

## COMPARATIVE STUDY OF PRODUCTION OF FUMARPROTOCETRARIC ACID FROM *CLADONIA VERTICILLARIS* (LICHEN) THROUGH DIFFERENT SYSTEMS OF CELL IMMOBILIZATION

Amaral<sup>1,2</sup>, F. M.; Silva<sup>2</sup>, N. H. da; Melo<sup>2,3</sup>, P.; Pereira<sup>3</sup>, E. C.; Silva, M.P.C.<sup>2</sup>.

<sup>1</sup>Universidade de Pernambuco, <sup>2</sup>Departamento de Bioquímica, <sup>3</sup>Departamento de Ciências Geográficas / CFCH. Universidade Federal de Pernambuco, Recife – PE.

Bioreactors with immobilized lichen cells were added to kaolinite and supplied with precursor sodium acetate (0.1; 1.0 and 10.0 mM). The samples were kept in systems in a rotator plate, or in continued flow, or the fix system (traditional). Aliquots were subtracted and acetate solution was added to maintain the same volume. Each fraction was extracted with organic solvents, analyzed by spectrophotometer and TLC. The results showed that the precursor at 0.1mM induced the cells to a highest productivity in both tested systems. The cells maintained in the bioreactor with movement showed production 100% superior to the fix system and continued flow. Atranorin (ART) was produced in highest amount than the FUM. This is a good result, since that ATR is a potent ant-inflammatory and shows no toxicity. Additional registered spots can be hypoprotocetraric (HYPO) acid and its aldehyde. These substances are intermediary in FUM biosynthesis and occur inside *C. verticillaris* thallus, but in low amount. Their detection in TLC assays can indicate an accumulation, due to the difficulty of FUM synthesis by a probably disruption of symbionts during the cell extraction procedures.

**Supported by** CNPq

**Key words:** *Cladonia verticillaris*, cell immobilization, fumarprotocetraric acid, atranorin