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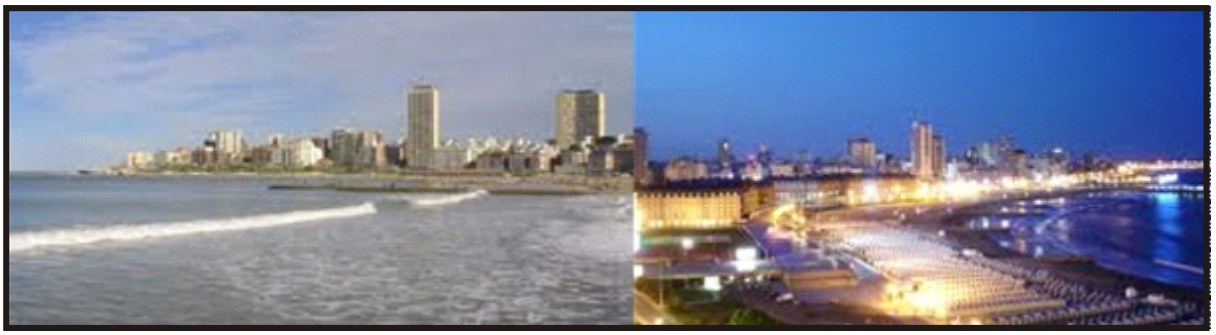

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LEVADURAS ENDOFITICAS DE CAÑA DE AZUCAR PRESENTAN ACTIVIDAD *QUORUM QUENCHING*

ENDOPHYTIC YEASTS FROM SUGARCANE EXHIBIT *QUORUM QUENCHING* ACTIVITY

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Quorum sensing (QS) are signaling mechanisms that govern morphological and physiological changes in responses to cell density increases. QS enables microorganisms to communicate via secreted signaling molecules called autoinducers. *N*-acyl homoserine lactones (AHLs) are autoinducers synthesized by several species of Gram negative bacteria. *Quorum quenching* (QQ) is a process that disrupts QS mechanisms by different ways including the enzymatic inactivation of the signal molecules.
QQ can be exploded as an alternative way for the control of Gram-negative pathogen bacteria whose pathogeny depends on QS mechanisms. QQ properties have been studied in bacteria and filamentous fungi. However, little is known about QQ in yeast. In view of this, the aim of the present work was the isolation and characterization of endophytic yeasts with QQ propertiesfrom sugarcane (*Saccharum officinarum*), a crop of high economic interest.
Isolates were obtained from samples of roots, stems and leaves of sugarcaneafter surface sterilization and plating in YM agar. Endophytic yeasts were also obtained from apoplast fluid after centrifugation of internode sections. Colonies with different morphology were selected for the characterization of QQ properties. Identification of the isolates was performed by amplification with NL1 and NL4 primers and sequencing of the D1-D2 region of the large-subunit rDNA gene. For the characterization of the QQ properties, yeasts were incubated in YM supplemented with the commercial AHLs C6-HSL, 3-oxo-C6-HSL, C8-HSL and 3-oxo-C8-HSL, C10-HSL, 3-oxo-C10-HSL, C12-HSL and 3-oxo-C12-HSL. AHLs degradation was estimated by measuring the residual levels of autoinducers in supernatants with bioassays utilizing the biosensor strains *Chromobacterium violaceum* CV026, *C. violaceum* Vir07 and *Agrobacterium tumefaciens* NT1 (pZLR4).
Nineteen endophytic yeast isolates were obtained. Sequencing of 26S rDNA showed that the strains belonged to the genera
Pichia, *Rhodotorula* and *Sporisorium*. Although under the assayed conditions all yeasts were able to degrade at least one of the comercial standards of AHLs, the strains presented a tendecy to inactivate signal molecules with a long acyl chain. However, two *Rhodotorula* strains exhibited the most outstanding behavior degrading the eight different QS molecules tested. Bioassays with samples acidified with HCl showed that the QS activity could be reestablished suggesting that a lactonase-like activity could be responsible of the AHL inactivation by *Rhodotorula* yeasts
Results presented in this work suggest that endophytic yeasts with QQ activity could modify the physiology of bacteria colonizing the same ecological niche through the inactivation of the AHL signal molecules.