



physiological studies on grafting grape vines grown on new reclaimed lands under Fayoum conditions.

By

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ABSTRACT

This investigation was conducted during two successive seasons (2022 and 2023) in the experimental farm of Fac. of Agric., Fayoum Univ., in Demo, Fayoum Governorate to determine the effects of soil application of calcium citrate which added with (0, 64gm and 128gm/vine) and the inoculations with two bacteria strains [*Halobacillus debanensis* (H. Debanensis strain "HP4")] and [*Bacillus halotolerans* (B. halotolerans strain "QL12")] to alleviate the harmful impact of soil salinity on growth, physiological traits and productivity of Superior cv. grapevine.

Generally, physio-chemical traits of Superior cv. grapevine grown under saline stress improved significantly by soil application each of plant growth-promoting rhizobacteria strains and/or calcium citrate irrespective the levels of applications. The obtained results revealed that the salinity stress caused a degraded cell membrane with decreased relative water content.

Results indicated that inoculation vines with plant growth-promoting rhizobacteria strains and/or soil application of calcium citrate improved each of N, P, K, Ca, Fe, Zn, Mn, and K/Na ratio and lowered Na %.

Results displayed that there is a positive relationship among inoculation with plant growth-promoting rhizobacteria strains or soil application of calcium citrate and growth traits like (shoot length, number of leaves/meter, leaf area and pruning weight), yield and its components. On the contrary, salinity stress showed the negative impact on growth parameters, yield and fruit quality of vines under study.

Keywords: salinity stress, calcium citrate, plant growth-promoting rhizobacteria strains, stress, Morphological and physiological traits, Superior grapevines.