

**TITLE:** Anti-biofilm activity of biosurfactant produced by bacteria isolated from the lotic environment.

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**ABSTRACT:**

Surfactants are one of the classes of chemical compounds that are widely used in many industrial sectors and processes. They can be synthetic or obtained from microorganisms (biosurfactants), are biodegradable, have low toxicity and have stability in extreme values of pH, temperature and salinity. One of the applications of the biosurfactant is related to the anti-biofilm potential. In biofilms, microorganisms are more resistant; the pre-conditioning of surfaces with biosurfactants can considerably reduce microbial contamination and inhibit or decrease the subsequent formation of biofilms. Starting from this concept arise techniques for the production of biosurfactant and its application on biofilms. The objective of this study was to verify the potential of the biosurfactant (Biosurfactant L22C) produced by bacteria isolated from a lotic environment, on a biofilm formed by *Pseudomonas aeruginosa* (Newprov<sup>®</sup>0053) and *Bacillus* sp. L30 (MG429814 NCBI). For the production of the biosurfactant, 108 CFU / mL of L22C bacteria were inoculated in Mineral fermentation medium. For biofilm formation by *Pseudomonas aeruginosa* and *Bacillus* sp. L30 AISI 304 stainless steel was used as support medium. The biofilm capacity of the biosurfactant was checked after ten days, with the coupons being placed in sterile Petri dishes with three different concentrations of the biosurfactant (0.5 %, 1.0 % and 1.5 %) for 30 minutes and subsequent quantification of the bacterial density using the plate surfactant technique. The results obtained in the verification of the potential of the biosurfactant 22C were promising with bacteriostatic effects on the formed biofilms, leading to the patent application, which is why it is necessary to secrete the obtained results, from the production of the bacteria isolated from the lotic environment, on biofilm formed by *Pseudomonas aeruginosa* (Newprov<sup>®</sup>0053) and *Bacillus* sp. L30 (MG429814 NCBI).

**Keywords:** Biosurfactant bacteria; Anti-biofilm; Biosurfactant potential.

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