Productive Response to Gibberellic Acid in Three Cultivars of Seed Propagated Artichoke

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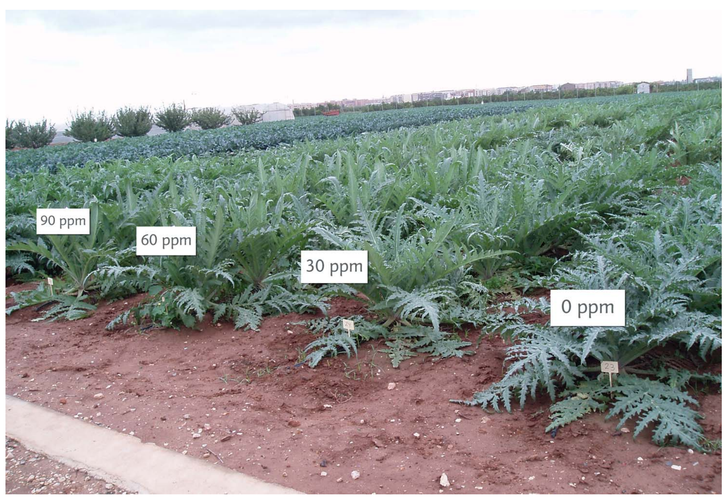
INTRODUCTION

The usual artichoke productive cycle in The Spanish Mediterranean Coast with common clonal varieties happens from October to May, but the most interesting period is from middle October to first March. Although artichokes need cold to blossom, gibberellic acid treatments have make possible the improvement of earliness on multiplied vegetative cultivars.

MATERIALS AND METHODS

The experience was carried out at the Experimental Station of Fundación Ruralcaja in Paiporta, south of Valencia, Spain, using seed-propagated cultivars `Harmony´, `Madrigal´ and `Imperial Star´. The sowing took place the 14th June 2005 and on the 1st August 2005 the potted plants were transplanted.



Plants were sprayed three consecutive times every two weeks with GA_3 at doses (D1) 30, (D2) 60 and (D3) 90 mg L^{-1}. The first application was when plants had 6-10 developed leaves. A non-ionic wetting agent was added at 0.1% (v/v) to all GA_3 solutions. Untreated plants served as controls. The experimental design was a fully randomized factorial of two factors: three cultivars and four GA_3 concentrations. For each combination three replications of 10 plants were performed

RESULTS AND DISCUSSION

Early Yield

`Imperial Star´ and `Harmony´ were the earliest cultivars.

On the cultivar `Imperial Star´ GA_3 dose of 30 mg L^{-1} was enough to obtain the maximum precociousness.

On the cultivar `Harmony´ the higher early yield was achieved by the GA_3 dose of 60 mg L^{-1}.

The latest cultivar was `Madrigal´ and its marketable production until January for the highest dose of GA_3 was 1.200 kg ha^{-1}. There were only statistically differences among the doses of GA_3 and the control and this seems to point to be necessary high doses of GA in order to obtain early yield on this cultivar.

Total Yield

`Madrigal´ was the more productive cultivar and it had the lower non-marketable yield. The lower final marketable yield was for the $GA_3$ dose of 90 mg $L^{-1}$ and there was a reduction on the marketable yield when the doses of GA were increased on the cultivars `Imperial Star´ and `Harmony´.

Nonetheless, in previous experiments similar results were found in `Harmony´ and `Madrigal´ (Baixauli et al. 2007), indicating that GA response is dependent on cultivars, GA concentrations and the moment of application.

Influence of different GA_3 concentrations on three cultivars