

TITLE: APPLICATION OF *Bacillus* sp. ASSOCIATED WITH HUMIC AND FULVIC ACID IN THE PRODUCTION OF YELLOW PASSION FRUITS SEEDLINGS

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ABSTRACT:

Problems of germination are very common in the genus *Passiflora*, including yellow passion fruit, the most cultivated species. Depending on the environmental conditions, the germination is so irregular that whole lots are discarded. In addition to costing the production of seedlings and depreciating quality, the lack of uniformity in the germination of passifloraceous seeds also affects commercial orchards, which are often composed of seedlings of different ages, different sizes or even lots formed at different times. Thus the use of growth promoters can directly and indirectly improve emergence and plant growth. The objective of the experiment was to evaluate the effect of humic and fulvic acids in association with *Bacillus* sp. in the production of yellow passion fruit seedlings, under greenhouse conditions. Humic and fulvic acid (HFAC) was previously diluted in water in concentrations of 2.5 and 10%, using a dose of 3 mL.kg⁻¹ of seed. *Bacillus* sp. I307 was applied at a dose of 2 mL.kg⁻¹ of seed. Six treatments were applied by seed: (1) control; (2) HFAC 2.5%; (3) 10% HFAC; (4) HFAC 2.5% + *Bacillus* sp. I307; (5) HFAC 10% + *Bacillus* sp. I307; and (6) *Bacillus* sp. I307. The experiment was conducted in randomized blocks, with four replicates and 15 plants per plot. The evaluation was done 30 days after sowing, evaluating the percentage of emerged plants, height of plants and number of leaves. The data were submitted to analysis of variance and the means were compared by the Tukey test at 5% probability. The three treatments that received application of *Bacillus* sp. I307 did not differentiate between them, but were significantly superior in relation to the other treatments. The increase in the emergence of seedlings treated with *Bacillus* sp. I307 ranged from 80 to 104% relative to the control. Seedling height was significantly higher only in the 10% HFAC + *Bacillus* sp. I307, with an increase of 67%. Regarding the number of leaves, the only treatment that presented significant difference was *Bacillus* sp. I307 applied alone, adding 1.6 more leaves per seedling, compared to the control. The application of *Bacillus* sp. I307 isolated or associated with HFAC increases the emergence and promotes growth in yellow passion fruit.

Keywords: *Passiflora edulis*, rhizobacteria, growth promotion