous fungus of the genus *Aspergillus*, which has a large industrial utility (1). Lovastatin is capable of inhibiting the growth of methanogenic bacteria present in the rumen, blocking the mevalonate synthesis by suppressing the activity of HMG-CoA reductase (Hydroxymethylglutaryl-CoA reductase) and thus block the production of methane gas (3). Besides having an important use in ruminants, lovastatin has the ability to inhibit the endogenous synthesis of cholesterol in humans, The above is performed also by inhibiting the enzyme HMG-CoA reductase, a rate-limiting enzyme for cholesterol biosynthesis (2, 4).
The main objective of this work was to isolate and characterize *Aspergillus terreus* and characterize the lovastatin content produced in culture for later use in ruminants.

Methods. The fungus used were isolated from fungal cultures from monitoring in different UACH libraries by the Mycology Laboratory of the Facultad de Ciencias Químcias of the UACH. A suspension of spores was prepared by washing petri dish (potato dextrose agar, PDA) cultures with a sterile aqueous solution of 0.1% Tween 80. Conditions were evaluated for the production of lovastatin by *Aspergillus terreus* and a solid state fermentation system was implemented on an inert support (polyurethane foam) using as production medium the medium 2x (1). This system was incubated for 8 days at 25 ° C. After fermentation time the lovastatin was extracted with Acetonitrile and water (1:1). Work is currently in the quantification of lovastatin by bioassay against *Candida albicans*.

Results. Using the phenotypic analysis of the colonies present in fungal cultures were identified and isolated from two different strains of *Aspergillus terreus* which were called BUACH1 (Figure 1) and BUACH2 (Figure 2). In PDA agar was observed the following morphology: colonies are typically suede-like and cinnamon-buff to sand brown in color with a yellow to deep dirty brown reverse. Conidial heads are compact, columnar and biseriate. Conidiophores are hyaline and smooth-walled. Conidia are globose to ellipsoidal, hyaline to slightly yellow and smooth-walled. Furthermore, lovastatin extract was obtained from a solid culture and was stored at 4 ° C for later quantification.

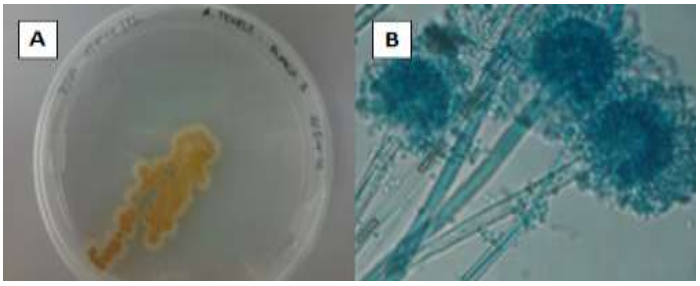

Fig.1 *Aspergillus terreus* BUACH1. A. Macroscopic morphology. B. Microscopic morphology.

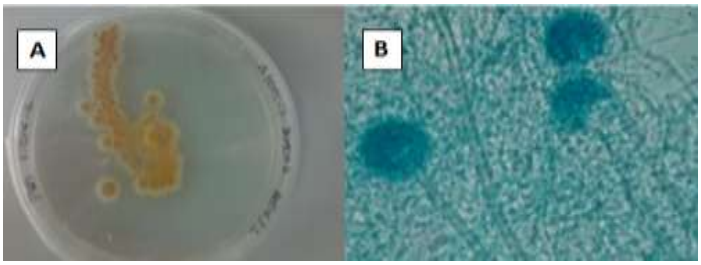

Fig.2 *Aspergillus terreus* BUACH2. A. Macroscopic morphology. B. Microscopic morphology.

Conclusions. *Aspergillus terreus* is a filament fungus that can be easily isolated of the air and is also producer of many secondary metabolites as lovastatin.
The solid fermentation using as inert support cubes of polyurethane foam (PUF) is a good system for the production of lovastatin.

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