

SUMMARY

Effect of biofertilizers in chayote (*Sechium edule* Jacq. Sw.) growth

Chayote (*Sechium edule* Jacq. Sw) production in the state of Veracruz, occupies the 10th place in of most important crops, which contributes over 80% to the national production. This requires producers of the region the use of sustainable and affordable technologies that enable them to meet the demand of a growing market. Fertilization in crops is one of the most important agricultural practices, so that the implementation of bacterial bio-inoculants that can partially or totally substitute fertilization needs in chayote growth is a priority. In this paper the effects of bio fertilizers based on native strains of *Rhizobium* spp. genera were evaluated and *Azospirillum* spp. on growth variables, elongation and stem diameter, number of internodes, number of leaves and nitrogen leaf concentration (NH_4^+) of chayote plant. A completely randomized experimental design was used with six treatments Rhiz (*Rhizobium*), Rhiz-SE (*Rhizobium* sterile substrate), Test-Rhiz (Witness *Rhizobium* YMA medium), Azo (*Azospirillum*), Test-Azo (*Azospirillum* control NFB medium) and co-inoculated Rhi-Azo (*Rhizobium-Azospirillum*). In the first stage of the experiment, strains were isolated and purified from samples taken from roots and stems of leguminous plants and grasses in the region; which were identified as belonging to the genus *Rhizobium* spp. and *Azospirillum* spp. using cell and colony morphology, Gram staining and biochemical tests. After characterization, chosen strains, MR-03 (*Rhizobium* spp.) and MA-04 (*Azospirillum* spp.) were seeded in YMA medium and NFB medium respectively, for obtaining bacterial inoculum at a concentration of 10^7 CFU mL⁻¹. In the second stage, chayote seeds were inoculated and planted according to treatments and experimental design. They were placed in the greenhouse for observation and recording development for the next 60 days. The results of the study variables showed no statistically significant difference; however, plants in treatments *Rhizobium* spp. (Rhiz and Rhiz-SE) increased stem height and number of internodes above its control by 30%. Plants inoculated with *Azospirillum* spp. completely responded in length and stem diameter, number of internodes and number of sheets ranges ranging from 2-22% out performing its control. In the concentration of nitrogen (NH_4^+), by Tukey test at 5% of the Rhiz and Rhiz-SE treatments were statistically superior to their control and all other treatments with a mean of 2.33 mg NH_4^+ /g in leaf, while the lowest concentration was obtained by Azo treatment with 0.38 mg/g leaf.

Key words: *Rhizobium*, *Azospirillum*, chayote, bio-inoculants

