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Despite the absence of these classic antimicrobial lipopeptides, post-ST variants showed greater antifungal activity compared to pre-ST. Through comparative genomics we were able to determine that mutations in the ComQPXA quorum sensing system, especially in mutations in the *comA* gene, represent the genetic bases of the conversion to a post-ST variant. Here, we aim to evaluate if this phenotypic change is also manifested as a product of the interaction of other *Bacillus* species with *S. terrestris*. We tested the antagonistic activity of two different species of *Bacillus*, *amyloliquefaciens* and *velezensis*, against *S. terrestris* in co-cultures. Both bacterial strains showed activity against the fungus, with a growth inhibition of 67% for *B. velezensis* (*Bve*) and 65% for *B. amyloliquefaciens* (*Bam*). We observed a change in the macroscopic aspect of the post co-culture colonies with respect to each ancestral strain. Post-ST of *Bve* and *Bam* showed structured colonies with a mixed appearance between smooth and rough. Moreover, post-ST variants of *Bve* and *Bam* showed less swarming than their ancestors never exposed to *S. terrestris* in co-culture. As these phenotypic traits remain stable over time, which resembles to what we observed for *B. subtilis* post-ST, we decided to evaluate possible mutations in the *comA* gene but we found no differences in the sequences between post co-cultures strains and their ancestors. These results indicate that if a hereditary phenotypic conversion indeed exists in *B. amyloliquefaciens* and *B. velezensis*, it would be independent of ComA unlike what has been described for the interaction between *B. subtilis* and the fungus.

BB13-DIBENZOTHIOPHENE REMOVAL AND EFFECT ON PHYSIOLOGICAL PROPERTIES OF POLYCYCLIC AROMATIC COMPOUNDS- REMOVING BACTERIA

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Polycyclic aromatic sulfur heterocycles (PASHs) are within a priority pollutant group recognized by the Environmental Protection Agency (EPA). Among PASHs compounds, approximately 70% is represented by dibenzothiophene (DBT), whose contact, ingestion or inhalation has proven to be harmful to human health. Furthermore, DBT is resistant to biodegradation in the environment due to the presence of sulphur atoms. Several bacterial species capable of degrading DBT have been reported in the literature. In order to overcome and persist in polluted environments, microorganisms have developed specialized physiological properties, such as changes in cell surface hydrophobicity (CSH), auto-aggregation (AA) ability, biofilm formation and bioemulsifying activity (EI-24). The aim of this study was to evaluate the physiological properties after DBT exposure of six polycyclic aromatic compounds-removing bacteria as well as their DBT-removing capabilities. The strains were cultured in JPP broth (stationary phase of growth, 30°C, 180 rpm, control medium) and JPP broth with 0.2 mM of DBT (JPP-DBT, 7 days, 30°C, 180 rpm). After that, the physiological properties in both media and DBT removal in JPP-DBT were evaluated. Spectrophotometric methods were used to determine CSH, AA and biofilm formation. The non-polar solvent mechanical agitation method was used to evaluate EI-24. DBT analysis was carried out by reverse phase high performance liquid chromatography. The highest CSH percentages after DBT exposure were observed in *Bacillus* sp. B18, *Rhodococcus erythropolis* 20 and *Rhodococcus jostii* 016 (70%, 84% and 64%, respectively). Only in the case of *Rhodococcus* sp. F27 an increase (1.73 times) in the AA percentage in presence of DBT was observed. *Bacillus* sp. B18, *Pseudomonas* sp. P26, and *Gordonia* sp. H19 were highlighted with the highest EI-24

values (39%, 27% and 24%, respectively) after DBT exposure. Particularly, *Pseudomonas* sp. P26 stood out for a 35-fold increase in biofilm formation in the presence of DBT together with a high DBT removal capacity (48%). The results obtained demonstrate that the microbial physiological properties evaluated represent valuable tools to optimize the microbial removal process and therefore bioremediation can be an effective alternative for DBT removal.

BB14-CHARACTERIZATION OF BIOSURFACTANTS PRODUCED BY HYDROCARBON-DEGRADING *Pseudomonas* SP. KA-08

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Hydrophobic compounds bioavailability is a key factor for their biodegradation and mobilization. Because of that, the use of surfactants was proposed as additives in Surfactant Enhanced Remediation (SER) and in Surfactant Enhanced Oil Recovery (SEOR). The use of biosurfactants instead of the synthetic ones have some environmental advantages like less toxicity and higher biodegradability, that make these biomolecules an environmentally friendly alternative. Previous studies from our group showed that *Pseudomonas* sp. KA-08 was able to secrete biosurfactants to the culture media when it grew in kerosene as sole carbon source and a crude extract surfactant (CES) could be obtained from a cell-free supernatant of these cultures. In this work we analyzed the surface tension lowering capabilities of the different compounds present in the CES and their chemical composition.
Pseudomonas sp. KA-08 was cultured in 50 ml E2 minimum medium supplemented with 10% kerosene in 500 ml capped bottles at 280 rpm and 30°C. After 7 days, cultures were centrifuged at 3500 rpm for 20 minutes, the oil phase was removed and supernatants were acidified up to pH 2 and left overnight at 4°C. Then, they were extracted thrice with half the volume of ethyl acetate and concentrated to dryness by Rotavap to obtain the CES. To calculate its critical micelle concentration (CMC) a Du Nouy ring method was used, obtaining a CMC = 670 µg/ml ± 76 µg/ml. For better characterization of the CES components, a silica gel chromatographic column (diameter: 1,50cm, length: 40cm) was performed using solvents in increasing order of polarity as elutants, in order to separate the compounds for further analysis. The elution fractions were collected, analyzed by TLC and revealed with UV light or Molisch reagent. The fractions who showed unique spots with a conserved Rf were grouped, obtaining 4 pooled fractions. Each pool was evaporated to dryness, resuspended in bidistilled water and tested by the drop-collapse method. Three of them showed a contact angle dismitution of 10° ± 3°, 18° ± 4° and 18° ± 3° respectively. The predominant one, who showed positive for Molisch reagent (glycosidic nature) was analyzed by ^{1}H and ^{13}C-NMR spectroscopy and exhibited complex spectra with aliphatic and aromatic moieties.
This work allows us to continue the chemical analysis of the compound purified and to study the potential use of the CES as a biosurfactant additive in microcosms polluted with hydrocarbons.

BB15-FURFURAL REMOVAL FROM LIQUID SYSTEMS BY ACTINOBACTERIA