THE GRAPEVINE CULTIVAR MENCÍA (*VITIS VINIFERA* L.): SIMILARITIES AND DIFFERENCES WITH RESPECT TO OTHER WELL KNOWN INTERNATIONAL CULTIVARS

LE CÉPAGE MENCIA (*VITIS VINIFERA* L.). SIMILITUDES ET DIFFÉRENCES AVEC D'AUTRES CÉPAGES INTERNATIONAUX TRÈS CONNUS

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Abstract: The red wine grapevine cultivar Mencía is grown over much of northern and northwestern Spain. It is the preferential cultivar for the wines of the Appellation Contrôlée regions of « Bierzo », « Monterrei », « Ribeira Sacra » and « Valdeorras », and an « authorized » cultivar for « Rías Baixas » and « Ribeiro » wines. This cultivar does not seem to have existed in the north of Spain until the end of the 19th century (after the arrival of phylloxera), but from this time on it has been one of the most important of all those cultivated. The interest surrounding its true identity has increased over the years as its market value has increased. Some parties defend it as a native of the area while others believe it to be a synonym of Cabernet Franc or Tintilla. It is also similar to cv. Garnacha, as some authors have mentioned over the years (although with no great emphasis) (GARCÍA DE LOS SALMONES, 1901-1911; COMENGE, 1942; GALET, 1990). The present paper reports a comparative ampelographic study of different clones of Mencía and Garnacha. The results are also compared to those published by other authors. Mencía appears to be totally different to Cabernet Franc and Tintilla but shows characteristics similar to those of Garnacha and there is possibly a parental relationship. Mencía might therefore be obtained from different crosses between Garnacha and another cultivar.

Résumé : Mencía est un cépage rouge très répandu dans le nord et nord-ouest de l'Espagne. C'est le cépage préférentiel des appellations d'origine « Bierzo », « Monterrei », « Ribeira Sacra » et « Valdeorras », il est autorisé dans les appellations d'origine « Rias Baixas » et « Ribeiro ». Ce cépage semble ne pas avoir existé dans la région jusqu'à la fin du XIX^{e} siècle (arrivée du phylloxera), et c'est à partir de cette époque que sa culture a commencé d'une manière très importante. La confusion existante autour de ce cépage est de plus en plus grande et augmente à mesure que la valeur de son vin augmente dans le marché vinicole. Tandis que certains défendent son caractère autochtone, d'autres pensent qu'il s'agit d'un synonyme du Cabernet franc ou du Tintilla. Certains auteurs ont mentionné depuis longtemps une grande similitude entre Mencia et Garnacha, mais sans approfondir la question (GARCIA DE LOS SALMONES, 1901-1911; COMENGE, 1942; GALET, 1990). Ce travail présente une étude ampélographique pour comparer différents clones de Mencia avec Garnacha. Les résultats ont été confrontés avec les données publiées par d'autres auteurs sur différents cépages. La conclusion est que le cépage Mencia est tout à fait différent du Cabernet franc et Tintilla, mais il montre des caractéristiques similaires, c'est pour cela qu'il pourrait y avoir une relation de famille avec ces deux cépages. Mencia pourrait avoir été obtenu à partir de différents croisements entre Garnacha et d'autres cépages.

Key words: Mencía, *Vitis vinifera*, synonyms, ampelographic characterization

Mots clés : Mencía, *Vitis vinifera*, synonymie, caractérisation ampélographique

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INTRODUCTION

The red wine grapevine cultivar Mencía is grown over much of the north and northwest of Spain. It is the preferential cultivar for the wines of the Appellation Contrôlée regions of « El Bierzo », « Monterrei », « Ribeira Sacra » and « Valdeorras » and an « authorized » cultivar for « Rías Baixas » and « Ribeiro » wines. However, Mencía appears to have been unknown in northern Spain until after the phylloxera epidemic of the late 19th/early 20th centuries. From that time onwards, continuous reference has been made to it in the regions of Galicia, Asturias and the north of Castilla-León. Indeed, it is now one of the most extensively grown cultivars.

The origins of Mencía remain a mystery. A cultivar known as « Mencida », with the synonyms of « Tintilla » and « Tinta Mencía », was mentioned by CLEMENTE (1879), who affirms the name to be Arabic in origin, but the description he provides does not coincide at all with Mencía. CRESPO (1897) attributed Mencía the synonyms of « cepa del Medoc » and « Cabernet » and assured it to have been introduced into the northwestern Spanish Province of Lugo in 1844. This author states the cultivar to be a great producer of sweet, juicy and aromatic grapes resistant to cryptogamic diseases. Similarly, NÚÑEZ (1904), a nurseryman who in his time provided grafted plants to much of Galicia and the north of Castilla-León, left documents (including notes and bills of sale) mentioning the name Mencía. In some of these he even mentioned that some growers called cv. Mencía by the name « Cabernet de los Franceses ». Many years later, perhaps after having read the work of CRESPO (1897), other authors such as IGLESIAS (1987) and SANTOS (1992) mentioned this same synonym.

According to the MINISTERIO DE FOMENTO (1911), cv. Mencía was introduced into the north and northwest of Spain following the phylloxera crisis, and at that time occupied 5 % of the vine-growing land of the Provinces of Lugo and Ourense. According to the descriptive files of GARCÍA DE LOS SALMONES (1901-1911), which are conserved at the El Encín research station in Alcalá de Henares, Spain, Mencía is mentioned as growing in Ourense. As well as describing it, this author also writes: « Its foliage and other characteristics show it to be an early Garnachilla or Garnacha del Norte. Thus it may be and is so called, which says much of its characteristics and description. Some people also refer to it as « Medoc » or « Portugués Bleu ». He also wrote that Mencía was very old and well extended in the Province of Ourense.

In 1942, COMENGE cited Mencía as being cultivated in Galicia, and identified its leaves as being very similar to those of Garnacha. However, he differentiated between them, giving Garnacha the Latin name of aetiope, and Mencía that of exilis. According to GALET (1990), a type of Mencía was known as Grenache Noir. HIDALGO AND CANDELA (1971) cited Mencía as present in the Province A Coruña, where it occupied some 4 % of vine-growing land, in the Province of Lugo where it occupied some 25 %, and in the Province of Ourense, where it occupied 5 %. In the Province of Pontevedra, however, this author reports a very small percentage of the land as being given over to this cultivar. Later, HUETZ DE LEMPS (1967) reported it to be grown in the Provinces of Pontevedra and A Coruña.

According to the Catastro Vitivinícola (the vine-growing land registry) (MINISTERIO DE AGRICULTURA, PESCA Y ALIMENTACIÓN, 1983), Mencía occupied some 3.55 % of the vine-growing land of the Province of Ourense, 23.1 % of that of Lugo and just 0.01 % of that of Pontevedra in the early 1980s.

