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THE INFLUENCE OF BIOSTIMULATORS ON GERMINATION AND GROWTH IN BITTER CUCUMBER (*MOMORDICA CHARANTIA*)

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Abstract: *Momordica charantia*, popularly known as bitter melon, bitter gourd or balsamic pear is a tropical and subtropical climbing plant belonging to the Cucurbitaceae family. The high content of bioactive compounds has given the species a special importance in traditional medicine, being used in the fight against diabetes, cancer and also as a powerful antioxidant. The continuous growth of the global population requires an intensification of plant food production to meet the ever-expanding demand. Biostimulants are substances or microorganisms that, when applied in small amounts, stimulate natural plant processes such as nutrient uptake, growth and stress resistance. The present work aims to identify the role of an algae-based biostimulator in the germination and growth of bitter cucumber. To carry out the experiment, five genotypes of *Momordica charantia* were used, of which two Romanian varieties (Brâncuși and Rodeo) and three experimental lines (Line 1, Line 3 and Line 4) were treated with the Algevit biostimulator during the germination period and until the emergence the first two true leaves (Phenophase 102 BBCH). It was found that the germination rate increased in the treated variants by up to 15% in the genotype Line 4 and in the case of the vitamin C content it had very significant increases of over 50% in the case of Line 3 and Line 1.



Material and method

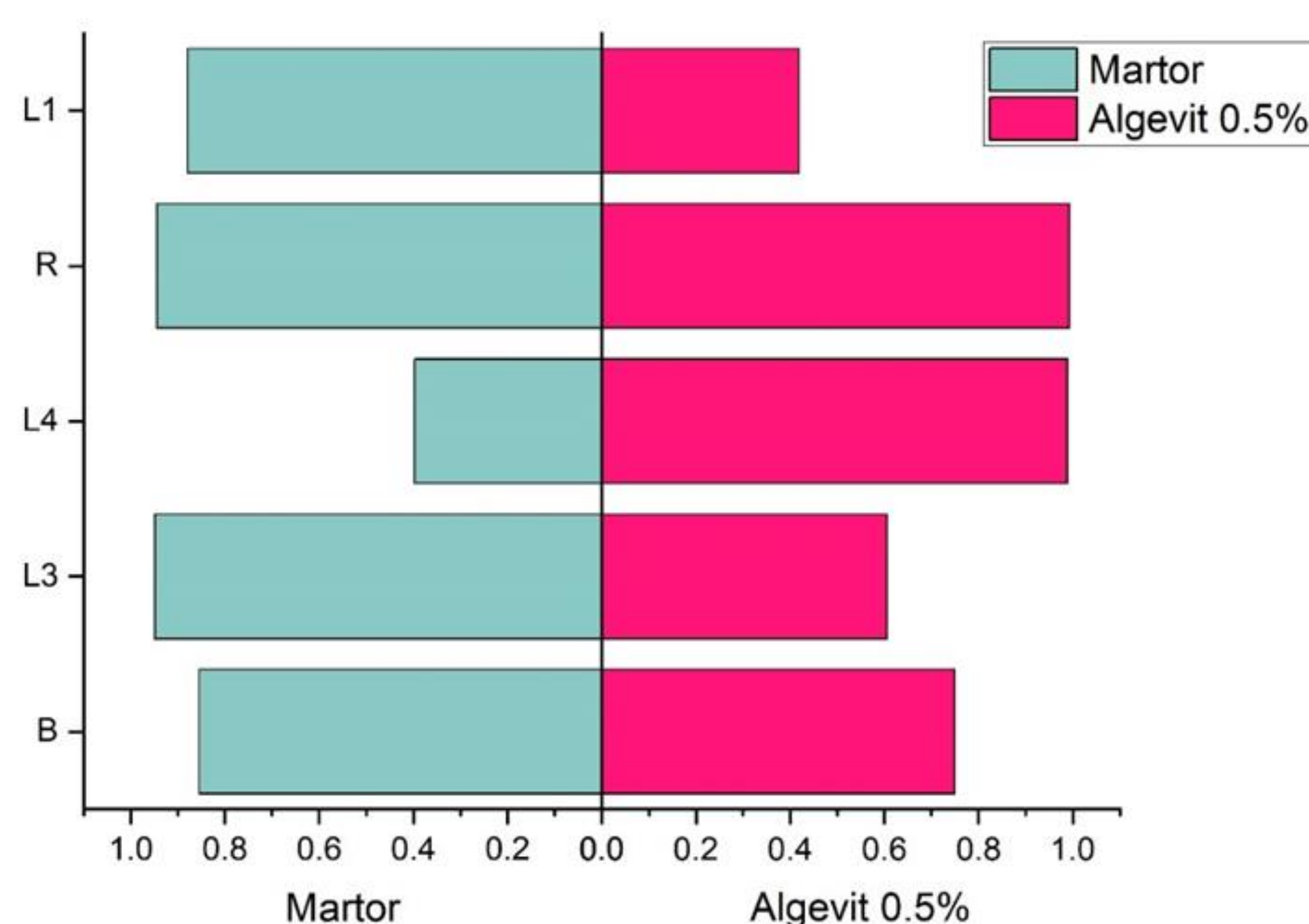
Thus, seeds of equal size from 5 bitter cucumber genotypes were used, of which two Romanian varieties (Rodeo and Brâncuși) and three experimental lines (Line 1, Line 3 and Line 4). A control was used for each genotype (seeds were not treated) and 0.5% Algevit biostimulant treatment was applied for each genotype. Seed germination was monitored over a period of 10 days. Germination rate is the percentage of seeds that germinate. This is calculated by dividing the number of germinated seeds by the total number of seeds sown, multiplied by 100.

