Effect of potassium fertilizer and phosphorein on vegetative growth, flowering and chemical composition of Dahlia pinnata plant

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Abstract

This investigation was carried out at the a Private Farm in Fayoum Governorate, Egypt, during the two successive seasons of 2010/2011 and 2011/2012 to study the effect of potassium fertilizer and inoculation with phosphorein on vegetative growth, flowering and chemical composition of ***Dahlia pinnata*** plant. Dahlia tubers were fertilized with three levels of potassium (0, 8 and 16 g/plant) as potassium sulphate (48.5% K_2O) and three levels of phosphorein (0, 100 and 200ml/plant). Potassium at the highest rate increased plant height, number of leaves/plant, leaf area, fresh and dry weights of leaves, inflorescence, stems and tubers/plant, inflorescence diameter, number of tuberous /plant, Pedicle length, shortened the period from planting to flowering (early flowering), the chlorophyll (a, b), carotenoids in leaves, mineral contents (N, P and K), total carbohydrates and total sugars in leaves and tubers. Plants inoculated with phosphorein resulted the significant highest values in the whole of characters studied, as well as increase the period from planting to flowering (late flowering), while the uninoculated plants gave rise to the lowest recorded and shortened the period from planting to flowering (early flowering). The interaction effect between potassium and phosphorein fertilizers showed the highest value of vegetative growth, flowering, tubers production and chemical composition when potassium and phosphorein were applied at the highest levels.

Keywords: Dahlia, Potassium fertilizer, Biofertilization, *Bacillus megatherium*, vegetative growth, flowering production, chemical composition and tubers characters