ALLEWELDT (1988) mentions Mencía in his list of Spanish and world vine varieties. It is also described in DESCRIPCIONES AMPELOGRÁFICAS NACIONALES (1990), FREIJANES AND ALONSO (1997), and MARTÍNEZ AND PÉREZ (1999, 2000). CALÓ *et al.*, (1990) cite Garnacha tinta, Aragonés, Alicantina, Mencida, Grenache Noir, Cannonau and Tokai Rosso etc., as synonyms.

Moreover, in recent years, techniques that use molecular markers such SSR (Simple sequence repeat) have been widely applied in characterisation and identification of grapevine cultivars. The works from MARTÍN *et al.* (2003) showed Garnacha and Mencía to be different cultivars and differing also from Cabernet Franc (SEFC *et al.*, 1997).

The aim of the present work was to help establish the true identity of this cultivar.

MATERIALS AND METHODS

I- PLAN MATERIAL

The experimental material included a number of clones of cv. Mencía and one Garnacha clone. The studied plants came from three different places:

- A plot known as « La Quinza », situated in the Province of Ourense (interior of Galicia), next to a river, and boasting deep, fertile soil.

- A plot at the « Estación de Viticultura y Enología de Galicia » research station, close to the former plot but with more shallow and less fertile soil.

- A plot at the « Misión Biológica de Galicia » (CSIC), just outside the city of Pontevedra (Province de

Pontevedra), about 100 km from the first plot and close to the Atlantic coast, also with deep, fertile soil.

The following plants were studied:

- From the « La Quinza » plot, Mencía clones MQ1, MQ2, MQ3, MQ4, MQ5, MQ6, MQ7, MQ8, MQ9, MQ12, MQ13, MQ14, MQ15, MQ16, MQ17, MQ19, MQ20, MQ21, MQ22, MQ23, MQ24, MQ25, MQ26, MQ27, MQ28, MQ29, MQ30, MQ31, and a Garnacha tinta clone (GQ).

- From the « Estación de Viticultura y Enología de Galicia »plot, Mencía clones RO4 and BU4.

- From the « Misión Biológica de Galicia »plot, Mencía clones MAM and MGM

The first two plots contained eight specimens of each clone, the third plot contained 10 of each. Due to its internationality and well known characteristics, only one clone of Garnacha was selected to be compared with those of Mencía.

II-VARIABLES EXAMINED

For each of the clones, different variables were recorded at different times in the growth cycle:

- When the shoots were between 10 and 30 cm, the variables proposed by the OIV (1983) were measured: codes 001, 002, 003, 004. Ten shoots per clone were examined.

- Between fruit setting and « veraison », 11 adult leaves (from node 8 or 9 on a fruiting branch) were collected per clone. These were pressed and the following variables measured: Those mentioned by the OIV (1983): codes 067, 068, 069, 070, 071, 076, 079, 080, 081, 082, 083, 084, 085, 086, 087, 088 and 089. Those proposed by MARTÍNEZ AND GRENAN (1999) for the reconstruction of average leaves (figures 1 and 2).

Using the leaf variables mentioned by MARTÍNEZ AND GRENAN (1999), the following relationships were then calculated: Lp/L; (S1d+S1g)/(L1d+L1g); (S2d+S2g)/(L2d+L2g); (A+B+G); (a+b+g); (A+B+G)-(a+b+g); (A'+B'+G'); (a'+b'+g'); (A'+B'+G')- (a'+b'+g').

In September, grapes were harvested and the following observations made on ten clusters per clone, and on 50 berries and seeds per clone:

- Clusters:

Variables proposed by the OIV (1983): codes 204, 205 and 207.

The weight, length and width of the cluster and length of the peduncle.

- Berries:

Variables proposed by the OIV (1983): codes 222, 223, 224, 225, 226, 227, 229, 230, 321, 232, 234, 236, 237, 239 and 240.

Berry length and width, length of the pedicel, number of seeds per berry.

- Seeds:

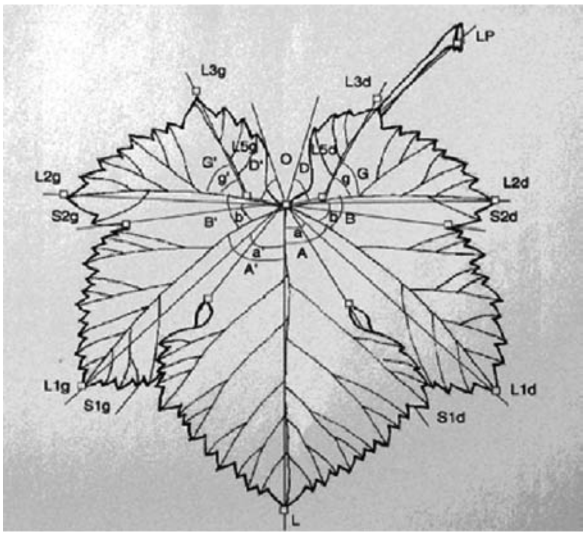

Figure 1 - Leaf variables measured (following the method of Martínez and Grenan [1999]).

Paramètres mesurés sur la feuille (selon la méthode de Martínez et Grenan, 1999).

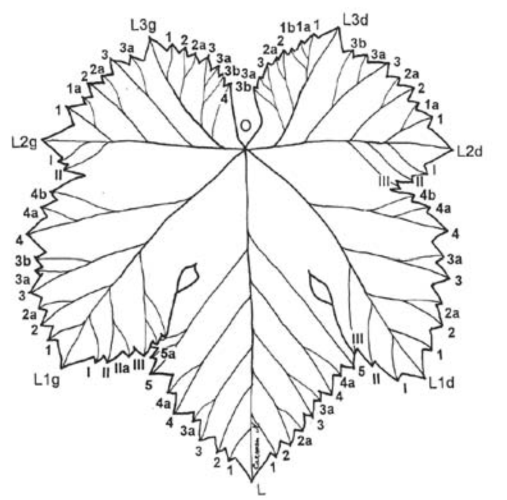

Figure 2 - Tooth numbering of the leaves (following the method of Martínez and Grenan [1999]).

Numérotation des dents sur les feuilles (selon la méthode de Martínez et Grenan, 1999).

Table I - Mean values (x), minimum (m) and maximum (M) for mature leaf ampelograhic parameters

Moyenne (x), minimum (m) et maximum (M) des paramètres ampélographiques des feuilles adultes.

