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Physiological effects of K-soil application and Zn foliar spray and their interaction on growth, flowering, bulbs and chemical composition of *Polianthestuberosa* L. cv. "Double".

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SUMMARY

. Two field experiments were carried out in the experimental farm of Faculty of Agriculture, Fayoum University at the two successive seasons 2001/2002 and 2002/2003 to explore the response of *Polianthestuberosa*L cv. "Double" plants to the effect of K soil fertilization (0.0, 5, 10 and 20 g potassium sulphate/ plant) and foliar spray with Zn at two concentrations (1000 and 2000 ppm) on vegetative growth, summer and autumn flowering, bulbs and bulblets and chemical composition. The obtained data showed that fertilizing tuberose plants with K fertilizer at any level used in the study were accompanied with significant (in general) increase in vegetative growth characters (plant height, leaf length and fresh weight of leaves/clumb) compared with untreated plants and also increased all flowering traits parameters (summer and autumn flowering) i.e. length of floral stalk, fresh weight of spike, number of florets/spike and yield of flowers, as well as, number of days to flowering. The results showed also that fertilizing tuberose plants with the highest rate of K (20g/plant)caused a significant increase on bulbs production (fresh weight and number of bulbs + bulblets/ plant and bulbs diameter), chlorophyll (a+b) and total carotenoids in leaves, N, P and K percentages in leaves and bulbs and also Zn and Mn concentration in bulbs.Regarding the effect of foliar spray with Zn on tuberose plants data revealed that, spraying tuberose plants with Zn at 2000ppm increased insignificantly all the above mentioned characters vegetative growth,summer and autumn flowering, bulbs production, as well as, leaves and bulbs chemical composition in both seasons, while decreased each of P and Zn contents in bulbs in the two growing seasons and number of bulbs+ bulblets/plant in the second season. The interaction effect between K fertilizer and Zn on all the above mentioned studies varied between the two seasons of the study and the above-mentioned parameters of vegetative growth, flowering, bulbs production and chemical composition.