ACTIVITY PROMOTION GROWTH PLANT RHIZOBACTERIAS FROM PSIDIUM GUAJAVA L.

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PGPR, Psidium guajava, soil

Introduction. The excessive and improper use of agrochemicals has left poor soils, groundwater contamination, pests and diseases are increasingly resistant. Little is known about the application of biological products from microorganisms applied to fruit crops, that is why today it requires the implementation of such products whose quality of being friendly to the environment and opens the opportunity to give solution to problems affecting guava producers.
Plant growth promoting rhizobacteria are bacteria that colonize plant roots, and in doing so, they promote plant growth and/or reduce disease or insect damage.
The aim of this work was to isolate bacteria from the rhizosphere of guava trees to select a strain with the best capabilities to improve production in guava.

Methods. Rhizobacterias were isolated from guava soil in medium with ACC 1-aminocyclopropane-1-carboxylic (Penrose y Glick, 2003). Activity promotion grown plant from rhizobacterias was determinate by % of germination, root development in MS medium, and IA production. And rhizobacterias were confronted with phytopathogenic fungus, *Alternaria sp., Fusarium sp* and *Rhizoctonia sp*.

Results. Germination seeds from guava and cucumber was improved in 100% in cucumber and 56% in guava, Fig. 1 and Table 1.

Fig.1 A) Guava seeds with water and with strain B1R1, B) Cucumber seeds with water and with strain A6a2.

Table 1. Effect of rhizobacterias strains in percent of germination.

Strain	Cucumber	Strain	Guava
A2.1a	66.60%	6A2b - 2	56.66%
A3d	92.80%	B1R1/1	56.66%
A2d	86.60%	A2R2/10	56.66%
A6a	80%	A2R2/4	46.66%
A3.1c	73.33%	13A3d	43.33%
A3a	80%	E1R1/3.2	43.33%
A2c	100%	8A3a – 1	43.33%
A2b	86.60%	47A3C	40%
A3.1d	93%	8A2.1 - 2	40%
Water	46.60%	Water	33.33%

The results were much better in *Arabidopsis thaliana* plants which were inoculated with bacteria compared with the control. The effect was especially in the root along at three times better compared to the control in which the plant *Arabidopsis thaliana* was MS medium in water. This indicates that the bacterial isolates produce a metabolite that diffuses into the culture medium and has an effect on the root development of the plant. Indoleacetic acid was quantified in different strains. Some strains were effective again phytopathogenic fungus.

Conclusions. The plant growth promoting rhizobacteria prove to be an excellent tool biotechnology, to encourage the development of agriculture in the country, since the benefits are many in both the higher and better production and the improvement of the environment.
Rhizobacteria isolated during the preparation of this work show have a direct effect on the development of the plant, which is a positive alternative for more and better guava production without excessive use of chemicals, thus avoiding wear and more soils resulted in the city of Salvatierra, Guanajuato, Mexico.

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References.

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