Clon		067 [a]	068	069	070	071	076	079	080	081	082	083	084	085	086	087	088	089
MQ1	X(m-M)	3	2(2-3)	5	1	1	3	3(3-5)	2	1	3(1-3)	2	1	1	1	1	1	1
MQ2	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ3	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	3(1-3)	2	1	1	1	1	1	1
MQ4	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ5	X(m-M)	3	2(2-3)	5	1	1	3	3(3-5)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ6	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)			1-3(1-3)	2	1	1	1	1	1	1
MQ7	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1(1-3)	1(1-3)	2	1	1	1	1	1	1
MQ8	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	1	2	1	1	1	1	1	1
MQ9	X(m-M)	3	3(2-3)	5	1	1	3	4(3-4)	2	1(1-3)	1(1-3)	2	1	1	1	1	1	1
MQ12	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	3(1-3)	2	1	1	1	1	1	1
MQ13	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ14	X(m-M)	3	2(2-3)	5	1	1	3	3(3-5)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ15	X(m-M)	3	2(2-3)	5	1	1	3	3(3-4)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ16	X(m-M)	3	2(2-3)	5	1	1	3	3(3-5)	2	1	3(1-3)	2	1	1	1	1	1	1
MQ17	X(m-M)	3	2(2-3)	5	1	1	3	3(3-4)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ19	X(m-M)	3	2(2-3)	5	1	1	3	3(3-4)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ20	X(m-M)	3	2(2-3)	5	1	1	3	3(3-5)	2	1	3(1-3)	2	1	1	1	1	1	1
MQ21	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1(1-3)	3(1-3)	2	1	1	1	1	1	1
MQ22	X(m-M)	3	2	5	1	1	3	3(3-4)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ23	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ24	X(m-M)	3	2(2-3)	5	1	1	3(2-3)	3(3-4)	2	1(1-3)	3	2	1	1	1	1	1	1
MQ25	X(m-M)	3	2(2-3)	5	1	1	3(2-3)	3(3-7)	2	1	3(1-3)	2	1	1	1	1	1	1
MQ26	X(m-M)	3	2(2-3)	5	1	1	3	3	2	1	1-3(1-3)	2	1	1	1	1	1	1
MQ27	X(m-M)	3	2	5	1	1	3	3(3-5)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ28	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	3(1-3)	2	1	1	1	1	1	1
MQ29	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	1(1-4)	2	1	1	1	1	1	1
MQ30	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	1(1-3)	2	1	1	1	1	1	1
MQ31	X(m-M)	3	3	5	1	1	2	6(3-7)	2	1(1-3)	1-3(1-3)	2	5	1	5	1	9	1
GQ	X(m-M)	3	2(2-3)	5	1	1	3	3(3-6)	2	1	3(1-3)	2	1	1	1	1	1	1
RO4	X(m-M)	3	2(2-3)	5	1	1	3	4(3-6)	2	1	3(1-3)	2	1	1	1	1	1	1
BU4	X(m-M)	3	2(2-3)	5	1	1	3	3(3-7)	2	1	1(1-3)	2	1	1	1	1	1	1
MAM	X(m-M)	3	3(2-3)	5	1	1	3(2-3)	3(3-6)	2	1	3(1-3)	2	1	1(1-3)	1	1	1	1
MGM	X(m-M)	3	2(2-3)	5	1	1	3	3(3-7)	2	1	1(1-3)	2	1	1(1-3)	1	1	1	1

[a] 067…089: codes of the OIV (1983) parameters for adult leaf.

Weight

The potential alcohol content of the must was also measured.

From each clone, 10 clusters were selected from the 8 or 10 available plants, and from these ten berries were taken. One berry from each cluster was then placed in one of ten tubes, and then all were crushed. The sugar content of the musts was then measured by refractometry, and the potential alcohol content estimated from conversion tables.

III-STATISTICAL ANALYSIS

The leaf and cluster quantitative variables recorded were subjected to principal components analysis (PCA). Berry and seed variables were analyzed by ANOVA. When significant differences were found, the corresponding variables were examined by Fisher's protected least significant difference [LSD] test. Shoot, leaf, cluster, berry and seed qualitative variables were subject to group analysis using the Jaccard similarity coefficient (ROMESBURG, 1984). All analyses were performed using SAS System v8.1 (SAS, 2000) and NTSYSpc (NTSYS, 2000) software.

RESULTS AND DISCUSSION

I - SHOOTS

The shoot variables were identical in all the studied plants, including the Garnacha clone (GQ), except for MQ31, which differed in terms of OIV 004 (medium-high density of prostrate hairs at the tip compared to zero density in the remaining clones). This single difference allows MQ31 clones to be differentiated in the field. The prostrate hairs leave its shoots with a whitish sheen, quite different to those of the other clones which are bright green and totally smooth. The shoot tips of all the clones were open (code OIV 001) and showed no anthocyanin pigmentation (codes OIV 002 and 003).

Table II - Mean values for the length (cm) and angle parameters measured for the reconstruction of the average leaf, according to Martínez and Grenan (1999) method.

Valeurs moyennes des longueurs (cm) et angles mesurés pour la reconstruction de la feuille moyenne selon la méthode de Martínez et Grenan (1999).

