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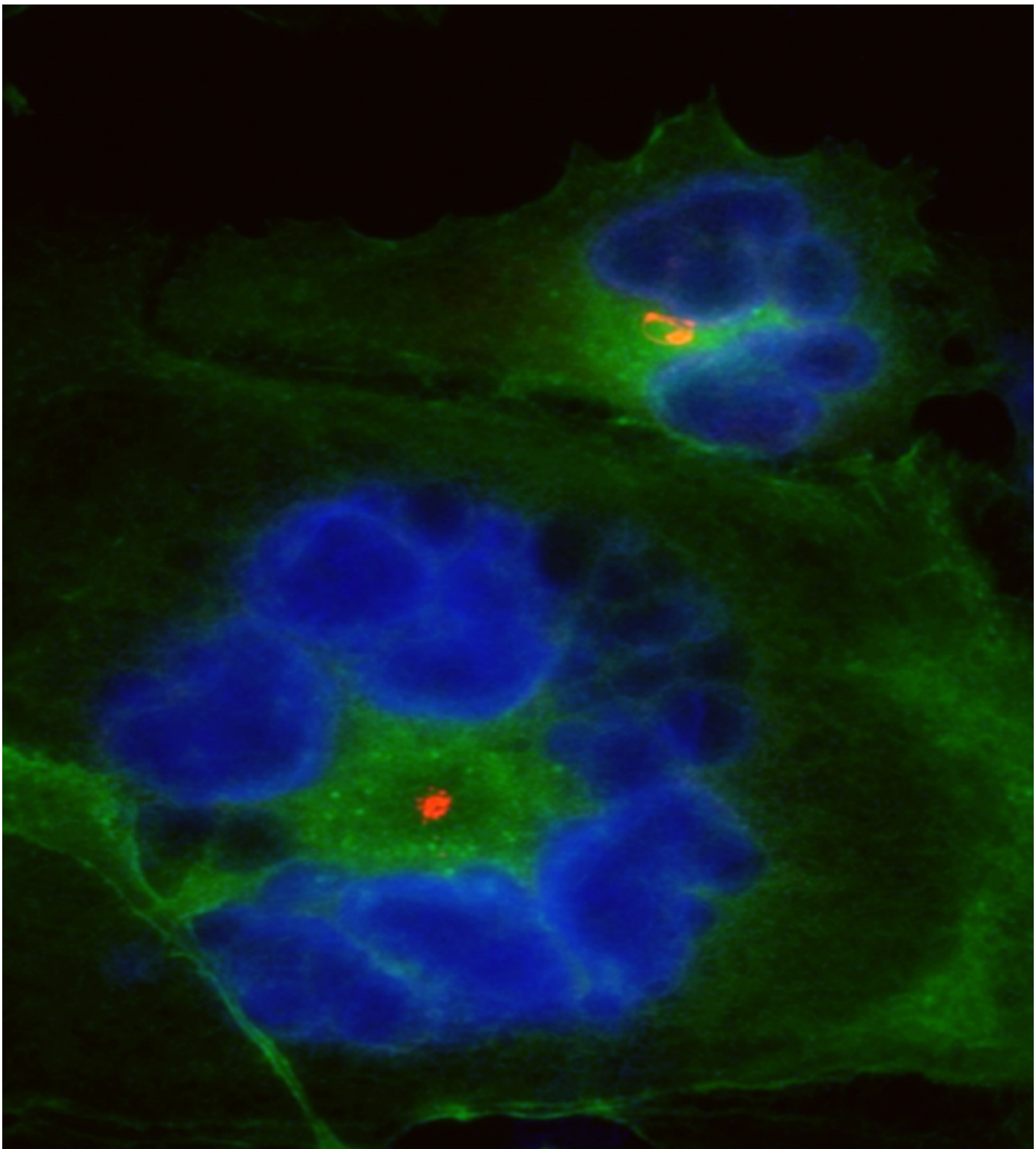

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Cover page: The Synthetic Lethal Rosette

Aberrant mitotic phenotype found in BRCA1-deficient cells treated with the PLK1 inhibitor Volasertib. Cells become giant and multinucleated and acquire a flower shape, with nuclei arranging in a circular disposition around a cluster of centrosomes. Blue (DAPI: nuclei), Green (FITC-phalloidin: actin cytoskeleton), Red (γ-Tubulin: centrosomes).

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levels, HOMA-IR, and atherogenic indices of rats, improving the effects of goat yogurt or yacon flour alone ($p < 0.05$). Our results showed conclusive evidence indicating that goat yogurt + yacon is an excellent functional food that avoids the metabolic impact of high-fat feeding, representing a novel food product for the management of obesity.

