

Título: CULTIVATION OF THAUMARCHAEOTA FROM CERRADO *SENSU STRICTO* SOIL

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Resumo:

The difficulty in obtaining *in vitro* cultures of environmental microorganisms is a well-known issue, and until now only a small fraction of their diversity is represented by cultivated species. The development and extensive use of molecular techniques have improved microbial ecology and phylogenetic studies, allowing microbiologists to identify and analyze microbial diversity directly from environmental samples. However, obtaining laboratorial cultures of microorganisms is still indispensable for understanding their biology and biotechnological potential. So far, few *Archaea* species have been obtained in pure cultures, but most of them correspond to species retrieved from extreme environments. On the other hand, the biology of mesophilic archaea is still poorly understood, since only a few pure cultures is available (with exception of methanogenic archaea). In this sense, the aim of this study was to obtain archaeal *in vitro* cultures from Cerrado soils, in order to better characterize them. Soil samples, collected in a Cerrado *sensu stricto* area of the Ecological Reserve of IBGE, were used to prepare culture media and as the initial inoculum. Different antimicrobial agents were added to the media in order to select archaea. All cultures were maintained at 28°C, with periodic transfers to fresh media. After approximately six months, different colonies were selected and submitted to DNA extraction and PCR assays were conducted with primers directed do the 16S rRNA genes of *Archaea* and *Bacteria*. DNA fragments were obtained for both primer sets, suggesting the occurrence of a co-culture of *Archaea* and *Bacteria*. The amplicons were submitted to automatic DNA sequencing and two of them revealed the presence of a bacterium of the genus *Novosphingobium*, known for its broad resistance to antibiotics, and an archaeum affiliated to I.1c group of Thaumarchaeota, a group that have been detected in acidic soils and that does not have any cultured representative described so far. These results could bring new insights of the metabolism, physiology and ecological role of I.1c thaumarchaeotes. Further attempts are under progress in order to obtain a pure culture of this *Archaea*, since this will result in a better biological characterization of this organism.

Palavras-chave: Archaea, Thaumarchaeota, *in vitro* Cultivation, Cerrado soil

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