

## Evaluating the effects of microorganism biostimulants in maize to improve plant growth

C. Carvalho<sup>1</sup>, D.L. Andrade<sup>1</sup>, V. Palhares<sup>2</sup>, N.T. Oliveira<sup>2</sup>, C.A. Oliveira<sup>1,3</sup>, I.E. Marriel<sup>1,2,3</sup>, E.A. Gomes<sup>3</sup>, U.G.P. Lana<sup>1,3</sup>, S.M. de Sousa<sup>1,2,3</sup>

<sup>1</sup>Centro Universitário de Sete Lagoas, Sete Lagoas, MG, Brasil.

<sup>2</sup>Universidade Federal de São João del-Rei, São João del-Rei, MG, Brasil.

<sup>3</sup>Embrapa Milho e Sorgo, Sete Lagoas, MG, Brasil

e-mail: chainheny@hotmail.com

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Biostimulants can be defined as substances, including microorganisms, that are applied to plant, seed, soil or other growing media that may enhance the plant's ability to assimilate applied nutrients or provide benefits to plant development. This study aimed to evaluate the effect of six microorganisms strains from the collection of multifunctional and phytopathogenic microorganisms of Embrapa Milho e Sorgo on maize growth. Maize seeds were surfaced sterilized and germinated for four days and then grown in a floating system for seven days with ½ Hoagland's nutrient solution (pH 5.65). After the acclimatization period, the maize roots were incubated with the microorganism culture ( $10^7$  colony-forming units (cfu)/ml in 0.85% saline solution) for six hours and then transferred to the nutrient solution for ten more days. The maize roots were photographed and the root traits were quantified with RootReader2D and WhinRhizo softwares. The root and shoot dry weight was obtained at 65 °C until constant weight. Five microorganisms increased surface area of roots with diameter between 0-1 mm. Two microorganisms increased total root surface area, total root length and total dry weight. Our results showed that this methodology allowed the identification of microorganism effects on maize growth and root morphology. Moreover indicated potential microorganisms to be further used as inoculants.

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