

# PROANTHOCYANIN COMPOSITION IN NEW VARIETIES FROM MONASTRELL

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## Objetive

The aim of the resarch, it is to study the proanthocyanidin composition during three seasons in Monastrell hybrids because it is important the idea of registering new varieties of red grapes from Monastrell adapted to the new climatic scenario produced in the South East of Spain, with an excellent polyphenolic capacity.

## Introduction

Proanthocyanidins are responsible in an important way for positive aspects in wines, such as body, bitterness, astringency perception, and color stability in red wines so play an important role in the organoleptic properties of wines. The concentration of these condensed tannins will depend on several parameters such as grape variety, thus it was analysed the different new varieties and were compared to their parental, Monastrell.

## Results

In general, the results showed higher concentrations in tannins in the most hybrids of Monastrell for the three seasons studied (Figure 1) even tripling this concentration compared to Monastrell wines. Furthermore, season 2020 stood out for having a higher concentration compared to previous years and this could be due to weather conditions. Besides it is remarkable MC4 wines, this hybrid it is characterized by it is low concentration in polyphenolic compounds, although these values could be normal since the concentration of tannins in this variety is much lower with respect to the other hybrids

## Material and Methods

The plantation of these new varieties is in the experimental farm "El Chaparral" (Murcia), located in the south-east of Spain. The study was carried out during 3 consecutive seasons (2018 until 2020). The wines were made in the experimental winery in Jumilla (Murcia) and were analyzed in the final alcoholic fermentation (FFA), following the methodology of fluoroglycinolysis [1-2-3].



### Varieties

MC80  
MC98  
MS10  
MC4  
MC18  
Monastrell

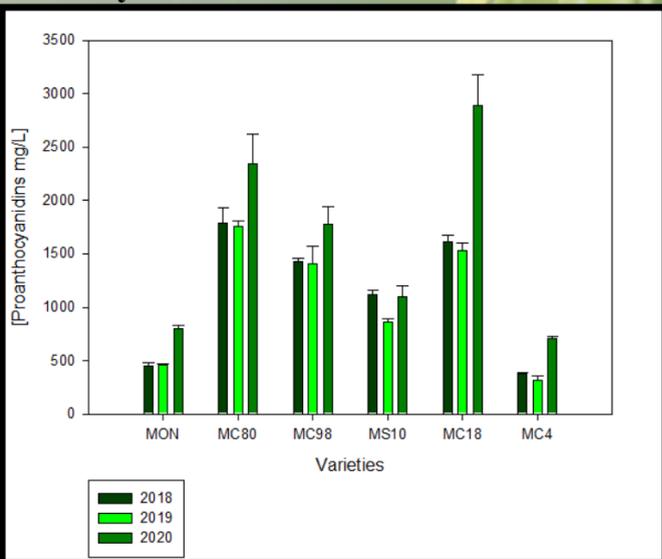


Figure 1. Total concentration of Tannins (mg/L) in Monastrell and hybrid wines.

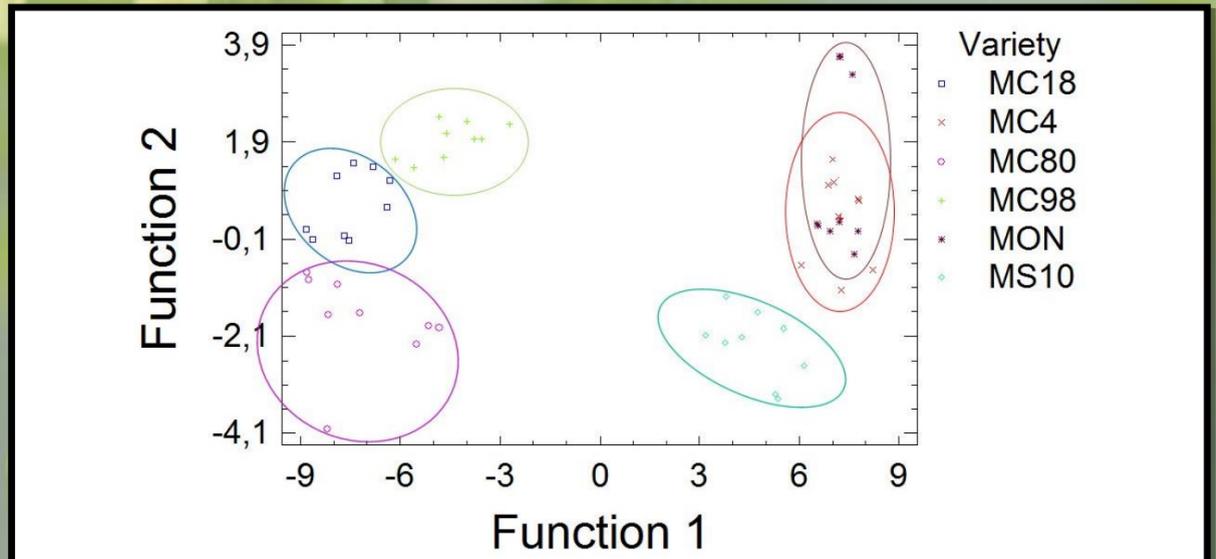


Figure 2. Distribution of sample wines in the three seasons studied (2018 until 2020).

In an effort of understanding differences between varieties, three discrimination functions with a  $p$ -value less than 0,05 were statistically significant with a confidence level of 95% (Figure 2). To carry out this analysis, the variables were epicatechin-phloro, catechin-phloro, epicatechin-4-phloro, epicatechin-2-phloro, catechin, epicatechin-3-o-gallate, epicatechin, epicatechin-3-o-gallate, %galloliation and medium degree of polymerization (Gpm). The variables with highest discriminating power were epicatechin-3-O gallate and epicatechin-4-phloro for Function 1 and epicatechin-3-O-gallate and % galloliation for Function 2. As can be seen in Figure 2, MC98-MC18-MC80 were perfectly separated from Monastrell while MS10 was more similar to Monastrell in terms of proanthocyanidins and finally MC4 obtained the greatest similarities with Monastrell. Furthermore, as individual analysis a higher concentration of epigallocatechin was found in most of the hybrid wines elaborated, being positive from an organoleptic point of view, since this compound provides softness to the wines. Another of the compounds of interest analyzed was epigallocatechin gallate, this compound was also found in higher concentrations in hybrids analysed than in Monastrell variety.

## Conclusion



These new varieties ensuring its incredible polyphenolic concentration showing a great potential as new varieties adapted to the dry and hot conditions produced in the south east of Spain.

## ACKNOWLEDGMENT

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