Evaluating the capacity of microorganisms associated to *Magnolia dealbata* Zucc. for biological active compounds production.

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Introduction. The generation of resistance from the main pathogen bacteria and the increasing demand for treatment of chronic diseases has conducted the exploration of new resources for bioactive compounds (1). Microorganisms associated with plants have proven to be an interesting source to new bioactive compounds dicovery. Production of many secondary metabolites such as bi-phenolic compounds magnolol and honokiol has been observed in tree species form the genus *Magnolia* (2).
The aim of the present research was to find out if the associated microorganisms from *Magnolia dealbata* Zucc. could synthesize compounds of biological interest.

Methods. Microorganisms were isolated from a Mexico's endemic tree *Magnolia dealbata* Zucc. and grown on Nutrient Agar and Czapek medium at 29ºC. Phenotypically different colonies were isolated and screening test were conducted using *Micrococcus luteus*, *Bacillus subtilis*, *Escherichia coli* and *Saccharomyces cerevisiae* as test organisms. Strain 28A was selected to conduct molecular and biochemical identification trough 16S and VITEK, respectively. Characterization was done using two litter fermentations in Nutrient Broth medium containing 0.5% of glucose. The V/V extraction of medium and biomass was made with CH_2Cl_2 and AcOEt. Solvents were evaporated to dryness and used to direct antitumoral (MTT assay), antibiotic and antiparasitic tests. Surfactant production (3) of the compound/s and thermostability were also determined. Finally, isolation of siderophores was also conducted (4).

Results. We isolated 107 microorganisms, 54 bacteria and 53 fungi, from different structures of the tree *Magnolia dealbata* Zucc. Screening tests revealed 14 distinct inhibition patterns against *M. luteus*, *B. subtilis*, *E. coli* and *S. cerevisiae*. Strain 28A was selected due to its wide antibacterial activity and the MIC's are presented in Table 1. Molecular identification revealed that 28A belongs to the fluorescent group of *Pseudomonas* genus.

Table 1. Observed MIC´s from 28A supernatant and biomass extracts, compared to different antibiotics

	E.coli	*S. cerevisiae*	*M. luteus*	*B. subtilis*
Nalidixic acid	3.12	-	200	3.12
Erythromycin	50	>200	0.78	0.78
Cycloheximide	-	0.78	-	-
28A supernatant	400	100	6.25	6.25
28A biomass	>3200	>3200	12.5	6.25
Nutrient Broth	>3200	>3200	3200	3200

Extracts from this strain (100 μg/mL), showed strong cytotoxic activity against two tumoral cell lines (HeLa and keratinocyte HaCaT).
Trypanocidal activity was superior to that of geneticin (G418) (Fig. 1).
At 3.2 mg/ml, the 28A extract showed no inhibitory activity against its own growth. Additional tests revealed surfactant activity of the supernatant and thermo-stability of the bioactive compound/s. Finally, biological activiy remains even after siderophore isolation with $CuSO_4$.

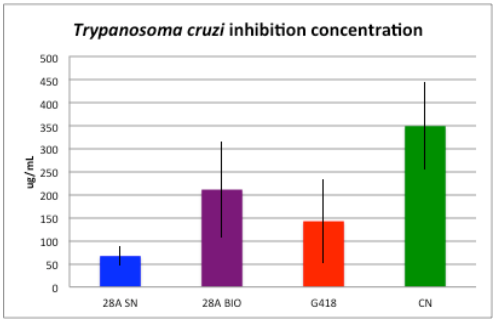

Fig 1. The concentrations required for *T. cruzi* inhibition were as follows: 67.19 and 211..55 μg/mL for supernatant and biomass extracts, respectively, and 142.8.69 μg/mL from G418.

Conclusions. A strong cytotoxic, antibiotic and parasiticide activity from supernatant extracts of *Pseudomonads* 28A is reported. These results encourage us to drive the chemical characterization of the bioactive compound/s.

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