INFLUENCE OF GIBBERALLIC ACID ON THE GROWTH OF WHITE CLOVER SEEDLINGS

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Material and methods

Seed germination is a critical stage in the life of each plant, and it greatly influences on the success in the establishment of the crop, and hence their productivity. The aim of this study was to analyze the effect of different concentrations of giberalic acid, as a growth stimulator, on the growth of roots, stems and seedlings mass of white clover. The laboratory experiment was performed in 2020 with seed of white clover cultivar Rivendel (Denmark cultivar). Were applied several treatments with different concentrations of gibberellic acid: control; 0.25; 0.50; 0.75; 1.0; 1.5 mmol L^{-1}. Treatments were carried out between filter papers in petri dishes using 4 mL of solution. After 12 hours of treatment, the seeds were rinsed with distilled water on filter paper and set to germination in a germination chamber according to the ISTA method with four repetitions, one hundred seeds each. After germination, measurements of the length of the root and stem of the seedlings were performed by a ruler, and the seedling mass was determined on the analytical balance.

Results

Table 1. Effect of different concentrations of giberalic acid, on the growth of roots, stems and seedlings mass of white clover

Gibberalic acid concentration (%)	Root length (mm)	Stem length (mm)	Seedling weight (g)
Ø	5.03 a	24.02 b	0.00358 bc
0.25	4.70 a	27.82 ab	0.00320 c
0.5	5.38 a	29.00 ab	0.00545 a
0.75	4.53 a	24.60 b	0.00502 ab
1.0	7.15 a	27.70 ab	0.00352 bc
1.5	4.70 a	31.77 a	0.00525 ab

Values followed by different small letters within columns are significantly different (P<0.05) according to the LSD test

Conclusions

The obtained results indicate that presowing treatments with gibberallic acid didn´t affect the root length of white clover seedlings, whose average length was 5.2 mm. Treatment with 1.5% solution of gibberalic acid had a significant positive effect on the stem length in relation to the control variant. Treatment with gibberallic acid at a concentration of 0.5% significantly increased the seedling weight. The average stem length of seedlings were 27.5 mm, and the average seedling weight was 0.00434 g.