

EFFECT OF THE ADDITION OF POLYSACCHARIDES EXTRACTED FOR GRAPE POMACE AND MUST ON SENSORY AND CHEMICAL COMPOSITION OF WHITE WINES

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INTRODUCTION

Wine polysaccharides play an important role in the technological and sensory characteristics of wines. Currently on the market there are only commercial products rich in polysaccharides derived from yeasts, mainly mannoproteins, which have not always shown a clear effect in wines. In addition, some recent studies have shown the great potential that other types of polysaccharides and oligosaccharides from grapes could have in several wine characteristics. Therefore, taking into account that much of the waste obtained in the wine sector is not used, we decide to extract polysaccharides (PS) from grape pomace and musts and incorporate them into wines to improve their quality.

The **objective** of this work was to study the effect of the addition of different polysaccharides extracted from grape pomace by-products and musts on sensory and chemical composition of white wines.

MATERIALS AND METHODS

Four white wines from *Albillo* (W1, W2) and *Verdejo* (W3, W4) grape varieties were elaborated and five experiments were carried out with each wine:

Control Wine
(without the addition
of product) (C)

Addition of PS extracted
from white must (M)



Addition of PS extracted from
white grape pomace (P)



Addition of rhamnogalacturonans
type II of 80% purity (RG II)



Addition of commercial PS
(inactivated dry yeast, IDY)

