

PRODUCTION OF SUNFLOWER (*Helianthus annuus* L.) AS A FLOWERING POT PLANT USING DIFFERENT POTTING MEDIA AND GROWTH RETARDANT TREATMENTS

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ABSTRACT

This study was carried out in the experimental nursery of the Ornamental Horticulture Department, Faculty of Agriculture, Cairo University, during the two successive years of 2007 and 2008. The aim of this study was to investigate the possibility of growing sunflower (*Helianthus annuus* L.) as a pot plant using different potting media and growth retardant treatments. The plants were grown in 25-cm pots filled with clay, clay+sand (1:1, v/v), clay+peat (1:1, v/v) or sand+peat (1:1, v/v), and were treated twice with paclobutrazol as a soil drench at 1.5, 3.0, 4.5 or 6.0 mg a.i./pot, or with Pix (mepiquat chloride) as a foliar spray at 500, 1000, 1500 or 2000 ppm, plus the control. The recorded results showed that using clay+peat (1:1, v/v) gave the best results for all the studied vegetative growth and flowering characteristics. In most cases, the different growth retardant treatments decreased plant height. The shortest plants were achieved with using paclobutrazol at 6 mg a.i./pot (in the first season) or Pix at 2000 ppm (in the second one). Growth retardant treatments (paclobutrazol or Pix) also decreased flower diameter, but increased the fresh and dry weights of flower-heads.

Key words: *Helianthus annuus*, mepiquat chloride, paclobutrazol, sunflower.

1. INTRODUCTION

Flowering pot plants represent one of the most interesting and promising typologies of ornamental production, and frequently new species or products are selected for marketing. In view of the positive trend shown in the last years by the increase in production of flowering pot plants, the use of sunflower (*Helianthus annuus* L.) as a flowering pot plant, though quite unusual for this species, could represent a powerful innovation. On the other hand, as for any new product, there is a lack of information about the cultivation technique and the appropriate practices for getting the best results in producing high quality potted sunflower (Vernieri *et al.*, 2003). The cultivation of ornamental sunflower has increased during the past few years in Egypt, as cut flowers and pot plants. Several management practices are used for the production of pot ornamental plants, and among them the use of growth retardants (Bonacin *et al.*, 2006).

Many growth retardants, such as triazole salts, are synthetic chemicals previously introduced in the horticultural production scale as steroidal herbicides. Practically, these retardants are more effective than others, *i.e.*, lower concentration or active ingredient levels are adequate to produce similar effects to higher concentrations of other

retardants (Law and Hamilton, 1989).

This study was conducted with the aim of investigating the effect of different types of potting media, as well as growth retardant [PP-333(paclobutrazol) and Pix (mepiquat chloride)] treatments on the vegetative growth and flowering of sunflower (*Helianthus annuus*) plants. The information provided by this study may help in the successful production of *H. annuus* as flowering pot plants.

2. MATERIALS AND METHODS

This study was carried out at the experimental nursery of the Ornamental Horticulture Department, Faculty of Agriculture, Cairo University, during the two successive years of 2007 and 2008. The aim of this study was to investigate the possibility of growing sunflower (*Helianthus annuus*) as a pot plant using different potting media and growth retardant treatments.

2.1. Experimental procedures

On the 5th of March, 2007 and 2008 (in the first and second seasons, respectively) F1 seeds of sunflower (*Helianthus annuus*) were obtained from the nurseries of Floramix Co., El-Maryoutia, Giza Governorate. The seeds