

Poster n° **12037**: **USE OF DIFFERENT ENOLOGICAL TECHNIQUES TO PREPARE RED BASE WINES: EFFECT ON VOLATILE COMPOSITION**

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Key words: red base wines; enological techniques; volatile compounds

In recent years, the market of natural sparkling wines is growing quite fast in Spain due to the increase of both national consumption and export volume. Most of the sparkling wines elaborated in our country are white and rosé ones, being the production of red sparkling wines practically non-existent. However, these wines are elaborated in other countries like Australia, South-Africa, Argentina, Italy or Portugal, with a great acceptance by consumers.

One of the initial problems is to obtain suitable base wines that should have moderate alcohol content, good colour intensity and good mouthfeel. Therefore, different winemaking techniques have been studied that allow to obtain suitable base wines for the elaboration of natural red sparkling wines, focused in this work on the volatile composition.

Grapes from Tempranillo variety were harvested in two maturity moments: prematurity grapes (PM) with alcohol degree and acidity suitable to elaborate a sparkling wine, but that they do not have the adequate phenolic maturity, and grapes at their optimum degree of maturity (M). Then, two winemaking techniques were carried out for each type of grapes: pre-fermentative cold maceration with dry ice (PM-DI) and rack and return with partial removal of seeds ("delestage") (PM-D) with the prematurity grapes; and removal of part of the sugar present in must (M-SR) and partial dealcoholisation of wine (M-AR) with the maturity grapes. In both moments, a control wine was also elaborated. All the elaborations were carried out in duplicate.

The volatile compounds were analysed by gas chromatography coupled to a mass detector, after a previous liquid-liquid extraction. The analyses were carried out in triplicate.

The wines obtained with prematurity grapes had an alcohol degree of 11 °, while those obtained with maturity grapes had 12.5°. Therefore, the M-SR y M-AR wines were reduced their alcohol degree in 1.5°.

In general, the wines obtained with maturity grapes showed the highest levels of ethyl esters, mainly ethyl hexanoate, ethyl octanoate and ethyl cinnamate, and of vanillin derivatives, with the exception of M-AR wine that showed a lower ethyl esters of straight-chain fatty acids.

On the contrary, the wines elaborated with the prematurity grapes showed the highest concentrations of alcohol acetates and C6 alcohols, 1-hexanol and cis-3-hexenol, compounds responsible of herbaceous aromas.

Taking into account these results, the base wines obtained with the maturity grapes could be more suitable than those obtained with prematurity ones for sparkling wine elaboration, although it should be considered other aspects.

The authors wish to thank the INIA for financing this study through the project RTA2012-092-C02.

USO DE DIFERENTES TÉCNICAS ENOLÓGICAS PARA LA PREPARACIÓN DE VINOS BASE TINTOS: INCIDENCIA EN LA COMPOSICIÓN VOLÁTIL

Palabras clave: vinos base tintos, técnicas enológicas, compuestos volátiles

En los últimos años, el sector de los vinos espumosos naturales es uno de los que más está creciendo en España, tanto en consumo nacional como en volumen de exportaciones. La mayor parte de los vinos espumosos que se elaboran en nuestro país son blancos y rosados, siendo la elaboración de vinos espumosos tintos prácticamente inexistente. Sin embargo sí se elaboran en otros países como Australia, Sudáfrica, Argentina, Italia o Portugal, con una gran aceptación por parte de los consumidores.

Uno de los problemas iniciales que se plantea es la obtención de un vino base adecuado, con una graduación alcohólica moderada, una buena intensidad de color, y una buena estructura en boca. Por ello, se ha estudiado el efecto de diferentes técnicas enológicas que permitan obtener vinos base idóneos para la elaboración de vinos espumosos tintos naturales, centrándose en este trabajo en la modificación de la composición volátil.

Se vendimiaron uvas de la variedad Tempranillo en dos momentos de maduración: uvas pre-maduras (PM) con valores de grado alcohólico y acidez adecuados para elaborar un vino espumoso, pero que todavía no tienen la madurez fenólica deseada, y uvas en su momento óptimo de maduración (M). Posteriormente, se llevaron a cabo dos técnicas enológicas con cada tipo de uva: maceración pre-fermentativa en frío con hielo seco (PM-DI) y "delestage" con una eliminación parcial de las semillas (PM-D) con las uvas pre-maduras; y reducción de azúcares en el mosto (M-SR) y desalcoholización parcial del vino (M-AR) con las uvas maduras. En ambos momentos de vendimia se elaboró también un vino testigo. Todas las elaboraciones se realizaron por duplicado.

Los compuestos volátiles se han analizado por cromatografía de gases-masas, previa extracción líquido-líquido. Los análisis se llevaron a cabo por triplicado.

Los vinos obtenidos con uva pre-madura presentaron un grado alcohólico de 11°, mientras que en los elaborados con uva madura fue de 12,5°. Por ello, se redujo el contenido en alcohol aproximadamente en 1,5° a los vinos M-SR y M-AR.