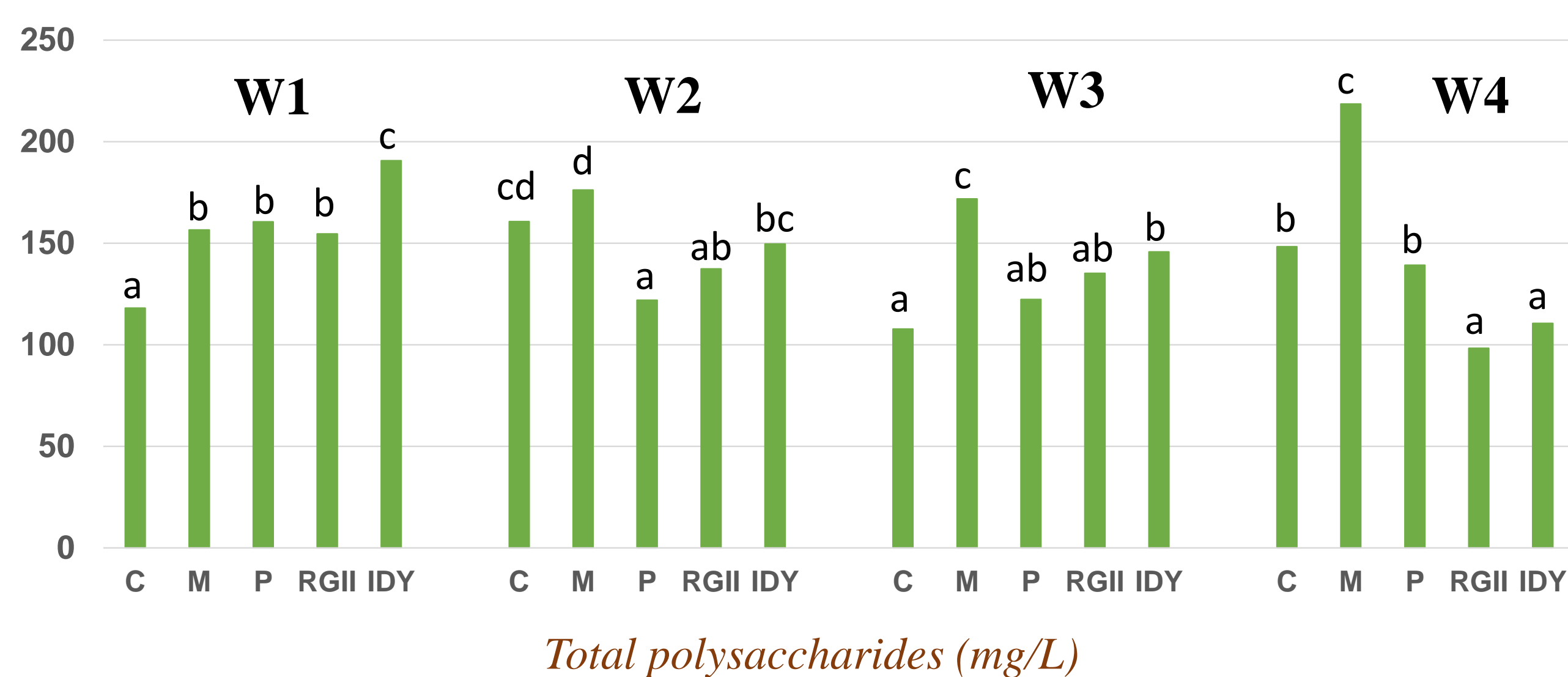


These products were maintained in contact with the wines for two months, and then they were filtered and bottled.

Total polysaccharides, volatile and phenolic compounds were analysed after two months in bottle, and a sensory analysis was also carried out. The analyses were based on spectrophotometric, HPLC-DAD and GC-MS methods. The analysis of variance was carried out using the statistical program Statgraphics Centurion XVIII.

RESULTS

