

EFFECT OF SPRAYING WITH α -TOCOPHEROL AND EXTRACT OF BLACK CUMIN SOAKED ON THE VEGETATIVE AND FLOWERING GROWTH OF *FREESIA HYBRID L.*

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Abstract

The experiment was conducted during the agricultural season 2021-2022 in lathhouse covered with a saran cover belonging to the Department of Horticulture and Landscaping Engineering at the College of Agriculture / University of Basrah, To study the effect of spraying with α -tocopherol and extract of soaked black cumin on the vegetative and flowering growth of *Freesia hybrid L.* for spraying with α -tocopherol at a concentration of (0,60,120) mg.l and extract of soaked black bean (80,40,g.g.liter⁻¹) of traits Vegetative growth and flowering, by three sprays between one spray and another 15 days. The results showed that spraying plants with α -tocopherol at a concentration of 120 mg.L⁻¹ improved all indicators of vegetative and flowering growth, which included (plant height, number of leaves, leaf area, vase life, flowering period, number of florets and length of inflorescence. As for spraying plants with black cumin extract infused at a concentration of 80 g.L⁻¹, a significant effect on (plant height, leaf area, number of leaves, vase life, flowering period, number of florets and stalk flower length, As for the bi-interactions between α -tocopherol at a concentration of 120 mg.L⁻¹ and black cumin extract infused at a concentration of 80 g.L⁻¹, it gave the highest rates compared to the control plants.

Keywords: α -tocopherol, black cumin soaked, *Freesia hybrid L.*

Introduction

Freesia hybrid, belonging to the Iridaceae family was discovered by the scientist Friedrich Heinrich It odor in 1876 in southern Africa. The name of the genus belongs to the Swedish doctor and scientist Frees. (Albattal, 2010; Wulfighoff, 2001) It is a vine, annual, winter plant that contains bright green flat sap leaves, while the stem-shaped flowers are borne in comb inflorescences with flowers of different colors, including yellow, orange, white and red, and it has an aromatic smell. The plants flower in the spring and are suitable for commercial cutting. The *freesia* plant occupies the seventh place in the world among the cut flowers in terms of importance after the flowers of rose, Chrysanthemum, tulip, lily, carnation and gerbera (Laushman and Armitage 2003, Al-Batal, 2005, Al-Jalabi and Al-Khayyat 2013). The importance of the *freesia* plant as a picking flower is concentrated due to the beauty of its multi-colored flowers and sizes and the long period of flowering after cutting. It is of great importance because of the multiplicity of purposes of its cultivation, as it is grown in houses whose conditions are controlled in order to obtain flowers suitable for cutting throughout the year (Al-Dabaa and others, 2004). (*Freesia* multiplies by seeds or vines in autumn and spring, and it is a plant belonging to the Iris family (Al-Sultan et al., 1992). (Foliar nutrition means spraying solutions of nutrients on the vegetative total of plants, and it is of great importance in providing plants with the nutrients necessary for their