Clon	L	S1d	L1d	S2d	L2d	L3d	L5d	L5g	L3g	L2g	S2g	L1g	S1g	Lp	A	a	B	b	G	G	D	D'	G'	g'	B'	b'	A	a'
MQ1	10.12	5.28	9.10	5.13	6.66	4.65	0.86	0.87	4.82	7.12	5.47	9.04	5.44	7.20	55.60	45.60	49.97	38.86	46.60	47.40	60.17	58.61	43.10	43.20	49.70	44.25	50.91	43.72
MQ2	10.26	5.20	9.01	5.12	6.55	4.58	0.75	0.71	4.82	6.78	5.52	9.14	5.31	7.65	52.49	41.70	55.19	50.29	44.82	47.62	66.16	63.83	41.89	43.20	52.77	44.04	54.34	46.68
MQ3	12.55	5.89	11.27	6.48	8.26	5.70	1.22	1.19	5.49	8.03	6.08	10.70	5.85	8.85	55.02	42.81	52.06	44.47	45.68	42.52	58.50	62.88	48.35	45.36	58.47	46.84	54.78	46.10
MQ4	11.29	5.78	10.04	5.77	7.38	4.93	1.04	0.97	5.18	7.55	5.89	10.26	6.26	8.44	55.25	44.20	44.46	45.91	44.28	43.61	65.46	59.80	42.37	43.43	52.21	43.49	56.48	48.35
MQ5	11.90	7.02	10.88	6.57	8.01	5.44	1.09	1.05	5.57	8.22	6.57	10.65	6.88	9.25	54.16	42.30	52.03	44.77	45.73	45.23	59.24	61.55	40.84	41.87	51.05	42.41	52.64	44.94
MQ6	11.96	5.82	10.57	6.28	7.99	5.43	1.00	1.01	5.69	8.12	6.18	10.86	6.10	9.51	53.67	44.74	51.83	44.30	43.09	43.26	58.30	59.39	43.63	45.01	50.50	42.06	53.84	43.43
MQ7	10.71	5.60	9.44	5.54	6.93	4.71	0.98	0.92	4.79	7.57	6.05	9.74	5.64	7.50	56.81	49.55	52.56	42.44	45.92	44.75	62.22	56.83	44.81	44.53	53.15	41.55	57.94	47.59
MQ8	11.78	5.53	10.24	5.66	7.46	5.19	1.14	1.14	5.34	7.96	6.07	10.54	5.88	8.72	54.21	46.68	54.80	49.11	41.96	39.91	58.26	59.76	45.49	46.49	52.85	43.80	55.87	46.40
MQ9	10.01	5.25	8.97	4.98	6.78	4.77	0.8	0.88	4.70	6.85	5.02	9.05	5.06	6.49	53.53	41.20	53.70	44.38	46.19	46.23	58.48	60.26	45.55	43.89	54.59	41.70	56.48	45.83
MQ12	10.82	5.80	9.87	5.85	7.30	5.13	0.87	0.79	5.09	7.15	5.73	9.56	5.79	7.88	52.58	44.69	56.49	46.89	49.47	44.24	64.21	65.84	45.07	44.58	54.92	48.65	52.05	44.78
MQ13	10.76	6.10	10.07	5.95	7.56	5.22	0.87	0.91	5.26	7.39	5.98	9.66	5.66	7.47	55.91	48.87	52.07	44.46	48.96	50.07	61.80	62.21	45.16	44.43	52.43	42.89	54.68	47.09
MQ14	10.21	6.23	9.52	5.58	7.10	4.87	0.76	0.74	4.76	7.01	5.41	9.15	6.13	7.39	57.26	46.59	47.92	40.16	42.11	40.79	69.84	92.97	43.59	43.30	50.76	39.16	54.96	43.18
MQ15	10.06	5.38	8.75	5.39	6.78	4.39	0.89	0.84	4.23	6.28	5.11	8.59	5.49	6.87	54.07	47.57	53.35	46.70	46.39	46.18	60.02	56.88	45.10	41.97	52.11	44.67	54.36	49.17
MQ16	10.71	5.73	9.49	5.47	7.20	4.98	0.88	1.03	4.97	7.28	5.72	9.72	5.30	7.59	57.28	47.44	50.26	39.53	48.06	41.95	63.94	60.21	47.61	44.43	53.45	40.81	54.83	39.96
MQ17	10.79	6.05	9.68	5.71	7.04	4.85	0.94	0.80	4.93	7.37	5.71	9.53	6.03	8.39	54.96	47.71	52.81	44.58	45.08	47.27	60.45	62.85	43.94	42.97	54.73	45.63	51.69	45.45
MQ19	10.30	5.85	9.56	5.63	6.97	4.75	0.89	0.90	4.67	6.63	5.45	9.18	5.65	7.32	53.12	43.89	52.69	42.77	48.47	43.47	60.85	56.36	44.92	44.73	54.57	44.20	55.37	43.26
MQ20	10.89	4.83	9.37	5.14	6.76	4.75	1.05	1.00	4.77	6.82	5.31	9.16	5.18	7.88	55.58	42.90	53.72	46.54	44.76	73.70	57.96	57.03	44.08	71.38	55.36	46.27	53.10	43.04
MQ21	11.37	5.47	9.98	5.71	7.25	4.98	0.98	1.00	5.06	7.22	5.55	9.77	6.21	7.90	52.26	44.08	55.59	48.67	42.80	43.57	58.95	55.98	42.91	42.57	54.53	48.30	52.63	46.88
MQ22	10.37	5.58	8.90	5.26	6.53	4.58	0.93	0.95	4.67	6.82	5.49	9.20	5.98	7.00	52.26	44.66	50.15	45.40	42.19	44.07	63.41	58.74	48.10	46.58	51.65	45.00	54.69	45.62
MQ23	10.96	5.99	9.85	5.97	7.35	5.18	0.90	0.93	4.93	7.41	5.86	9.97	6.18	8.13	56.98	45.43	51.26	42.99	42.63	43.21	65.63	60.54	44.76	38.78	55.42	44.92	56.06	48.62
MQ24	11.64	6.49	10.52	6.42	7.85	5.54	0.90	0.85	5.51	7.87	6.57	10.77	6.45	9.29	56.86	45.66	49.65	41.97	46.06	45.46	63.35	63.22	45.30	44.23	48.84	43.99	53.57	38.41
MQ25	12.06	5.82	10.93	6.53	8.08	5.66	0.90	1.03	5.56	8.36	6.55	10.85	5.95	8.53	53.05	42.50	55.77	40.84	49.93	47.93	62.79	64.83	50.62	48.68	51.47	41.43	56.95	46.64
MQ26	11.98	5.42	9.95	5.81	7.29	5.23	1.07	1.20	5.42	8.21	6.09	10.67	5.68	8.28	52.21	42.89	53.40	45.27	47.79	47.30	56.74	59.22	43.23	42.27	56.20	43.57	55.97	43.25
MQ27	10.06	5.75	9.16	5.54	6.81	4.66	0.85	0.87	4.86	6.99	5.78	9.13	6.01	7.60	53.97	44.49	49.35	44.48	43.80	45.47	65.44	60.67	46.31	43.97	48.94	44.45	52.36	45.19
MQ29	11.30	6.50	9.96	5.93	7.40	5.15	1.01	0.94	5.16	7.47	6.14	9.96	5.41	8.74	54.15	46.26	56.45	46.52	47.73	47.19	63.75	66.87	48.18	47.56	52.63	43.38	56.04	46.91
MQ30	11.98	5.90	10.50	6.10	7.88	5.32	1.14	1.09	5.53	7.98	5.92	10.44	6.09	9.31	55.54	43.78	57.63	45.99	48.35	48.09	62.77	60.45	46.66	44.52	56.67	44.82	56.93	46.29
MQ31	12.01	5.70	12.37	6.57	9.84	5.44	1.28	1.23	5.25	9.73	6.49	12.16	6.36	10.97	69.53	56.82	49.06	37.28	57.41	44.66	74.55	70.81	57.34	45.04	45.55	34.45	68.38	55.24
GQ	11.43	6.24	10.01	5.98	7.40	4.67	1.02	0.86	4.60	7.38	5.94	9.72	5.77	8.56	51.90	42.68	52.22	47.48	48.11	47.98	63.92	68.76	47.43	48.60	49.58	43.04	56.81	48.16
RO4	11.04	7.23	10.18	6.30	7.81	5.48	0.90	0.90	5.63	8.10	6.25	10.33	6.56	9.78	56.78	46.52	51.49	41.62	47.68	47.57	72.87	66.54	45.42	46.50	50.28	39.93	54.63	46.29
BU4	11.41	6.52	10.05	5.95	7.71	5.40	0.80	0.80	5.60	7.73	6.26	10.28	6.28	8.45	53.04	44.29	54.06	46.57	47.05	48.54	69.87	69.48	47.68	46.90	48.70	40.57	55.50	46.78
MAM	11.03	5.93	9.99	5.97	7.95	5.71	0.92	98.00	5.35	7.69	6.47	9.75	6.51	6.73	61.30	48.47	50.11	40.16	42.08	37.55	59.12	60.39	43.50	45.45	42.66	53.37	46.53	57.03
MGM	9.62	5.97	8.44	5.46	6.88	4.96	0.67	0.88	4.51	6.36	5.16	8.55	5.87	6.29	56.49	45.26	50.94	38.73	44.32	40.21	63.31	66.86	41.86	45.49	38.61	49.87	42.66	51.17