The addition of the different PS extracts increased the total PS content, mainly in the wines treated with PS extracted from grape pomace and must.



No significant differences were found in the total phenolic compounds and tannins by the effect of the addition of the different PS added.

Total polyphenols and tannins (mg/L)

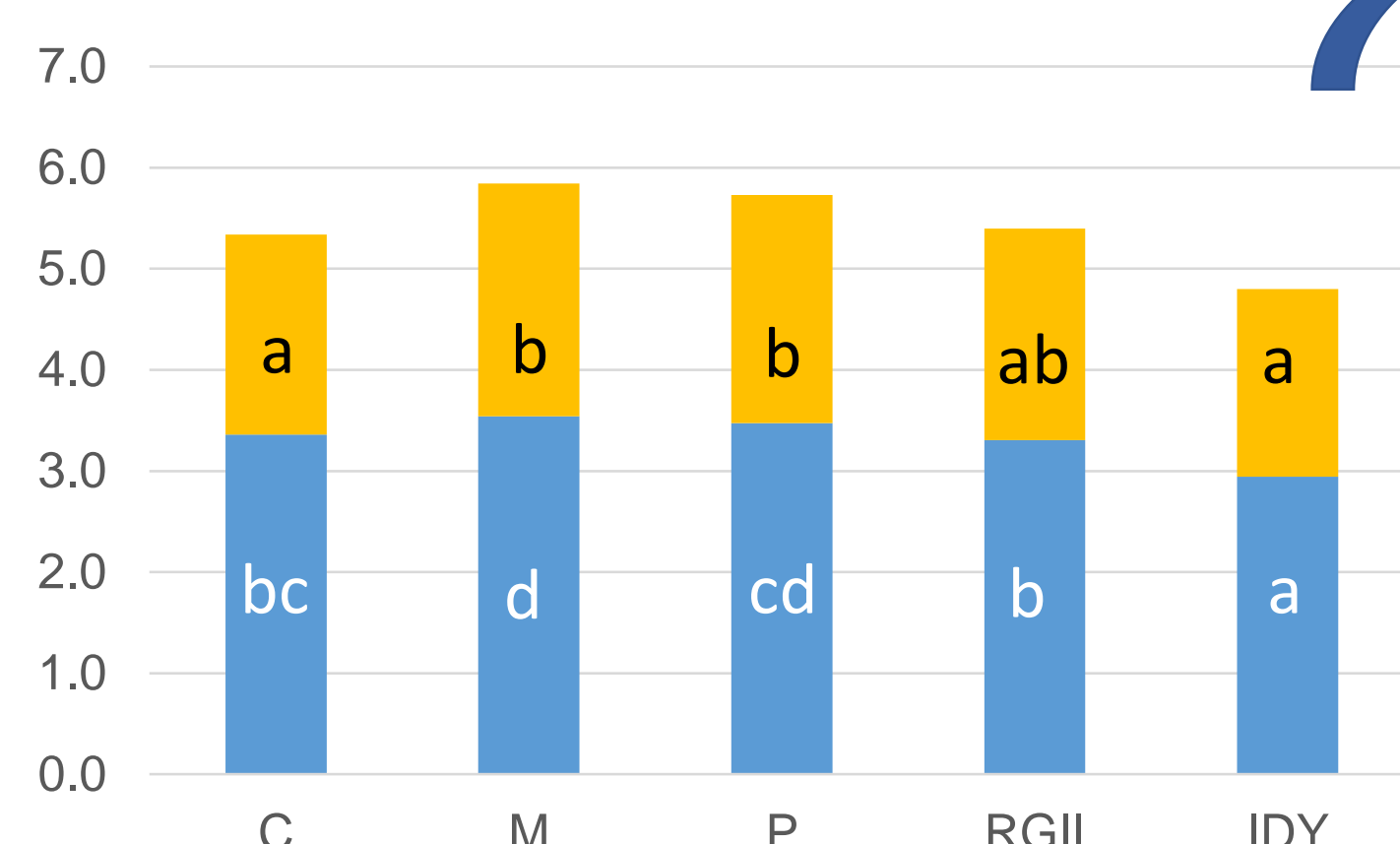
W1	Total Polyphenols	Tannins	W2	Total Polyphenols	Tannins
C	124	84	C	156	108
M	121	87	M	152	105
P	125	87	P	158	95
RG II	118	82	RG II	155	95
IDY	120	82	IDY	151	92