En general, los vinos elaborados con uva madura presentaron mayores concentraciones de ésteres etílicos, principalmente de hexanoato de etilo, octanoato de etilo y cinamato de etilo, y de los derivados de vainillina, a excepción del M-AR que presentó menores concentraciones de los ésteres etílicos lineales. Por el contrario, los vinos elaborados con uva pre-madura presentaron mayores concentraciones de acetatos de alcoholes, y de alcoholes C₆, principalmente de 1-hexanol y cis-3-hexenol, compuestos responsables de los aromas herbáceos.

Teniendo en cuenta estos resultados, los vinos base obtenidos con uvas maduras podrían ser más adecuados para la elaboración de vinos espumosos, aunque habría que considerar otros aspectos.

Los autores agradecen al INIA la financiación de este estudio a través del proyecto RTA2012-092-C02.

Poster n° **12038**: **VOLATILES COMPOUNDS IN AGLIANICO DEL VULTURE GRAPPA**

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Grappa is a typical Italian alcoholic beverage obtained by the distillation of marc of fermented grapes. With this work, we wanted to give a first contribution to the knowledge of the aromatic characteristics of the grappa "Aglianico del Vulture" analyzing two young grappa (Barile e Venosa) and one old (1974). Contents of volatile compounds was quantified by means of analytical techniques SPME -SPE-GC-MS and GC-MS. The analysis revealed that grappa composition is affected by distillation techniques and raw material used. Grappa Venosa is characterized by high content of low molecular weight compounds such as isobutanol, isoamyl alcohols and ethyl hexanoate, while the grappa Barile contains very high amounts of high molecular weight molecular compounds such as ethyl decanoate and dodecanoate with its dodecanoic acid, which was not found in the other grappa. Grappa 1974 is distinguished by its higher content of hexanol, an alcohol coming from the oxidation of unsaturated fatty acids to which is attributed a vegetal note. Furthermore, grappa 1974 is distinguished especially for the presence of 2-butanol and ethyl lactate in very high concentration: this suggests that the grappa was produced from grape marc subject to typical bacterial spoilage due to storage. Finally, the grappa Barile have modest, but not negligible, amount of terpenes, mainly linalool, completely absent in grappa 1974.

COMPOSIZIONE AROMATICA DELLA GRAPPA AGLIANICO DEL VULTURE

La grappa rappresenta la tipica bevanda alcolica italiana ottenuta dalla distillazione delle vinacce fermentate. Con questo lavoro, si è voluto dare un primo contributo alla conoscenza delle caratteristiche aromatiche della grappa "Aglianico del Vulture" con l'analisi di due grappe giovani (Barile e Venosa) ed una grappa del 1974. Il contenuto dei composti volatili presenti è stato quantificato mediante le tecniche analitiche SPME-GC-MS ed SPE-GC-MS.

L'analisi ha rivelato che la loro composizione risente delle tecniche di distillazione e della materia prima utilizzata. La grappa di Venosa è caratterizzata dalla presenza rilevante di composti a basso peso molecolare quali l'isobutanolo, gli alcoli isoamilici e l'etil esanoato, mentre la grappa di Barile contiene quantità molto elevate di composti ad alto peso molecolare quale l'etil decanoato e dodecanoato con il relativo acido dodecanoico, che non è stato ritrovato nelle altre grappe.

La grappa 1974 si distingue per il contenuto notevolmente più alto di esanolo, un alcool proveniente dall'ossidazione degli acidi grassi insaturi, a cui si attribuisce una nota vegetale. Ma soprattutto per la presenza in concentrazione molto elevata del 2-butanolo e dell'etil lattato: il che fa pensare ad una grappa ottenuta da vinacce oggetto di alterazioni batteriche, tipiche dell'insilamento delle vinacce. Infine, nella grappa di Barile sono presenti quantità modeste, ma non trascurabili di terpeni, principalmente linalolo, completamente assenti nella grappa 1974.

COMPOSITION AROMATIQUE DE LA GRAPPA AGLIANICO DEL VULTURE.

Grappa est une typique boisson alcoolisée italienne obtenue par la distillation de marc des raisins fermentés. Avec ce travail, nous avons voulu donner une première contribution à la connaissance des caractéristiques aromatique de la grappa "Aglianico del Vulture" avec l'analyse de deux jeunes grappa (Barile et Venosa) et un en de 1974 (1974). Le contenu de composés volatils a été quantifiée au moyen de techniques d'analyse SPME-GC-MS et SPE-GC-MS. L'analyse a révélé que la composition est influencée par des techniques de distillation et de la matière première utilisée. La grappa Venosa est caractérisée par la présence importante de composés de faible poids moléculaire tels que l'isobutanol, les alcools isoamyliques et l'hexanoate d'éthyle, tandis que la grappa Barile contient des quantités très élevées de composés de haut