II - ADULT LEAVES

Table I shows the maxima, minima and means for the qualitative variables measured (OIV, 1983). Table II shows the mean values for the quantitative variables recorded. Table III shows the means of the calculated relationships between these variables. Figure 3 shows the average leaves (MARTÍNEZ AND GRENAN, 1999) for MQ31, GQ (Garnacha), MQ3, MQ4 and MQ15.

Figure 4 shows the results of the PCA for the adult leaf quantitative variables. Axis 1 (Prin 1) explained 37 % of the variation, and axis 2 (Prin 2) explained 13 %. The most important variable in axis 1 was vein length; in axis 2, the most important were the length of the main vein divided by leaf width, and angles B, b, B'. The variables with the most negative weight in axis 2 were angles A, a, A', a, and D. With respect to axes 1 and 2, MQ31 lay at the lower right of the figure, faraway from the rest. The leaves of this clone were larger, wider than they were long, and had smaller B and larger A angles than the rest of the plants studied. MQ01-MQ30, MAM, BU4, MGM, RO4 and GQ (all with rather smaller leaves than those of MQ31) formed a single cluster at the left of the figure. The clones whose leaves were longer than they were wide, and which had larger B and smaller A angles, were at the top of this cluster. At the bottom were those whose leaves were wider than they were long, and which had smaller B and larger A angles.

III - CLUSTERS AND BERRIES

Table IV Shows the maximum, minimum and means for the cluster and berry qualitative variables (OIV, 1983). Figure 5 shows the results of the cluster PCA analysis, in terms of the first two components. Axis 1 (Prin 1) explained 52 % of the variation while axis 2 (Prin 2) explained 21 %. The most important variables in axis 1

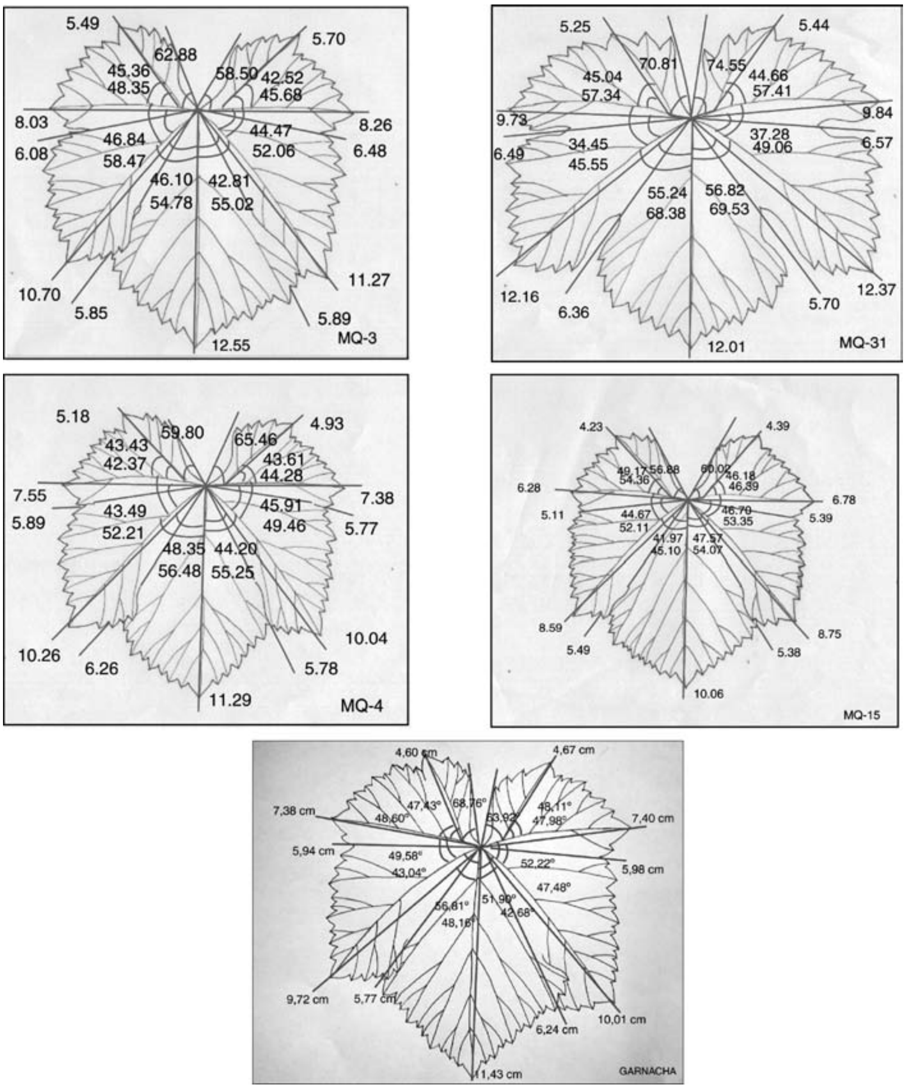

Figure 3 - Average leaf of the MQ3, MQ4, MQ15 and MQ31 Mencía clones and GQ Garnacha clone.

Feuille moyenne des clones MQ3, MQ4, MQ15, MQ31 et du clone GQ Garnacha.

Table III - Mean values of the calculated equations using some of the quantitative parameters measured in mature leaf.

Valeurs moyennes des équations calculées à partir des paramétres mesurés sur la feuille adulte.

