

Effectiveness of Propolis Aqueous Extract on Chemical Constituents of Calendula Plants

Abou-Sreel¹, A I B Mahfouz^{2*}, S A Zewainy³

¹Horticulture Department, Faculty of Agriculture, Fayoum University, Egypt ²Medicinal and Aromatic Plants Dept., National Research Centre, Dokki, Egypt ³Plant Nutrition Dept., National Research Centre, Dokki, Egypt

Available Online: 25th February, 2017

ABSTRACT

This study was performed in order to investigate how the foliar spray of propolis aqueous extract can influence the vegetative growth and flowering characters, chemical constituents and oil composition of Calendula plants. The aqueous extract was applied at four levels (0, 5, 10, 15 and 20 gL⁻¹). It was revealed that propolis was of a positive effect upon all studied parameters; there was an increase done due to the application of the aqueous extract of propolis. The highest results were obtained due to the application of 5, 10 and 15 g L⁻¹ from the aqueous extract of propolis compared to 20 g L⁻¹ and the control plants. 5 and 10 g L⁻¹ gave the highest records of vegetative characters. While, 15 g L⁻¹ had the highest records of all flowering attributes. In chemical composition optimum results ranged between 10 and 15 gL⁻¹. The highest percentage of the most important components of the essential oil; sesquiterpene hydrocarbons (cadinene, α -Muurolene and Muurolene) and sesquiter phenols (α -cadinol, α -Cadinol (Epi) and α -Muurolol (Epi)) resulted from 15 g L⁻¹. Hence, it could be suggested that propolis aqueous extract could be sprayed on calendula plants at a rate not exceeding 15 g L⁻¹ to get higher results .

Keywords: Propolis, Calendula officinalis, foliar application, essential oils and flowers pigments.