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carbon fixed by the plant, in exchange for water and mineral nutrients, leading to a positive impact on plant growth. Agricultural ecosystems are dominated by this symbiosis, and agricultural practices can have varying effects on these fungi. The addition of pesticides can alter the fungal biomass and their ability to provide nutrients to their host plant. Considering the importance of phosphorus (P) on plant nutrition and its limited availability in soils, phosphate solubilizing bacteria (BSP) constitute one of the most important bacterial groups in agricultural soils. It has been proven that some BSP can stimulate the establishment and growth of AMF. The objective of this work was to study the impact of the application of agrochemicals used on peanut (*Arachis hypogaea* L.) and wheat (*Triticum aestivum*) cultivation and the inoculation of the BSP *Enterobacter sp*. J49, on the ability of native AMF to colonize roots and on the development of these plants, in a crop rotation system in a microcosm scale. For this purpose, 8 treatments with 5 repetitions each where established: control pots without agrochemicals and non-inoculated seeds; pots without agrochemicals and inoculated seeds; pots with agrochemicals (commercial dose, half dose and double dose) and non-inoculates seeds; and pots with agrochemicals (commercial dose, half dose and double dose) and inoculated seeds. The level of AMF root colonization was determined as the number of root segments colonized divided by the total number of root segments, expressed as percentage, at 40 and 100 days post-sowing. As growth parameters for both plants shoot length, fresh weight, dry weight and P content where measured. Result obtained indicate that on both plants at both times measured the percentage of root colonization by AMF was significantly higher in plants inoculated with the BSP and not treated with agrochemicals, with respect to all non-inoculated treatments. This parameter showed similar results in non-inoculated plants treated with agrochemicals and control plants. When all inoculated treatments where compared, plants treated with double dose of agrochemicals showed the lowest percentage of AMF root colonization. In terms of growth parameters of peanut and wheat at both times, results show that all inoculated plants had significantly higher values than non-inoculated plants. These results show that the addition of agrochemicals at commercial or half-dose has no negative effect on the ability of native AMF to colonize peanut and wheat plants, while the addition of double-dose of agrochemicals has a negative effect on this parameter. In regards to the inoculation of the BSP, our findings confirm the ability of *Enterobacter sp*. J49 to promote the growth of both plants at both time points measured.

AS27-IDENTIFICATION AND CHARACTERIZATION OF INDIGENOUS ACTINOBACTERIA BIOFILMS UNDER OPTIMAL GROWTH CONDITIONS.

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Actinobacteria play an important ecological role in bioremediation processes in the natural world, added to their formation of biofilms capacity, an important factor for bacterial communities, favoring adaptability to adverse environmental conditions, therefore the proposed objectives were: 1-Evaluate strains of Actinobacteria in their biofilm production capacity, 2- Study and characterize in optimal conditions for biofilm formation. Different strains of *Streptomyces* sp. (M7, A5, MC1, A12, A14) producers of biofims (Urrutia et al., 2021), and from a cell suspension previously grown in casein starch agar medium (CSA), it was replicated in Tryptone Soya broth (TSB), incubated at a temperature of 30 °C with agitation for 72 h. The cultures were analyzed for biofilm production: at incubation times of 48, 72 and 96 h, and inoculum density in TSB at OD540nm (0.5; 1.0 and 1.5); pH between (5- 9), different osmolarity with D-sorbitol and NaCl in different concentration ranges (0.03; 0.06; 0.3 and 0.6 M) and biofilm adherence capacity over different surfaces , such as Polysorp (hydrophobic surface)

and Maxisorp (hydrophilic surface) microplates. The biofilms quantification was carried out using the crystal violet staining method at one O.D. of 590nm Preliminary results determined that *Streptomyces* sp. M7, A12, A14, A5 and MC1 produced biofilm and particularly strains A14, A5 and MC1 showed the highest production under the different conditions studied. In the trials it was evidenced that at an inoculum density of 1 the highest biofilm formation was achieve, without significant differences at one OD of 1.5. Likewise, at an alkaline pH, it allowed a significantly higher biofilm formation capacity ($p \leq 0.05$) than at pH 7 and 5. The presence of 0.6 M of D-sorbitol significantly favored biofilm synthesis in A5 strains, A14 and M7 and in terms of the presence of NaCl at 0.03, a non-significant effect was observed. Finally, the studies of the surface used showed a better performance on the hydrophilic surface than on the hydrophobic surface for A5, A14, M7 and MC1, while in A12 no significant increase was observed, this would be explained by the fact that the hydrophilic surfaces present high surface energy, and greater force of attraction to keep bacteria attached. From the results we can conclude that in the analysis of the different parameters it was determined that the best biofilm-producing strains were *Streptomyces* sp A14, A5 and MC1.

AS28-COMPARISON OF NUCLEIC ACID EXTRACTION METHODS TO IMPROVE THE GDNA RECOVERY IN DRINKING WATER SAMPLES

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Drinking water quality is essential for human health; therefore, effective health surveillance is needed. According to the current legislation, this quality is evaluated by culture-dependent methods of indicators microorganisms, representing a late stage for the application of corrective measurements and not representative of the total microorganisms present. Currently, molecular techniques like shotgun sequencing and real time PCR (qPCR) allow to determine most of the members present in the drinking water microbial community and to rapidly detect pathogens and/or opportunists microorganisms. Thus, improving the monitoring design conducting to the mitigation of risk for public health. However, these methods are hindered because of the low microbial biomass of drinking water distribution system, which leads to deficient nucleic acid extraction. The aim of this work was to compare extraction methods to determine the protocol with the highest recovery of DNA in drinking water samples. Ten liters of water samples were collected and concentrated using a membrane filtration method. Four DNA extraction methods were evaluated: i) commercial kit of national production (PURO Soil, Productos Bio-lógicos), ii) imported commercial kit (Fast DNA, MP Biomedicals), iii) Guanidine thiocyanate agent based protocol, commercially available (TRIZol), and iv) traditional method that used chloroform. The gDNA concentration was quantified by fluorometry with Qubit™ dsDNA HS Assays Kit (Invitrogen). Furthermore, qPCR was used to amplify a bacterial 16S fragment gene from the extracts recovered. The reactions were carried out with StepOnePlus™ Real-Time PCR System (Applied Biosystems). The SYBR Green intercalant agent and primers previously validated were used. PURO Soil method recovered the highest DNA concentration (102.00 ± 13.31 ng/mL), followed by the traditional method (51.00 ± 15.26 ng/mL), then the Trizol protocol (18.33 ± 3.97 ng/mL) and finally the Fast DNA that was under the detection limit by fluorometry (< 5.00 ng/mL). The Trizol, PURO Soil and the traditional method showed statistically significant differences (*p*-valor < *0.001*). Only the samples extracted with the PURO Soil method were amplified by qPCR. It is important to note during the Fast DNA procedure, the FastPrep® homogenizer recommended by the manufacturer was not used. Considering the cost/benefit of the compared methods, PURO Soil was found to be the most effective method due to its highest yield, low cost, and performance time that