Clon	Lp/L	(S1d+S1g) / L1d+1g	(S2d+S2g) / (L2d+L2g)	(A+B+G)	(a+b+g)	(A+B+G)-(a+b+g)	(A'+B'+G')	(a'+b'+g')	(A'+B'+G') - (a'+b'+g')
MQ1	0.71	0.59	0.77	152.17	131.86	20.31	143.72	131.17	12.55
MQ2	0.74	0.58	0.8	152.5	139.61	12.89	149	133.92	15.08
MQ3	0.71	0.53	0.77	152.75	129.79	22.96	161.6	138.31	23.3
MQ4	0.74	0.59	0.78	149	133.73	15.27	151.06	135.27	15.79
MQ5	0.78	0.64	0.81	151.92	132.3	19.61	144.53	129.21	15.31
MQ6	0.8	0.56	0.78	148.59	132.3	16.29	147.97	130.5	17.47
MQ7	0.7	0.59	0.8	155.29	136.73	18.55	155.89	133.67	22.22
MQ8	0.74	0.55	0.76	150.98	135.7	15.28	154.2	113.93	40.28
MQ9	0.65	0.57	0.73	153.43	131.81	21.61	156.62	131.42	58.28
MQ12	0.73	0.59	0.48	158.54	135.82	22.72	152.04	138.02	56.12
MQ13	0.63	0.6	0.44	156.93	143.4	13.54	152.27	134.41	61.03
MQ14	0.73	0.66	0.4	147.29	127.54	19.75	149.31	125.64	66.4
MQ15	0.68	0.63	0.4	153.82	140.45	13.36	151.57	135.82	57.43
MQ16	0.71	0.58	0.4	155.59	128.91	26.69	155.88	125	74.98
MQ17	0.77	0.63	0.4	152.85	139.56	13.29	150.36	134.05	59.21
MQ19	0.71	0.61	0.82	154.29	130.13	24.16	154.86	132.19	22.67
MQ20	0.72	0.54	0.77	154.05	133.14	20.91	152.54	130.69	21.85
MQ21	0.69	0.6	0.78	150.65	136.32	14.33	150.07	137.75	12.32
MQ22	0.67	0.64	0.81	144.6	134.13	10.47	154.43	137.2	17.23
MQ23	0.74	0.62	0.8	150.87	131.63	19.23	156.24	132.33	23.92
MQ24	0.8	0.63	0.82	152.57	133.09	19.48	147.7	126.63	21.07
MQ25	0.7	0.54	0.79	158.75	131.27	27.47	159.04	136.76	22.28
MQ26	0.69	0.54	0.77	153.4	135.46	17.94	155.4	129.09	26.31
MQ27	0.75	0.64	0.82	147.12	134.44	12.68	147.62	133.62	14
MQ29	0.77	0.6	0.81	158.33	139.97	18.37	156.85	137.85	19
MQ30	0.72	0.61	0.78	161.53	137.87	23.66	160.27	135.63	24.63
MQ31	1.73	0.5	0.68	176	138.76	37.24	171.26	134.73	36.54
GQ	0.76	0.61	0.8	152.23	138.14	14.09	153.83	139.8	14.03
RO4	0.89	0.67	0.79	155.94	135.72	20.22	150.33	132.72	17.61
BU4	0.74	0.63	0.79	154.16	139.4	14.76	151.88	134.26	17.62
MAM	0.62	0.62	0.78	153.49	126.18	27.31	155.86	132.69	23.16
MGM	0.65	0.7	0.8	151.75	124.2	27.54	158.96	146.54	12.42

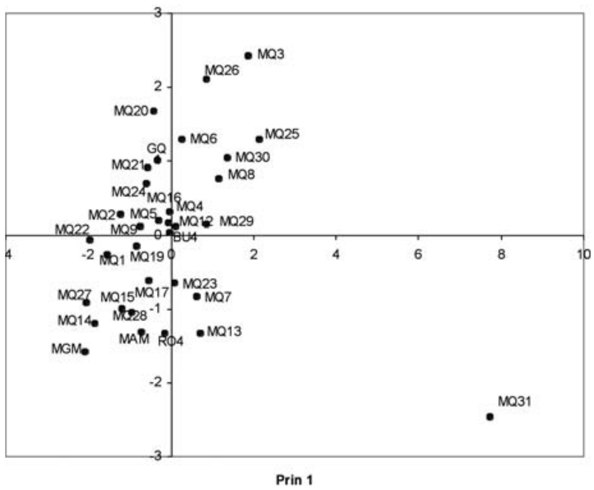

Figure 4 - Result of the PCA for the quantitative mature leaf parameters. Mencía and Garnacha clones.

Résultats de l'Analyse en Composantes Principaux (ACP), des paramètres ampélométriques quantitatifs sur la feuille adulte. Clones de Mencia et Garnacha.

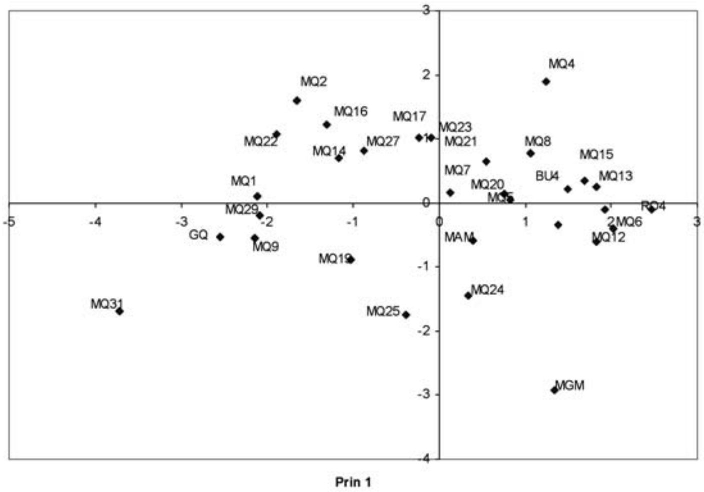

Figure 5 - Result of the PCA for the quantitative cluster, berry and seed, parameters. Mencía and Garnacha clones.

Résultats de l'Analyse en Composantes Principaux (ACP), des paramètres quantitatifs des grappes, baies et des pépins. Clones de Mencía et Garnacha.

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Table IV - Mean values (x), minimum (m) and maximum (M) for qualitative parameters of grape, berry and seed.

Moyenne (x), minimum (m) et maximum (M) des paramètres qualitatifs des grappes, baies et pépins.

