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EFFECT OF THE NATURAL BIOREGULATOR FROM *Juniperus communis* ON THE GERMINATION AND EARLY DEVELOPMENT OF CORN

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Seed germination is an essential stage in the development of corn crop, influencing the uniformity of emergence and the productive potential of plants. The use of natural bioregulators can stimulate the physiological processes involved in germination and early growth of seedlings. In this context, **the purpose** of the study was to evaluate the effect of the natural bioregulator from *Juniperus communis* (JCom) on the germination and early development of sweet corn.

Materials and method. The female line seeds of the sweet corn hybrid P280 were used as biological material of study. The natural bioregulator JCom in powder form was obtained from the above-ground part of *Juniperus communis*, and aqueous solutions were used for its application. Corn seeds were divided into two experimental variants: control and treated with bioregulator JCom at the 0.0001% concentration. The control seeds were soaked in water for 24 hours, and those in the experimental variant in bioregulator solution. Subsequently, they were germinated for 7 days at a temperature of 25°C (under optimal conditions). After this, the germination percentage, root and seedling length, root and seedling biomass, and metabolic efficiency were determined. The vigor index was calculated according to the formula: vigor = (root length + seedling length) × germination percentage.

The results demonstrated a positive effect of the treatment with JCom on all the indexes analyzed. The germination percentage increased from 84.0 ± 5.7% in the control to 91.0 ± 6.8% in the treated variant, representing an increase of approximately 8.3%. The average length of the roots was 10.92 ± 3.89 cm in the treated variant, compared to 9.57 ± 3.93 cm in the control, which corresponds to a growth of 14.1%. Also, the seedlings length increased from 4.72 ± 2.02cm to 5.17 ± 1.76 cm,

recording an increase of 9.5%. The most pronounced influence of the treatment with JCom was observed on the vigor index. Its average value increased from 1189.24 in the control variant to 1368.01 in the treated variant (approximately 15.0% more), which was confirmed by a statistically significant difference ($p < 0.01$). The similar values of the standard deviation (428.19 in the control and 421.38 in the treated variant) show that the increase in vigor was accompanied by the maintenance of a comparable variability between seedlings, which indicates a more uniform development of the treated seedlings. Moreover, treated seeds utilized reserve substances more efficiently for germination; their metabolic efficiency was 9.8% higher than that of control seeds.

Conclusions. The results demonstrate that the natural bioregulator obtained from aerial part of *Juniperus communis* stimulates the germination and early development of sweet corn seedlings, contributing to more vigorous and uniform plants. These effects highlight the potential of using the bioregulator as an ecological alternative for improving the biological quality of seeds and the initial performance of the crop.

Keywords: *Juniperus communis*, corn seed, female line, germination, bioregulator.

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