

EFFECT OF PHOSPHATE SOLUBILIZING MICROORGANISMS AS POSSIBLE BIOFERTILIZERS FOR THE GROWTH OF SOLANUM LYCOPERSICUM

Mariana Sánchez Juárez, Mario Alan Espinosa Castañeda, Carlos Vera Pech, Diana Escalante Rendíz

Universidad Autónoma de Yucatán. Facultad de Ingeniería Química. Campus de Ingenierías y Ciencias Exactas, C.P. 97203. Mérida, Yucatán, México

Email: tititoz.vera@gmail.com

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Introduction: For the demand in the local, national and international market, the tomato crop is considered one of the most profitable vegetables (Cruz, et al, 2002). The tomato crop requires a large amounts of chemical fertilizers, which can be reduce by using bio fertilizers. The objective is form bio fertilization associations plant-microorganisms, capable of improving the fixation of nutrients; phosphorus is one of the essential nutrients for the plant growth.

Methods: The culture of order 10^9 cfu / ml of the microorganism called APP, which was isolated from a tomato planting from Yucatan. *Solanum lycopersicum* seeds were sterilized (Diaz et al., 2001) and placed in petri dishes with distilled sterilized water for 7 days (Escaff et al., 2005). After that time plants were transferred to previously sanitized seed trays. Sterilized peat moss was used as substrate for the growth of seedlings (Dudley et al. 1987). After 15 days the seedlings were transplanted into plant pots containing sterilized 1.5 kg of soil, 3 plants were inoculated with 3 ml of the culture of APP, the uninoculated plants correspond to control. Plants were grown under greenhouse conditions, covered with shade cloth and irrigated with purified water.

Results: After 30 days the following parameters were evaluated by an exploratory anlysis: root volume (Almeida, 2011), leaf area (Ferrera-Cerrato, et al. 2007), the dry weight and root area (Sánchez, 2010) and percentage of phosphorus (nmx scfi aa 029-2001).

Samples APP1 and APP2 had higher phosphorus content; however APP3 sample gave a value equivalent to the phosphorus content reported for the control plant. The phosphorus availability in the early crop cycle

may result in a restriction of growth of the plant.

The leaf area value obtained of the control is smaller compared with the APP treatment. This suggests that the APP treatment probably has a positive effect on the development of leaf area of tomato plant by solubilizing the inorganic phosphorus in the soil.

APP samples had values greater than the root volume of the control plant, except for the APP3 sample reported an equivalent root volume as the control plant.

The values obtained in the Dry weight analysis for the samples APP1 and APP2 were consistent with expectations based on the previous analysis shows that both have weights higher than those reported for the control plant.

Table1. Results obtained

Sample	Dry Weight (gr)	Leaf Area (cm2)	Root Volume (cm3)	Determination of phosphorus (mg)
Control Plant	0.46015	14.893	80.5	0.2569
APP1	0.86685	33.152	81	0.4465
APP2	1.67565	52.872	81	0.6583
APP3	0.52655	19.798	80.5	0.2569

Conclusions: The results obtained from the parameters evaluated for Saladet tomato plant (*Solanum lycopersicum*) determined that the APP isolation had a good response; APP possibly involved isolation bacteria developer growth Saladet tomato plant. Consider that the analysis was exploratory; the consideration is getting the job done with a larger number of replicas of treatments and witnesses to interpret the results with statistical analysis.

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