TITLE: ANALYSIS OF BIOTECNOLOGICAL POTENCIAL FROM *Mycobacterium* SPP. ISOLATES

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ABASTRACT:

Nontuberculous Mycobacteria (NTM) are common inhabitants of several environments shared with humans, like soil, lakes, swamps and water treatment and distribution systems; these being possible sources of contamination. Besides being opportunistic pathogens, these microorganisms help to rise the concern in biotechnological field since some isolates were described as having the hability to degrade xenobiotic substances derived from petroleum and also having the genes that codes for cellulases. In the industrial field, the usage of enzymes obtained from bacterial metabolism is of great interest for the production and increase in yield of products such as foods, beverages and cleaning products. In this context, plus the fact that Mycobacterium genus is not currently well explored in its industrial potentials, this work aims at the molecular identification and degradation capacity of carboxymethylcellulose (CMC) polymers, starch and pectin from 27 mycobacterial isolates coming from an aquatic environment. The isolates identification was performed by sequencing the genes hsp65, rpoBV and 16S *r*RNA and the phenotypical analysis of the degradation of polymers was carried out in a growing media, separately supplemented with each one of the carbon sources. The gene sequencing results divided the isolates into two groups, with five of them identified as *M. austroafricanum*/*M. vanbaalenii* and 22 belonging to the M. terrae complex. All isolates of *M. austroafricanum*/*M. vanbaalenii* showed degrading capacity for pectin, while two of them also degraded starch. For the 22 isolates from M. terrae complex, only five were capable of degrading pectin. None of the isolates showed cellulolytic activity in the analysed conditions. The results suggests that the isolates possess a potential for biotechnological applications. Other biochemical analyses are being performed to confirm specific enzymatic activity.

KEYWORDS: NONTUBERCULOUS MYCOBACTERIA, PECTIN, STARCH, BIOTECHNOLOGY.

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