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Nomuraea rileyi INHIBITS GROWTH AND BIOFILM FORMATION OF *Xanthomonas citri* subsp *citri*

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Nomuraea rileyi ARSEF 4094, an entomopathogenic fungus (EF) isolated from *Spodoptera frugiperda*, produces secondary metabolites (SM) that interfere with the development of infectious insects and bacteria from the insect body. It is known that the addition of insects to the fungal growth medium stimulates the production of SM. SM are known to affect bacterial growth in their planktonic and biofilm (BF) states. Therefore, the aim of this study was to evaluate the inhibitory capacity of *N. rileyi* in the presence of *S. frugiperda* on *Xanthomonas citri* subsp. *citri* (*Xcc*) growth and BF formation. This bacterium causes citrus canker, the main crop in Tucumán.

EF was cultured in SMY medium with *S. frugiperda* and incubated at 28 °C for 15 days, at 180 rpm. Fungal and insect controls with the same treatment were made. Ethyl acetate extracts from biomass and supernatant from each condition were obtained. *Xcc* growth inhibition was determined by the microdilution method at 48 h and the inhibition of BF formation was quantified by a colorimetric method. The extract from fungal-insect biomass was the most efficient in inhibiting BF formation (38%), affecting *Xcc* growth in only 15%, while the extract from fungal biomass inhibited the growth of the bacteria in 32% and only 9% the formation of BF. According to this, the presence of insects could stimulate the production of SM, which interferes with the synthesis of BF. The results showed the potential use of extracts from *N. rileyi* as a natural strategy that is environmentally acceptable for crop protection against diseases caused by pathogenic microorganisms.

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PHYTOCHEMISTRY OF WASTE FROM ANDEAN TUBERS. HISTOCHEMICAL LOCATION AND POTENTIAL ON LACTIC ACID BACTERIA

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Introduction: *Oxalis tuberosa* Mol., "papa goose" (Oxalidaceae) and *Ullucus tuberosus* Caldas, "smooth potato or melloco" (Basellaceae) are Andean tubers rich in starch, proteins and carbohydrates, among others constituents, widely used for their nutritional importance in the regional cuisine, currently revalorized. They grow between 2000 and 4000 meters above sea level in Peru, Bolivia, Colombia, Venezuela, and northern Argentina. Objective: To determine the phytochemical composition of both species by specific histochemical techniques and evaluate the action of extracts from peelings on the growth and biofilm production of lactic acid bacteria. Materials and Methods: Microscopic observations of transverse and longitudinal sections of fresh tubers from Salta province were made. Histochemical detections were performed with a solution of iodine (starches), Benedict (flavonoids), Dragendorff (alkaloids), Orange G (fats), ferric sulfate (tannins), and safranin (lignin). The screening of the different extracts was performed to evaluate the effects on growth and bacterial biofilm (600 and 540 nm) by a micromethod in liquid medium at a final concentration of 100 µg/mL against *Lactobacillus acidophilus* and *paracasei*. Results and Conclusions: The histochemical tests gave positive reactions for starches, flavonoids, alkaloids, tannins and lignin in both species. The extracts from wastes stimulated the growth and biofilm production in both bacterial species with potential health use.

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LEAF CONSTITUENTS FROM *Zuccagnia punctata*: TOXICITY ON SEEDLINGS AND THE ENDOGENOUS FUNGAL FLORA OF MAIZE GRAINS

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Leaf tincture (TZP) of *Zuccagnia punctata* Cav. (Fabaceae) and its constituents 2',4'-dihydroxychalcone (DC), 2',4'-dihydroxy-3'-methoxychalcone (DMC) and 7-hydroxy-3',4'-dimethoxyflavone (HF) suppress the growth of *Fusarium verticillioides* responsible for seedling blight in maize in microdilution assays. In this work, we evaluated the phytotoxicity and the control performance of endogenous fungal flora of the tincture and its constituents on maize grains. Horsetooth grains disinfected with NaClO 0.02% were embedded for 50 min in suspensions of TZP, DC+DMC or HF at concentrations of 20xCIM. The germination of the grains disinfected with NaClO (control), or treated with TZP or its constituents, was evaluated in the rolled towel test for 7 days at 25°C. Then, germination power (PG), and radicle and shoot length were determined. The development of the endogenous fungal flora of the grains was evaluated after 7 days at 30°C in agar-malt-peptone-sucrose medium. The percentages of grains infected with *Fusarium* and with other fungi were determined. TZP, DC+DMC, HF and control showed a PG=80%. DC+DMC increased by 20% the radicle and shoot length. HF reduced 50% the length of both organs. TZP, DC+DMC and HF increased more than 20% the number of adventitious roots and did not affect the emergence of secondary roots. 97% of the grains treated with these suspensions did not present fungal