BT-P15
EVALUATION OF ENZYMATIC ACTIVITIES IN LINDANE-CONTAMINATED SOILS DURING THEIR RESTORATION BY BIOREMEDIATION TECHNIQUES

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Lindane is an organochlorine pesticide that, due to its persistence in the environment, is still detected in different matrices. Bioremediation using actinobacteria consortia and agriculture residues proved to be successful for the restoration of lindane-contaminated soils. Furthermore, soil enzymatic activities, including oxidoreductases and hydrolases, are used as sensitive indicators to evaluate the soil quality, due to their participation in a range of biochemical reactions that take place in the environment. The aim of this work was to select soil enzymatic activities in order to be used as indicators of efficiency during the bioremediation of lindane-contaminated soils. Bioremediation tests were carried out in microcosms formulated with different soil types, contaminated with 2 mg kg^{-1} of lindane, bioaugmented with 2 g kg^{-1} of an actinobacteria consortium, and biostimulated with sugarcane bagasse or filter cake in the following soil:amendment proportions (100:0, 98:2, 90:10), under previously optimized conditions. The microcosms were incubated at 30°C for 14 days, and periodic samples were taken to determine residual lindane by gas chromatography and enzymatic activities using the traditional techniques reported in the literature with slight variations. All appropriated controls were performed. At the end of the assay, the pesticide removal percentages were different among the treatments and soil types, and the enzymatic activities were greater at day 14 than at day 0. In bioaugmented soils, the enzymatic activities were greater than in non-bioaugmented controls. In addition, biostimulation of bioaugmented and non-bioaugmented microcosms increased the values of these biological parameters. However, it was observed that lindane had an inhibitory effect on dehydrogenase, fluorescein diacetate hydrolysis, acid and alkaline phosphatases activities, while catalase was stimulated by the pesticide. Urease was slightly inhibited or not affected by the presence of the pesticide, depending on the evaluated condition. Based on their sensitivity, catalase, fluorescein diacetate hydrolysis, and acid phosphatase were selected as appropriate indicators to assess the effectiveness of the bioremediation process in subsequent studies. The obtained results demonstrated that the simultaneous use of the actinobacteria consortium and the agro-industrial residues was suitable for the treatment of soils of different textural classes contaminated with lindane, which led to an increase in the enzymatic activities values, with a consequent improvement in the quality of bioremediated soils.

BT-P16
IRON AS A MULTIFUNCTIONAL FACTOR IN *ASPERGILLUS NIGER* MYA 135: FUNGAL MORPHOLOGY, LIPASE PRODUCTION AND LIPASE ENHANCER

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Filamentous fungi have been broadly used in biotechnological processes as cell factories due to their metabolic versatility. They are able to secrete high levels of enzymes, antibiotics, vitamins, polysaccharides, and organic acids. However, one particular obstacle with these kinds of microorganisms focuses on their morphological form. They can show linear filaments to highly branched structures, and in submerged culture, growth morphologies varying from compact pellets to dispersed mycelia. In turn, several fungal processes can be directly or indirectly affected. Those growth morphological patterns are generally induced by extracellular factors and accomplished by genetic and biochemical factors. In this connection, we previously reported that $FeCl_3$ decreases the mycelium-bound β-N-Acetyl-D-glucosaminidase activity (a relative marker of the wall lytic potential) from *Aspergillus niger* ATCC MYA 135 and yields a dispersed mycelium in its presence. Here, both the fungal morphology and the lipase activity obtained in the presence of an optimized culture medium supplemented with $FeCl_3$ were analyzed. The role of this salt as a lipase enhancer was assessed as well. Firstly, the extracellular lipase production was conducted in an orbital shaker at 30°C during 192 h by using a mineral medium supplemented with 1 g/L $FeCl_3$ and a final conidial concentration of about 10^5 conidia per mL. After 24 h of fermentation, 2 % (v/v) of olive oil was added as an inducer. Thus, the highest specific activity (15.51 ± 0.78 U/mg) was obtained at 96 h of cultivation. This activity value was 10-fold compared with its control without $FeCl_3$ supplementation. Secondly, a new fermentation of 96 h was conducted. The mycelium was examined by scanning electron microscopy displaying clumps structures with scarce ramified hyphae. The supernatant, collected by filtration, was also evaluated as a biocatalyst in hydrolytic and synthetic reactions as follows. The role of iron as a lipase enhancer was studied in native PAGE by using 1.3 mM of α-naphthyl acetate as a substrate. Released naphthol was bound with 1 mM Fast Blue to give a colored product. Preincubation of lipase bands during 30 min in the presence of 0.1 g/L $FeCl_3$ resulted in a significant increase of the activity signal. Additionally, the extracellular lipase activity was immobilized in silica gel by adsorption. The elemental analysis performed under SEM-EDX (Energy-dispersive X-ray spectroscopy) evidenced the presence of iron. This biocatalyst was assayed to produce biodiesel compounds in a solvent-free system using soybean oil and butanol (1:4) as substrates. After a three-stepwise addition of butanol, a biodiesel conversion of 93.36 % was reached. Therefore, it can be concluded that $FeCl_3$ acted by altering fungal morphology, increasing lipase production, and improving the performance of the enzymatic activity. This research was supported by the following funding sources: FONCYT (PICT 2015-2596) CONICET (P-UE 2016-0012) and UNT (PIUNT D606).

BT-P17
BIOAUGMENTATION OF A BIOMIXTURE WITH ACTINOBACTERIA FOR ATRAZINE REMOVAL