$GR = n/N \times 100 \%$

n - is the germination number

N - represents the total number of seeds tested

Vitamin C was analyzed by the Prussian Blue method.



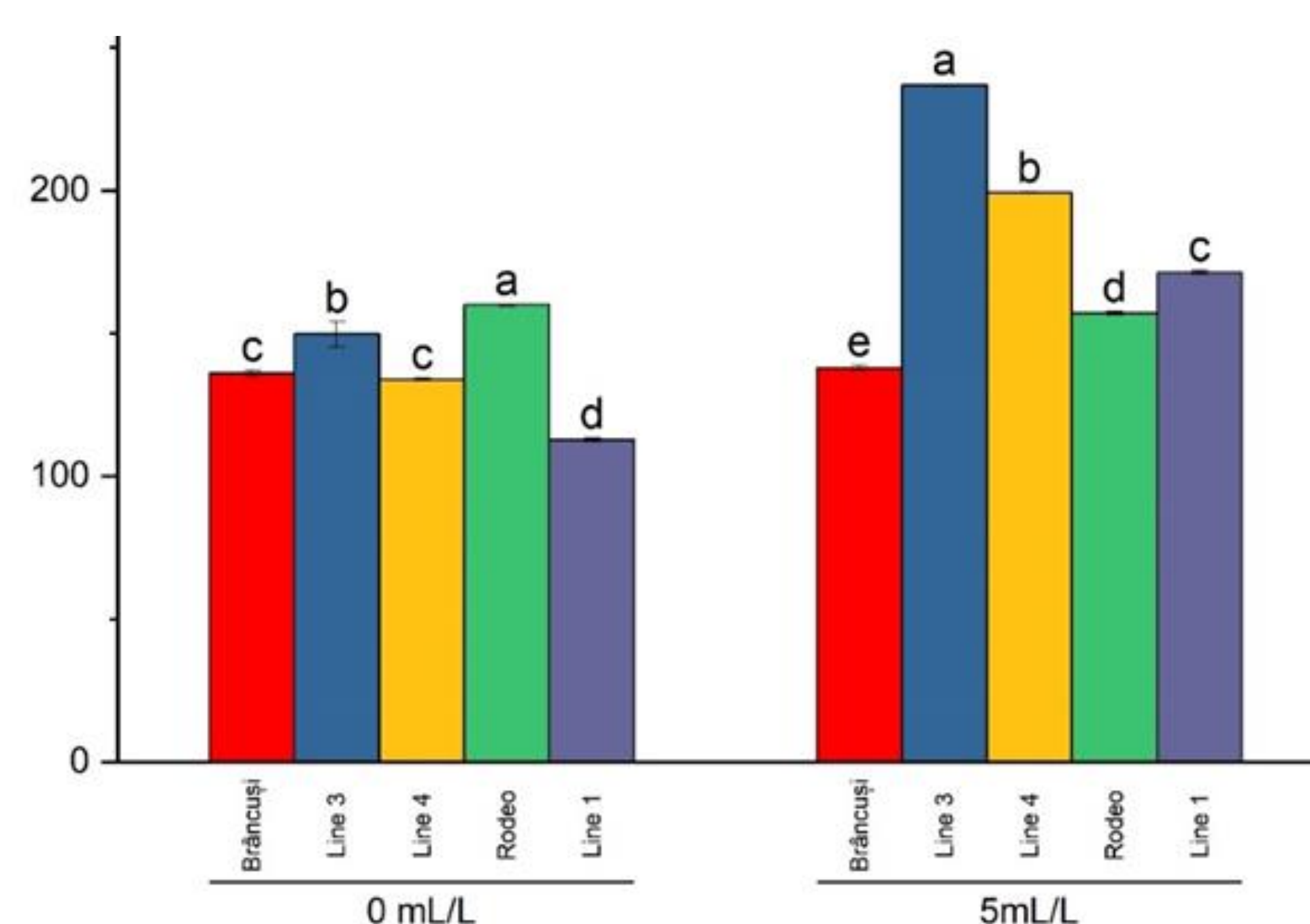
Visualization scheme of the Pearson correlation coefficient made to observe the linear correlation between the analysis of the germination rate and the amount of vitamin C for the control variants and those treated with the Algevit biostimulator.