W3	Total Polyphenols	Tannins	W4	Total Polyphenols	Tannins
C	136	101	C	158	104
M	140	100	M	159	104
P	137	107	P	177	107
RG II	139	107	RG II	176	103
IDY	133	97	IDY	171	108

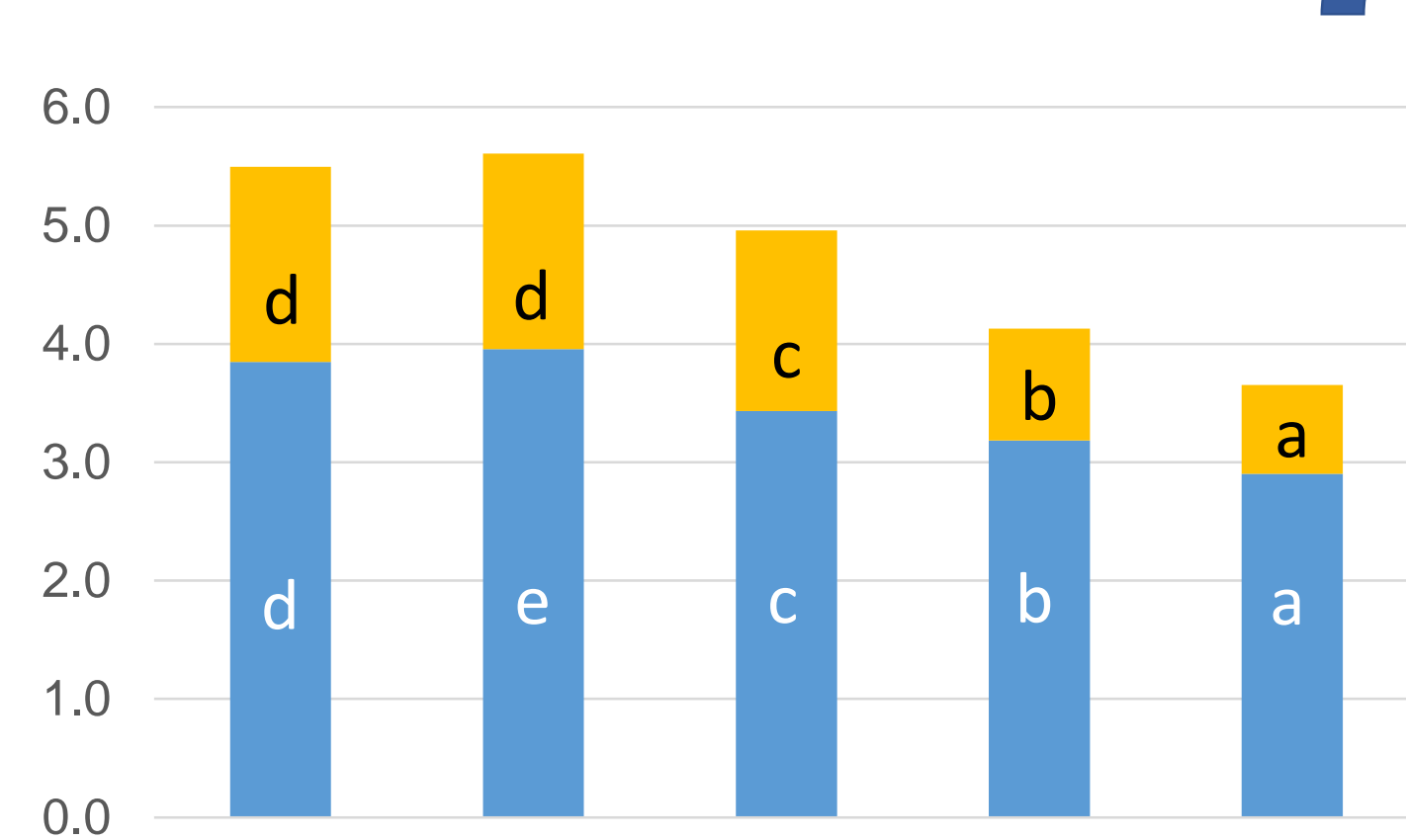
The differences observed in the volatile composition depended on the wine and the family group. Statistically significant differences in the content of ethyl esters of fatty acids (EE), alcohol acetates (AA) and terpenes were found. The EE and AA slightly increased in some of the wines treated with PS extracted from grape pomace and must, and decreased in wines treated with RG-II and IDY.

