

Poster

Characterization of plant growth promoting bacteria isolated from red fruits. Studies on growth promotion and fruit quality in strawberry plants



Cárdenas Rodríguez, S (1*), Rodríguez-Berbel, N. (2) Canosa Pérez-Fragero, I. (1) and Camacho, M. (2)

(1) Universidad Pablo de Olavide, Ctra. de Utrera, km 1, 41013 Sevilla.

(2) IFAPA Centro "Las Torres-Tomejil", Ctra. Sevilla-Cazalla, km 12,2 41200 Alcalá del Río, Sevilla.

Keywords: growth promoting bacteria (PGPB); auxins; siderophores.

ABSTRACT

Microorganisms associated to the rizosphere of plants cultivated plants for human consumption are scarcely analyzed. However, nowadays, organic farming where the use of microbial inoculants is essential, has arisen as an emergent alternative with a great commercial interest.

In this study, the characterization of the bacterial microbiotic presents in the rhizosphere of strawberry and blueberry plants has been carried out. In particular, three relevant characteristics have been determined order to classify the isolated strains as plant growth promoting bacteria (PGPB). These characteristics are: 1) the ability to produce auxins, 2) siderophores and 3) the solubilization of phosphates presents in the medium.

On the other hand, the behavior of bacterial strains previously identified as PGPB has been studied in strawberry plants both in greenhouse and field trials. The plants located in the greenhouse, were inoculated with the endophytic strawberries isolated strains: LTE1, LTE2, LTE3, LTE4, LTE6, EF12a, EF35 and EF113, as well as with three blueberries isolated bacteria which possess a high level of auxin production, named AC8, ACH2 and ACH7. The strawberries plants located in the field, were inoculated with the strains Hv16, Hvs8 and Rec3.

At the greenhouse trials, production parameters (precocity in flowering, number and weight of fruits) as well as biometrical parameters at the end of the trial, the fresh and dry weight of root and shoots will be analyzed. At the field trial, the following production parameters will be evaluated: number and weight of extra-early fruit (February), number and weight of early fruit (March) and number and weight of total fruit. Quality fruit parameters as color, shape, sugar content (°Brix), acidity, pH, vitamin C and anthocyanin content will be determined twice, once in February and again at the end of the experiment. By the time, the micro and macro-nutrient will also be analyzed.

REFERENCES

Viejobuena, J., Ariza, M., Villalba, R., Soria, C., Muñoz, P., Amaya, I., Aguado, A., De los Santos, B., Camacho, M. (2018). Empleo de bacterias en sustitución al uso de productos de síntesis en el cultivo de fresa. Resultados preliminares de campo. SERVIFAPA <https://ifapa.junta-anadaluca.es/agriculturaypesca/ifapa/servifapa>.

Camacho, M., Aparicio, L., Pérez-Carmona C., De los Santos, B. (2017). Empleo de bacterias rizosféricas como sustitutas de productos químicos de síntesis para un cultivo sostenible de la fresa (*Fragaria x ananassa* Duch) *Actas de Horticultura*(Febrero): 459-466 ISBN: 978-84-697-6628-6.