Conclusions

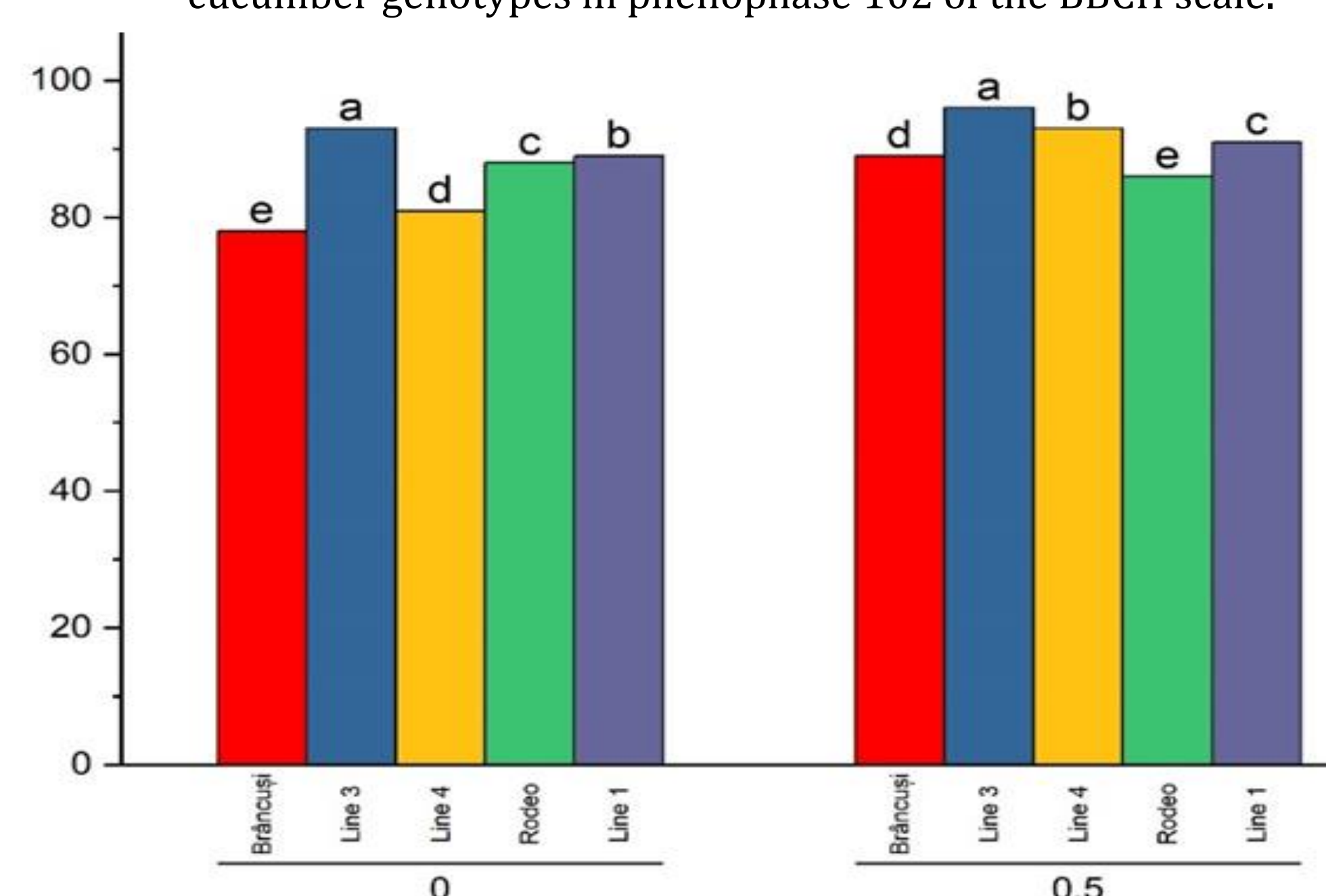
Following the analyzes carried out, a general tendency to increase the amount of vitamin C when applying the Algevit biostimulator was highlighted, due to its composition in seaweed extracts with a role in increasing the photosynthetic intensity and therefore the secondary metabolites involved in the photosynthesis process.

The germination rate in the variants treated with the biostimulator was higher compared to the untreated control, thus demonstrating the role of the biostimulator in the germination of bitter cucumber seeds.

Results and discussions



The effect of the Algevit biostimulator on the vitamin C content of bitter cucumber genotypes in phenophase 102 of the BBCH scale.



The role of the Algevit biostimulator on the germination rate of the 5 bitter cucumber genotypes made on day 10 from the start of the experiment.