The increase in these volatile compounds could have a significant sensory impact on wine fruity notes.

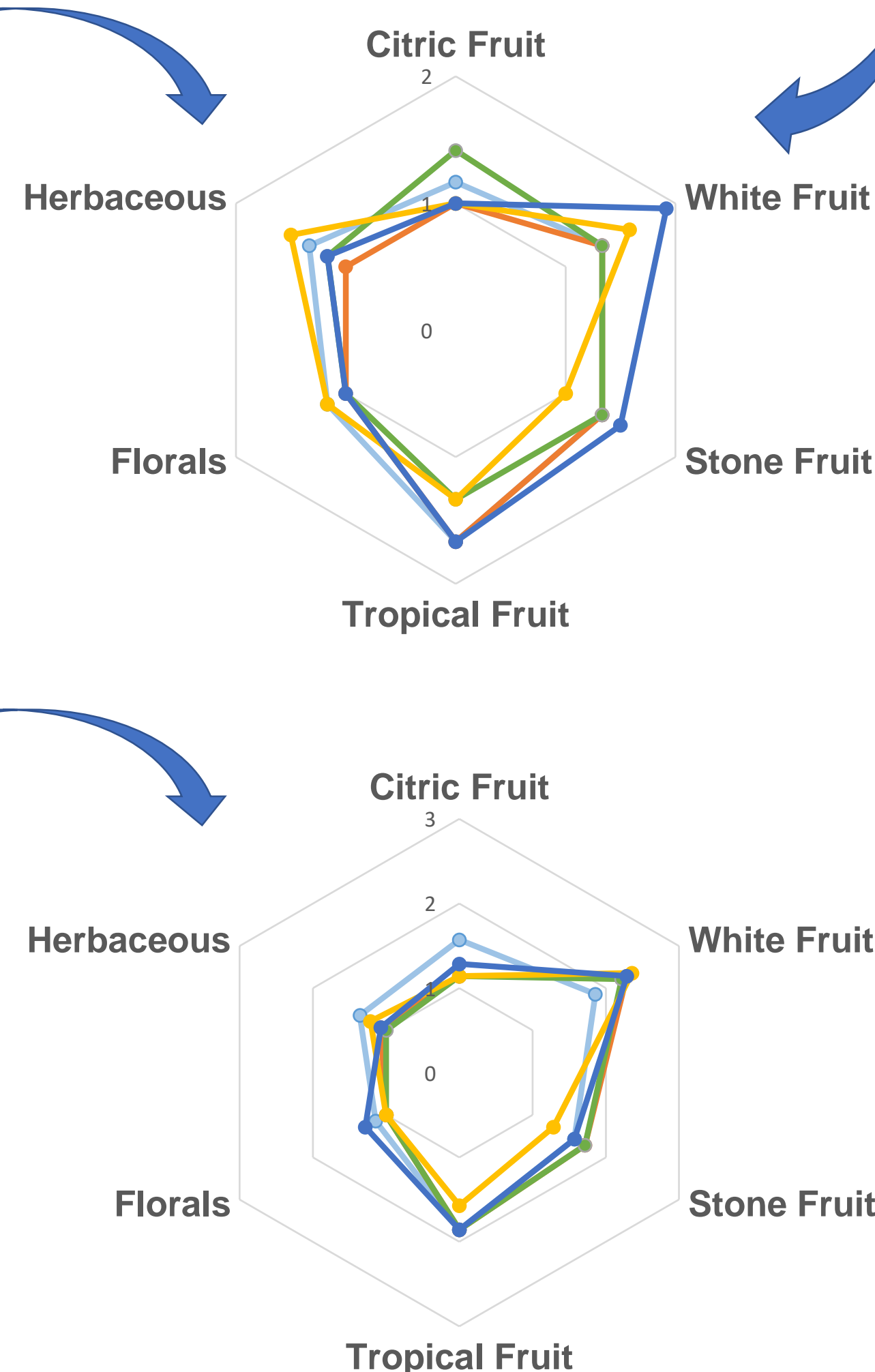
W1



W3



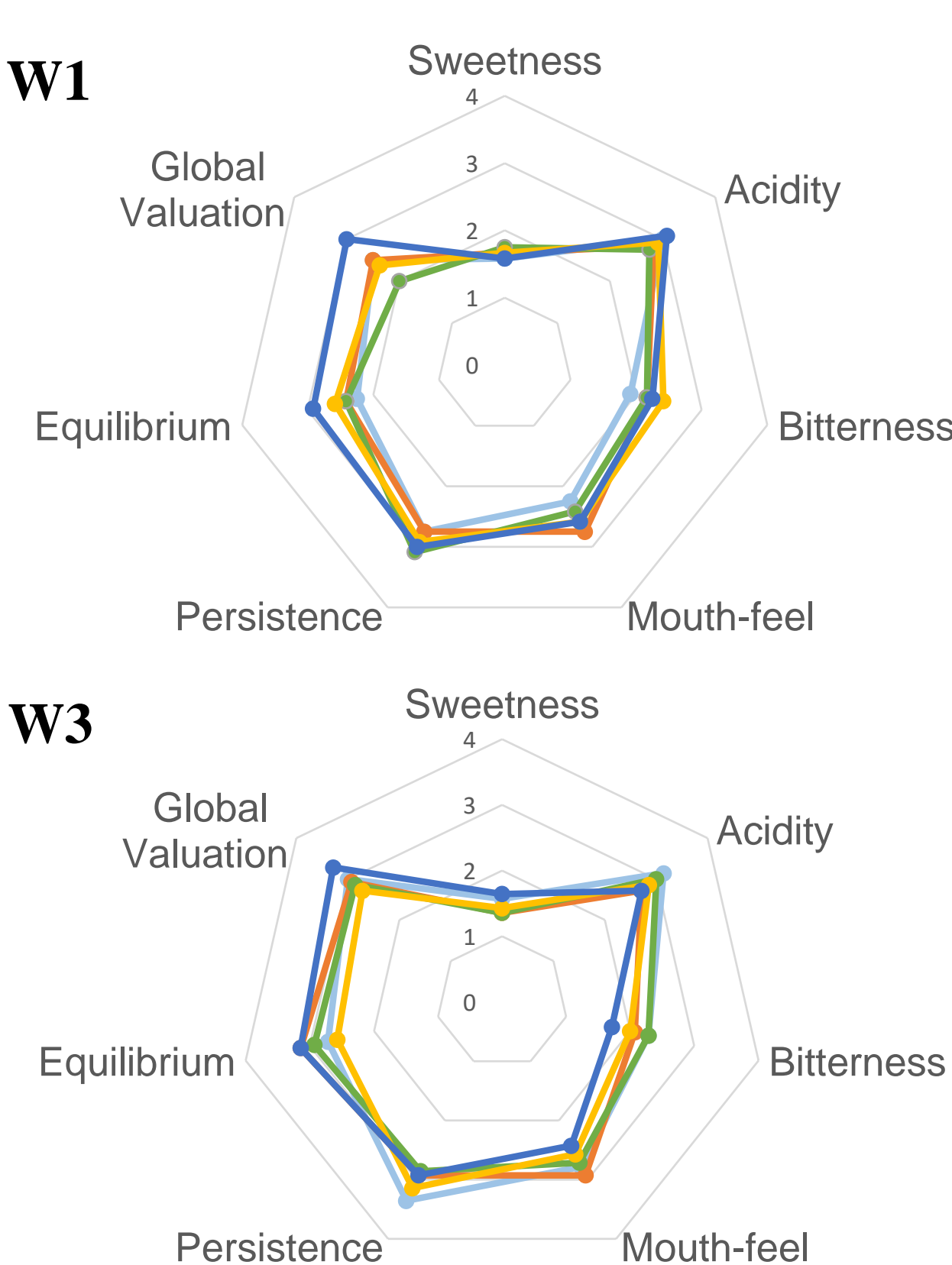
Ethyl esters and alcohol acetates (mg/L)



