

BIOSURFACTANT FROM MARINE BACTERIA

BRIEF DESCRIPTION:

The existing conventional methods to reduce, degrade and remove the toxic substances in the environment introduced by human activities are associated with some risk. In recent years, microorganisms have proved a unique role in the degradation and detoxification of polluted water environments. Surfactants are synthetic chemicals used to separate/remove oil by emulsification process. The major disadvantages of chemical surfactants are their persistent nature, non-biodegradability and environmental toxicity. Biosurfactant is made up of a hydrophobic and hydrophilic component. The application of biosurfactants can enhance the processes of bioremediation by means of emulsification, solubilization and mobilization. Biosurfactant are environmental friendly, effective and stable compounds

PRODUCT DESCRIPTION:

Biosurfactant from marine bacteria for environmental clean-up and waste management

PROCESS:

Biosurfactants produced by microbes are amphiphilic compounds possess both hydrophobic and hydrophilic moieties that decrease the surface and interfacial tension. The present invention major process steps include.

1. Microbial strain: Biosurfactant producing bacteria *Brevibacterium* sp. COD27 isolated from the deep-sea sediment.
2. Optimization culture conditions: Optimized culture conditions (pH, temperature and salinity) for high growth and biomass yields.
3. Enrichment media: Optimized production medium (Carbon, Phosphate and Nitrogen source) in specific proportion to enhance the production rate of biosurfactant.
4. Working range: The biosurfactant is highly stable and work efficiently in wide range of physicochemical conditions.

Temperature 0-120°C; Salinity 0-10%; pH 0-14; Pressure 0-10 MPa.

5. Biosurfactant Production: *Brevibacterium* sp. COD27 novel non-GMO strain produce biosurfactant 2.2 g/l in a period of 36 hrs.
6. Storage: High barrier plastic bags filled under vacuum condition.
7. Shelf life: Retain activity up to 14 months at 40 C

SALIENT FEATURES

- Microbe derived biosurfactants have advantages over their synthetic counterparts such as biodegradable, non-toxic, highly selective, active at variable pH, temperature and salinity.
- They find wide application in industrial, agricultural, food and pharmaceutical industry.