

TITLE: DETECTION OF MICROORGANISMS PRODUCING SURFACE ACTIVE COMPOUNDS IN MANGROVE SEDIMENTS IN MARANHÃO

AUTHORS: RIBEIRO. W. N; FRANÇA.E.B.; BATISTA.N.P; MONTEIRO.J.M.; FERREIRA.R.M; ARAUJO.J.M; MONTEIRO. A.S.

INSTITUTION: UNIVERSIDADE CEUMA, SÃO LUÍS, MA (AV. SÃO LUÍS REI DE FRANÇA, 50 - TURU, CEP , 65065-470, SÃO LUÍS – MA, BRAZIL)

ABSTRACT:The mangrove regions present a zone of transition of sediments originating from the continent toward the ocean favoring their rapid cycling associated with their high concentration of microorganisms, as well as the vulnerability and fragility of the anthropogenic actions. The objective of this study was to evaluate the capacity of the microbiota in mangrove sediments of the Anil river, in the city of. For the production of surface active compounds (CASs). The sediment samples were collected according to the methodology of EMBRAPA, being inoculated in minimal mineral medium plus sunflower oil and 3% kerosene as the only source of carbon. After being harvested in Tryptone Soy Agar, after 8 days incubation in the shaker at 32°C and 140 rpm, different morphotypes of culture media containing sunflower oil and kerosene were subsequently selected. The supernatants produced from the bacterial cultures were submitted to E24 analysis, drop spreading, thermal stability / pressure and pH variation. The CAS-producing species were identified using the MALDI-QTOF MS methodology. Six and four different morphotypes of the culture media containing sunflower oil and kerosene were selected, respectively. Of these, only 5 grew and produced CAS, the species *Serratia marcescens* (2), *Ochrobactrum anthropi* (2) and *Ochrobactrum trici* (1) being identified. Isolate cultures of the isolates showed E24 values ranging from 33% to 48%. Regarding the stability of the emulsifying activity after autoclaving, an increase in E24 values from 3% to 6% was observed, as well as a 17% increase in pH variation. The results showed that microorganisms present in the mangrove ecosystems have viability for the production of CASs from carbon sources such as sunflower oil and kerosene, presenting an excellent potential to be used as emulsifying agents

Keywords: Biosurfactants, Emulsification, Estuary, Hydrocarbons, Oils

Development Agency: Laboratory of Applied Microbiology at CEUMA University