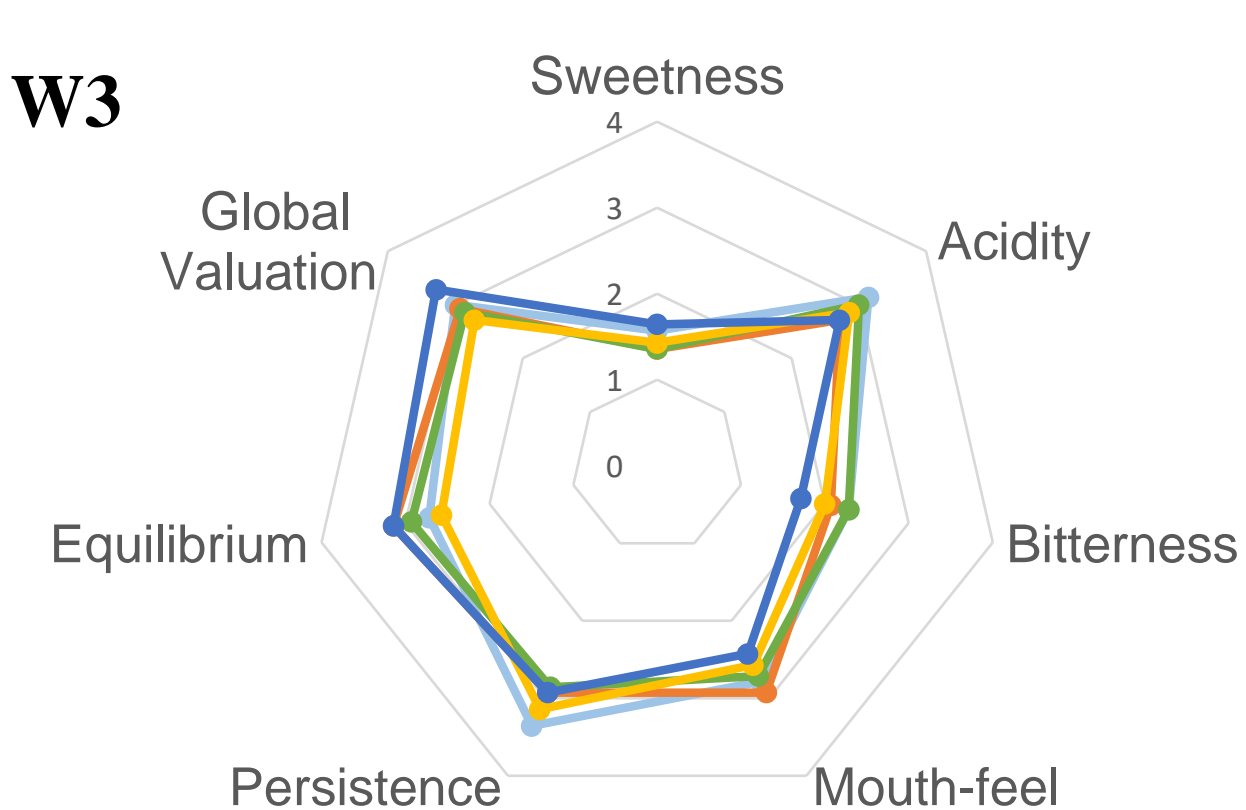
Values of the olfactory parameters studied