Clon	OIV204[a] x(m-M)	OIV205 x(m-M)	OIV207 x(m-M)	Frac.[b] x(m-M)	OIV222 x(m-M)	OIV223 x(m-M)	OIV224 x(m-M)	OIV225 x(m-M)	OIV226 x(m-M)	OIV227 x(m-M)	OIV229 x(m-M)	OIV230 x(m-M)	OIV231 x(m-M)	OIV232 x(m-M)	OIV234 x(m-M)	OIV236 x(m-M)	OIV237 x(m-M)	OIV239 x(m-M)	OIV240 x(m-M)
MQ1	5	5	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ2	5(3-5)	3	3(3-5)	2	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ3	5(5-7)	5(3-7)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ4	3(3-5)	5(5-7)	3	2(2-4)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ5	5(3-7)	3(3-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ6	3(3-5)	5(3-5)	3(3-5)	2(2-7)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ7	5(3-5)	3(3-7)	5(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ8	5(3-5)	3(3-5)	5(3-5)	2(1-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ9	5(3-5)	3(3-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ12	5(3-5)	7(3-7)	3(3-5)	2(2-7)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ13	5(3-7)	3(3-5)	3(3-5)	2	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ14	5(3-7)	3(3-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ15	5	3(3-7)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ16	5(3-5)	3(1-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ17	5(5-7)	5(3-5)	5(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ19	5(3-5)	3(3-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ20	5(3-5)	5(3-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ21	5(3-5)	5(3-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ22	3(3-5)	3(1-5)	3(3-5)	2(1-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ23	5(3-5)	3(3-7)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ24	5(3-5)	3(3-5)	3(3-5)	3(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ25	5(3-5)	3(3-5)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ26	5(3-5)	3(3-5)	3	2)2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ27	3(3-5)	3(3-7)	3(3-5)	3(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ28	3(1-5)	1(1-3)	3(3-5)	2	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ29	5(3-7)	5(3-5)	3(3-5)	2(1-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ30	5(3-5)	3(3-5)	3(3-5)	2(1-5)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MQ31	3	1(1-3)	3	2(1-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
GQ	5(3-5)	2(1-5)	3	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
RO4	5(3-7)	3(3-7)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
BU4	5(5-7)	5(3-7)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MAM	5(3-5)	5(3-5)	3	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5
MGM	7(5-9)	5(3-7)	3(3-5)	2(2-3)	1	3	2	6	2	5	1	1	1	2	1	1	1	2	5

[a]OIV204…OIV240: codes of the OIV (1983) parameters for cluster, berry and seed; [b]Frac: cluster shape.

Table V - Result of the ANOVA for the quantitative parameters of berries and seeds

Résultats de l´analyse de variance pour les paramètres quantitatifs des baies et des pépins.

Clon	Berry length (cm)	Berry width (cm)	Number of seeds	Seed weight (g)
GQ	1.5220**gfghij**	1.4160**defgh**	1.84**ijkl**	0.0194**klmno**
MAM	1.5668**cde**	1.4570**abc**	2.10**efghi**	0.0252**bc**
BU4	1.6294**a**	1.4772**ab**	2.44**bcd**	0.0243**bcde**
MGM	1.6412**a**	1.4812**a**	2.32**bcde**	0.0227**cdefgh**
MQ01	1.4638**k**	1.3372**lm**	1.82**ijkl**	0.0173**o**
MQ02	1.4646**k**	1.3320**m**	1.42**mn**	0.0216**efghijkl**
MQ03	1.4756**k**	1.3752**ijkl**	2.18**defgh**	0.0221**defghijk**
MQ04	1.4706**k**	1.3960**fghij**	1.98**fghij**	0.0245**bcde**
MQ05	1.5372**cdefgh**	1.4306**cdef**	2.28**cdefg**	0.0237**bcdef**
MQ06	1.5378**cdefgh**	1.4488**abcd**	2.20**cdefg**	0.0224**cdefghij**
MQ07	1.4668k	1.3540**klm**	1.76**jkl**	0.0263**b**
MQ08	1.5700**bcd**	1.4392**bcde**	1.88**hijk**	0.0193**klmno**
MQ09	1.5240**efghij**	1.4030**efghij**	1.88**hijk**	0.0186**mno**
MQ12	1.5416**cdefg**	1.4368**cde**	2.16**defgh**	0.0225**cdefghi**
MQ13	1.5768**bc**	1.4530**abcd**	2.84 **a**	0.0210**fghijklmn**
MQ14	1.4598**k**	1.3680**ijklm**	1.62**klm**	0.0182**no**
MQ15	1.5300**defghi**	1.4262**cdefg**	2.50**bc**	0.0209**fghijklmn**
MQ16	1.5040**ghijk**	1.3688**ijklm**	1.96**ghij**	0.0193**klmno**
MQ17	1.4916**hijk**	1.3704**ijklm**	1.70**jklm**	0.0207**ghijklmn**
MQ19	1.5264**defghi**	1.4032**efghij**	2.16**defgh**	0.0203**hijklmn**
MQ20	1.4726**k**	1.3902**ghijk**	1.88**hijk**	0.0204**hijklmn**
MQ21	1.4754**k**	1.3950**fghij**	1.96**ghij**	0.0197**ijklmno**
MQ22	1.4798**jk**	1.3644**jklm**	1.56**lm**	0.0230**cdefgh**
MQ23	1.5222**efghij**	1.4050**efghi**	1.94**ghij**	0.0190**lmno**
MQ24	1.5696**cd**	1.4258**cdefg**	2.42**bcd**	0.0236**bcdefg**
MQ25	1.5546**cdef**	1.4210**cdefg**	2.54**ab**	0.0236**bcdefg**
MQ26	1.5440**cdefg**	1.4248**cdefg**	2.08**efghi**	0.0196**jklmno**
MQ27	1.4814**jk**	1.3694**jiklm**	2.28**bcdef**	0.0225**cdefghij**
MQ29	1.5006**ghijk**	1.3776**hijk**	1.88**hijk**	0.0235**bcdefg**
MQ30	1.4864**ijk**	1.3674**ijklm**	1.92**ghijk**	0.0213**fghijklm**
MQ31	1.5310**defghi**	1.4552**abcd**	1.12**n**	0.0325 **a**
RO4	1.6146**ab**	1.4854**a**	2.38**bcde**	0.0247**bcd**
M.D.S (0.05)	0.0447	0.0397	0.311	0.002
Mean Square	0.1219**	0.086**	6.217**	0.00043**

a : mean separation by Fisher's protected test (least significant difference [MSD] method) at P ≤ 0.01
b : means with the same letter are not significantly different)

were cluster length, width and weight. In axis 2, the most important variable was cluster peduncle length. With respect to axis 1, clone MQ31 was located at the left of the figure, close to GQ: these clones had the smallest and lightest clusters. RO4, BU4, MQ12, MQ3 etc., with the largest and heaviest clusters, were situated to the right of the figure. With respect to axis 2, MGM with its small cluster peduncle, was isolated in the lower part of the figure. The remaining clones, with longer peduncles, were situated towards the top.

