

## Biostimulation of *Vigna unguiculata* subsp. *sesquipedalis*-cultivar *Sesquipedalis* (Yardlong bean) by *Brevibacillus* sp B65 in organoponic conditions

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In the current research the effects of fluid inoculum of *Brevibacillus* sp B65, a plant growth promoting microorganism (PGPM), on growth of *V. unguiculata* subsp. *sesquipedalis* cultivated in organoponic conditions were evaluated in comparison with traditional inorganic and organic fertilizers. Plant growth promotion of Yardlong bean was assessed through the effects of four different treatments on plant growth and development traits, as well as on crop yield. The four treatments were NPK – inorganic fertilizer (T1), organic matter alone (T2), fluid inoculum of B65 alone (T3) and inoculum supplemented with organic matter (T4). The inoculum of B65 supplemented with organic matter improved different traits of plant growth and development such as seed germination, root development, plant and leaves growth, flowering, as well as crop yield. The main impact of the inoculation mixture was on seed emergence. In the present research it was demonstrated that biostimulation of *Vigna unguiculata* subsp. *sesquipedalis* through inoculation of PGPM *Brevibacillus* sp. B65 supplemented with organic matter, may replace traditional organic and inorganic fertilization strategies. The nature of the positive influence of strain B65 on the legume is not well understood yet; however, it could be attributed to bacterial phyto-stimulation through auxin and ethylene production, as well as P mobilization. Additionally, organic matter supplementation demonstrated a stimulating effect on B65 traits. This is of utmost importance and will have a main impact on the sustainable development of agronomical practices.

### Recent Publications

1. Orberá Ratón TM, et al (2021). Biostimulation of *Vigna unguiculata* subsp. *sesquipedalis* - cultivar *Sesquipedalis* (Yardlong bean) by *Brevibacillus* sp. B65 on organoponic conditions. *Curr Microbiol* 78:1882-1921.
2. Llauradó G, et al (2020). Antioxidants in Plants: A Valorization Potential Emphasizing the Need for the Conservation of Plant Biodiversity in Cuba. *Antioxidants* 1048; doi:10.3390/antiox9111048.
3. Bayard Vedey I et al (2020). Fertilización de Habichuela Larga con Biopreparados Bacterianos, Materia Orgánica y Fertilizante NPK. *Rev Cubana Quím*; 33(2):229 – 310.
4. Téllez Soria T & Orberá Ratón T (2018). Growth stimulating effect of two biotechnological biopreparations in cultures of beet (*Beta Vulgaris* L.). *Rev Cubana Quím* 31(3): 483 - 494.
5. Orberá Ratón TM et al (2014) The New Rhizospheric Bacteria *Brevibacillus* sp. B65 Benefits Eggplant and Peeper Growth and Productivity Under Organoponic System. *Agricultural Res* 3(4):395 – 39.

## Biography

Teresa Orbera is Bach. in Biology, MSc in Biotechnology and PhD in Biological Sci. She did her doctoral studies co-funded by Sao Paulo University (USP) and U Oriente. She did postdoc studies in the Institute of Biomedical Sci. at USP and in the Centre of Environ. Sci. in U Hasselt. She was invited professor of USP and visitor researcher funded by FAPESP (2014), as well as in U Hasselt founded by VLIR-Global Minds (2016). She teaches Microbiology at U Oriente and Microbial Physiology & Molecular Biology in the MSc. and PhD programmes of Biotechnology. She is invited professor of PhD programme in Biology of Havana University. She does research in plant protection and plant – microbe interaction. She is expert in microbial culture collection and biosafety. Actually, Teresa is the local coordinator of VLIR\_IUC programme “Universidad de Oriente”. She has worked in KTT and innovation, as well as project’s management.