Effect of exogenous polyamines on growth, flowering and corm production of 'Golden Wave' and 'Blue Sea' cultivars of freesia

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Abstract

This experiment was carried out to investigate the effect of polyamines on growth, flowering and corm production of 'Golden Wave' and 'Blue Sea' cultivars of freesia. For this purpose, freesia plants were sprayed at 35, 70 and 100 days after planting with concentrations of 0.5 and 1 mM of putrescine, spermidine and spermine and distilled water (control). The factorial experiment was performed in a completely randomized design with 3 replications and 2 pots for each replicate. Results showed that spermine treatment delayed flowering time. But spermidine treatment accelerated flowering and also increased leaf length, flowering stem height, inflorescence height, diameter and length of florets and number of lateral stems in both cultivars. Maximum number of corms was obtained in spermidine treatment. But, plants treated with putrescine had more corm weight and diameter than other treatments and control. Polyamines increased leaves nutrient concentration. The highest nitrogen concentration (2.39 and 2.37 percent) was observed in putrescine and spermine treatments and the highest concentration of phosphorus (0.47 and 0.46 percent), potassium (3.1 and 3.03 percent) and zinc (51.31 and 50.3 mg/L) was obtained in spermidine and putrescine treatments. Almost all polyamines increased magnesium concentration of leaves. The results of this study revealed that polyamines, and especially spermidine and putrescine, could increase yield and improved quality of flower and corm of freesia.

Keywords: Spermidine, Spermine, Putrescine, Cormlet, Flowering stem, Nutrients.

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