The treatment with the PS extracts reduced the acidity excess of some of the wines studied and increased their mouth-feel and global valuation.

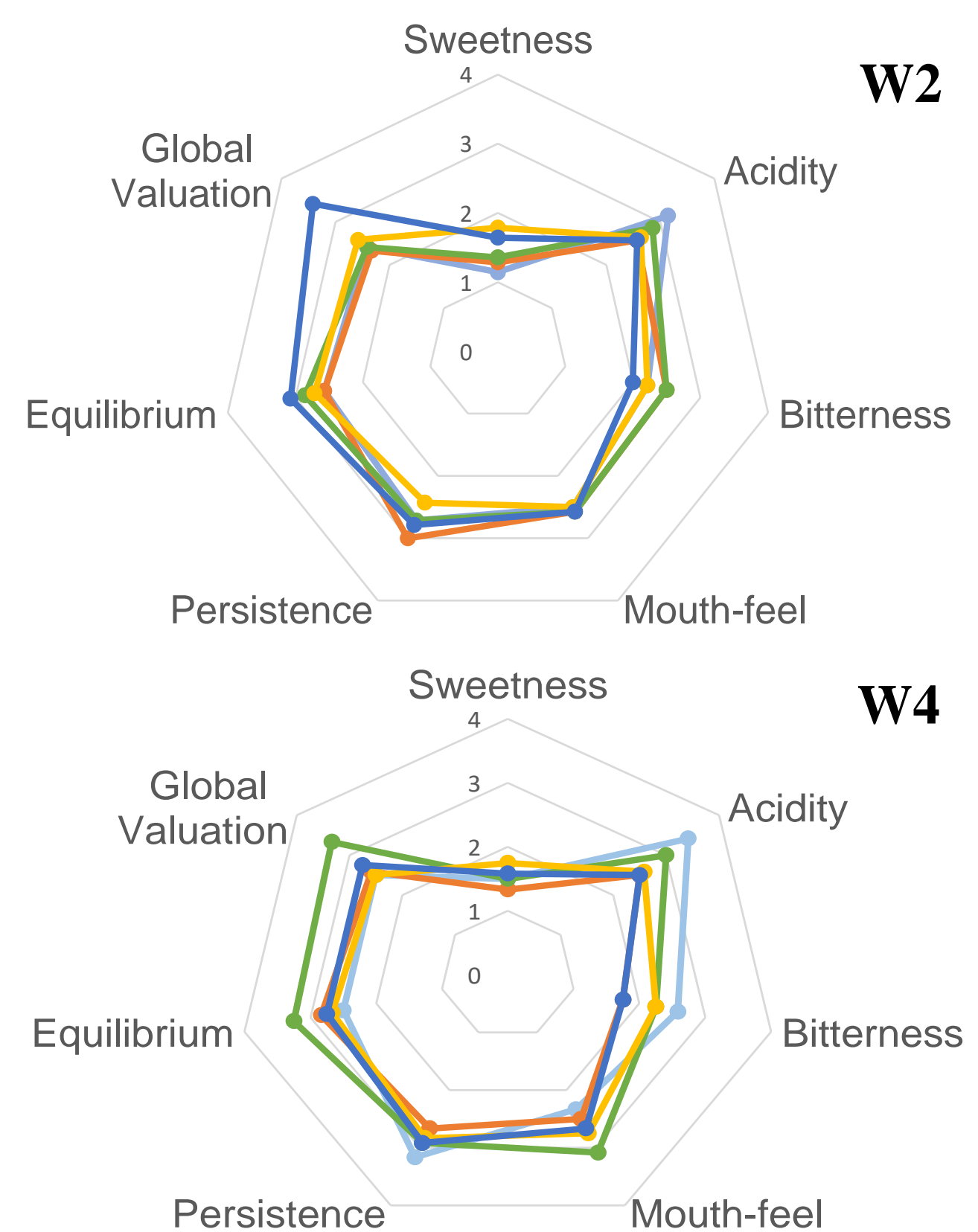
W1



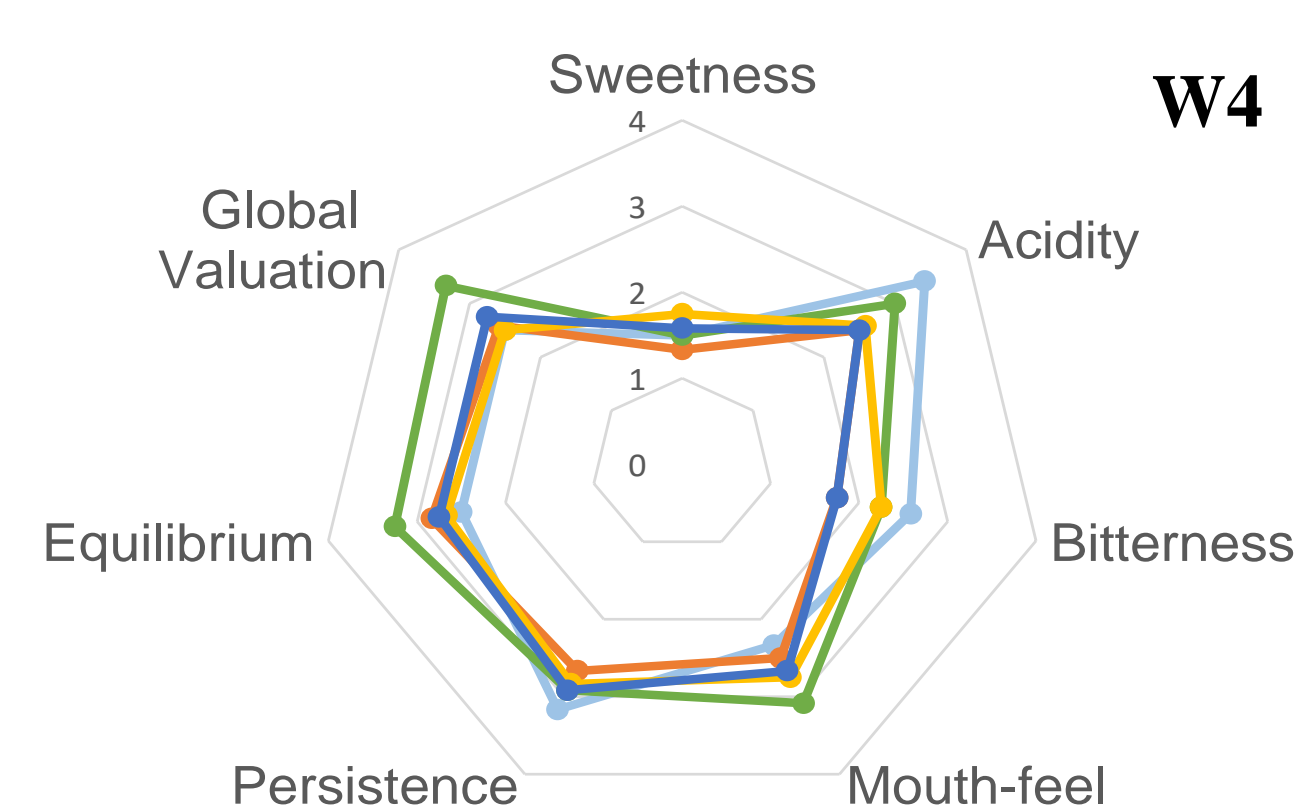
W3



W2



W4



Values of the gustatory parameters studied

CONCLUSION

The use of grape PS extracted from grape pomace or must can improve some wine characteristics, such as polysaccharide and volatile composition, and the acidity and mouth-feel attributes. However, these are preliminary results since these wines will be analysed after six months in bottle in order to know if these changes will maintain.

ACKNOWLEDGEMENTS

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