

Methyl jasmonate versus nano-methyl jasmonate: effects on anthocyanins mature evolution in Monastrell grapes

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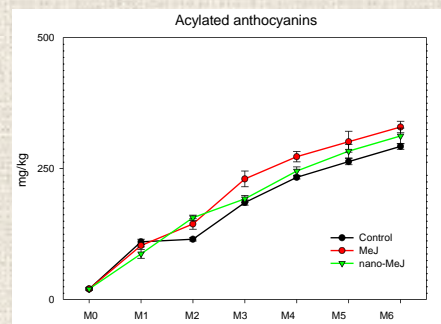
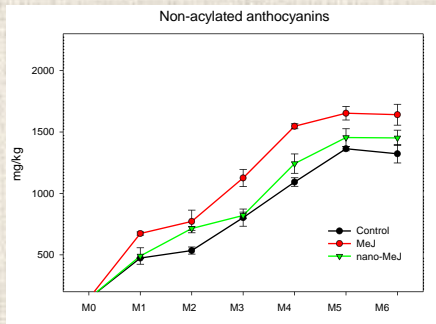
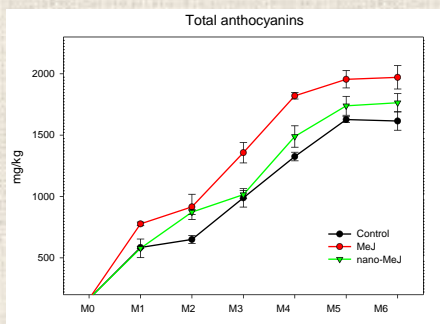
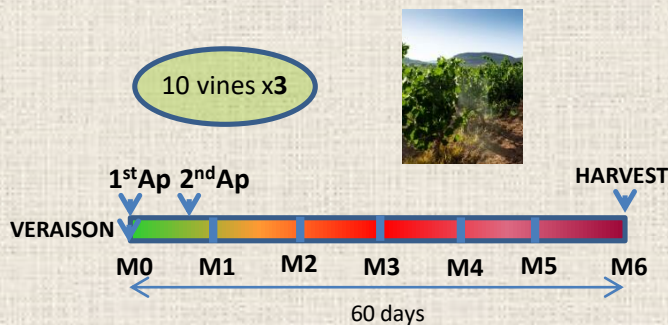
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OBJETIVE: The aim of this work was to study the effect of foliar application of methyl jasmonate (MeJ) and nanoparticles of hydroxyapatite doped with methyl jasmonate (nano-MeJ) in anthocyanins mature evolution in Monastrell grapes.

INTRODUCTION: The climate change is affecting particularly to the South of Spain, with high temperatures. It is important to develop new strategies in order to maintain the quality of wines. One of these strategies is the use of elicitors which increase the defense in plants and also increase the content of secondary metabolites(1), such as anthocyanins. MeJ is highly volatile, slightly soluble in water and also expensive, so for this reason it is necessary to optimize its application way. On the other hand, the use of use of nanoparticles joined to MeJ could diminish the concentrations applied in plants but obtaining similar effects in Monastrell anthocyanins profile as using only MeJ.

METHODS: The treatments were carried out in an experimental vineyard of Monastrell located in South East of Spain, Bullas (Murcia), foliar application of each treatment, by triplicate, in veraison and a week later. The different treatments were i) control, ii) MeJ (10mM) and iii) nano-MeJ (1mM). A study of mature evolution was done, the samples were taken at the previous moment of the first time treatments and every ten days until the moment of harvest. The analysis were performance by HPLC following the Gil Muñoz et al. (2) methodology.

RESULTS: At harvest time the treatment with MeJ increased significantly (22%) the total anthocyanins composition, nano-MeJ increased it by 9% although it was not significant compared to the control grapes. Non-acylated fraction showed an stabilization since 10 days before harvest, in the other hand acylated anthocyanins were increasing until harvest time.



CONCLUSIONS: In spite of the fact that the increased with nano-MeJ was not significant it must be remarked that the MeJ concentration was ten time less than standard application. The used of nanotechnology in the tratamientos with MeJ would allow to reduce the dose of this elicitor obtaining similar results, in the way to reduce costs and contribute to a sustainable agriculture.

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