Table V shows the results of the analysis of variance for the berry and seed quantitative variables. No significant differences were seen in terms of pedicel length. Differences were found, however, in berry length and width, depending upon the plot from which the plants came. Berries from the « La Quinza »plot were generally smaller than those from the other plots. MQ31 had the fewest but heaviest seeds; MQ13 and MQ25 had the largest number of seeds of all the clones studied.

Figure 6 shows the results of the group analysis to which the shoot, leaf, cluster and berry variables (OIV, 1983) were subjected. For a Jaccard similarity coefficient of 0.91, MQ31 was separated from all the remaining clones (Mencía and Garnacha). The results show MQ31 to be very different to the other clones studied; it therefore does not belong to cv. Mencía. It seems to have been

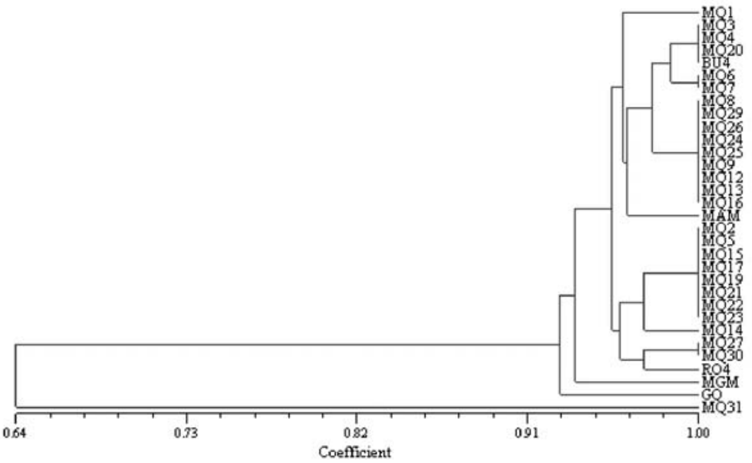

Figure 6 - Result for the Group analysis using the Jaccard similarity coefficient (Romesburg, 1984) for the qualitative leaf, cluster and berry parameters in Mencía and Garnacha clones.

Résultats de l'Analyse des groupes employant le coefficient de similitude de Jaccard (Romesburg, 1984) pour tous les paramètres qualitatifs des feuilles, grappes et baies des clones de Mencía et Garnacha.

introduced by error into the « La Quinza »Mencía clone collection.

The Garnacha clone and the rest of the Mencía clones did not differ at the level of the shoot or leaf morphology, although small differences were seen in terms of leaf size and the angles formed by the veins. Some differences were also seen in their clusters and berries, especially in size. In some cases these differences might be due to the different characteristics of the plots where the plants were grown, even though « La Quinza »and « Misión Biológica de Galicia »plots have similar edaphoclimatic and cultivation conditions. In general, the characteristics of the Garnacha clone described in this study coincide with earlier descriptions (DESCRIPCIONES AMPELOGRÁFICAS NACIONALES, 1990; AMBROSI *et al.*, 1994; BOIDRON *et al.*, 1995; CABELLO, *et al.*, 2003). These latter descriptions also coincide with the characteristics of the Mencía clones described in this work. Differences between clones similar to those seen between the Garnacha and Mencía clones studied here, have been recorded in Albariño (BOSO *et al.*, 2005).

The similarities between the Garnacha and Mencía clones have been cited over the years by a number of authors (GARCÍA DE LOS SALMONES, 1901-1911; COMENGE, 1942; GALET, 1990), perhaps indicating that they are different clones of the same cultivar. To test this hypothesis, molecular studies involving microsatellite markers are underway. The results of MARTÍN *et al.*, 2003 showed Garnacha and Mencía to be different cultivars, even though they coincided in one allele at three of the six standard microsatellite loci analysed.

Although some authors such as CRESPO (1897), NÚÑEZ (1904) and GARCÍA DE LOS SALMONES (1909-1911) agree that Mencía is the same as Cabernet Franc, a simple comparison with published descriptions of the shoots and leaves of the latter (GALET, 1990; BOIDRON *et al.*, 1995; AMBROSI *et al.*, 1994) shows them to be clearly different even to the untrained eye. Cabernet Franc shoots are a bronze-green color with prostrate hairs, while those of Mencía are bright green with hardly any hairs (erect or prostrate). Further, the underside of Cabernet Franc leaves are covered in prostrate hairs while those of Mencía leaves are smooth. Moreover, the shape of the leaves is quite different. Cabernet Franc has deep upper and lower lateral sinuses with a U-shaped base, and often has a tooth on the margin of the petiole sinus; Mencía leaves show no such characteristics (figure 3). The results of MARTÍN *et al.* (2003) analyzing Mencia, compared with those obtained by SEFC *et al.* (1997) analysing the same microsatellite loci in Cabernet Franc also show this two cultivars to be different.

The synonym Tintilla/Mencida reported by CLEMENTE (1879) appear to be not related to Mencía cv. This author describes the leaves of Tintilla with high density of prostrate hairs, rough blade and high anthocyanic pigmentation in petioles and main veins, with obtuse berries and strongly colored must. Mencía, in contrast, shows smooth, hairless leaves without pigmentation and roundish berries with not colored flesh.

It is also possible, however, that Mencía was obtained from different crosses between Garnacha and other cultivars. Such crossing was common after the phylloxera and downy mildew epidemics of the late 19th century; the goal was to obtain new, resistant varieties capable of producing wines similar to those that were produced before. This would explain the similarities between Mencía and Garnacha, and also explain why Mencía was never mentioned before the arrival of these diseases - either in the Appellation Contrôlée areas where it is now most widely distributed (« El Bierzo », « Monterrei », « Ribeira Sacra », « Valdeorras »), or in any other Spanish wine-making region.

CONCLUSION

The Garnacha clone and the rest of the Mencía clones did not differ at the level of the shoot or leaf morphology, although small differences were seen in terms of leaf size and the angles formed by the veins. Some differences were also seen in their clusters and berries, especially in size. In some cases these differences might be due to the different characteristics of the plots where the plants were grown.

Mencía appears to be totally different to Cabernet Franc and Tintilla but shows characteristics similar to those of Garnacha. Although Mencía and Garnacha have been considered to be clones of the same cultivar, the first results gained with molecular markers refuse this hypothesis. It might therefore derive from one of the crosses between Garnacha and some other cultivar.

Acknowledgements: This work was supported by a grant from Xunta de Galicia (Spain) (XUGA 40301B97).

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Manuscrit reçu le 6 mai 2005 ; accepté pour publication, après modifications le 30 mai 2006