



**CONGRESO  
SAIB 2022**

Resúmenes de  
Comunicaciones Orales  
y Posters

**Abstracts of  
Oral Communications  
& Posters**



**SAIB**

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y Biología Molecular



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The present work evaluated the antioxidant capacity of purple carrot extracts with low, medium, and high anthocyanin concentration in cultures of 'vascular smooth muscle cells' (VSMC) isolated from rat aorta. Angiotensin II (AngII) was used as an inducing agent of oxidative stress followed by the addition of the carrot extracts (as a potential protective agent). Negative controls with AngII but without the carrot extracts were included. To estimate oxidative stress, the level of superoxide production in the cell cultures was quantified by the cytochrome C reduction assay, as a measurement of the total content of reactive oxygen species (ROS). All the carrot extracts had protective effects on the oxidative stress of the cells, exhibiting significant ( $p < 0.001$ ) reductions of ROS levels, as compared to the negative controls. The extent of ROS reduction was directly and strongly correlated with anthocyanin concentration in the carrot extracts, high anthocyanins content reduces ROS by 84.7% relative to the AngII treatment ( $r=0.96$ ), suggesting that these flavonoid pigments have antioxidant properties and are involved in the observed protective effects. Ongoing work in our lab focuses on the gene expression underlying these effects.

These results support studies related to the nutraceutical benefits of consuming vegetables with a high content of anthocyanins.

## BT-13

### **Identification of immune systems with potential biotechnological application in bacteria of the genus *Acinetobacter***

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Bacteria and archaea are constantly exposed to the rampant invasion of phages or plasmids, generically known as mobile genetic elements (MGEs). In response, they have evolved diverse, complex defense systems that limit the intrusion of these foreign elements.

Many new types of defense systems have recently been discovered by studying the genomic 'dark matter' of defense islands using a blame-by-association approach: uncharacterized genes that commonly reside alongside genes from known phage defense systems. They often encode new defense systems. As more genomic data is deposited in sequence databases, so are renewed efforts to comprehensively identify and characterize known defense systems.

We propose to evaluate the heterogeneity of two recently developed tools: Prokaryotic Antiviral Defense LOCator (PADLOC) and DefenseFinder of in silico prediction of phage defense systems from NCBI genomes.

From a Unix command line we used the rsync program and downloaded from RefSeq release 212, 8468 genomes of bacteria of the genus *Acinetobacter*. We make the predictions locally and compare them with each other.

We believe that the integration of PADLOC and DefenseFinder is necessary since both tools are valuable for the identification and future characterization of defense systems against phages in bacteria of the genus *Acinetobacter*. No single best approach was identified. The definition of the “defense islands” on each genome will provide new regions to identify potentially new systems.

## **BT-14**

### **Biosurfactant production and characterization from Antarctic bacteria for enhancing bioremediation of hydrocarbon-contaminated soils**

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Introduction. Hydrocarbon contamination is a global problem, also affecting Antarctica. Bioremediation, particularly biostimulation, is an adequate tool for the recovery of contaminated soils. Nonetheless, a certain portion of the contaminants are recalcitrant and other strategies are required. Biosurfactant-producing strains provide the advantage of increasing the bioavailability of hydrophobic substrates such as total petroleum hydrocarbons (TPH) through the production of amphiphilic molecules -i.e., surfactants. Objective. To identify suitable Antarctic microorganisms for biosurfactant production. Characterization and quantification of the produced surfactant activity. Methods. 28 microbial strains were isolated from hydrocarbon-contaminated soils near Carlini Station (Antarctica, Argentina) and identified up to Genera using the 16S (bacteria) or 18S (for fungi) RNA genes. CTAB/Methylene Blue agar plates were used as a screening method for biosurfactant production. Growth kinetics were followed by optical density determinations at 600nm. Surfactant activity was assayed by emulsification index 24 hrs. (EI<sub>24</sub>),