Identification of grapevine accessions from Argentina introduced in the
ampelographic collection of Domaine de Vassal

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Abstract. The study of accessions from Argentina may provide a valuable testimony on the origins of the
different genetic resources and varieties which were sought and used to develop the vineyard of this country. 54
accessions introduced in the Vassal collection were analyzed using 20 microsatellite markers and ampelographic
descriptors. Among them, 43 distinct varieties have been identified: 22 correspond to old traditional wine or
table grape varieties from Europe and Middle East, 12 are probably varieties selected in Argentina or South
America and are mostly descendants of Muscat of Alexandria and Mission, 4 are seedlings obtained in Italy,
USA and Bulgaria, 2 are specific mutants and 3 are still currently original and of undetermined origin. These
results highlight the links and help to trace the flows that have existed between the ancient world and Argentina.
They are a particularly good example of the interest of the 2 traditional ways of multiplication which may exist
for the vine, cuttings and seedlings. Some of these resources are now also highly original and rare and must be
preserved.

1. Introduction

In most of the countries of the new world, the viticulture
has started to be introduced between the 16th century and
the 18th century. In such countries, one of the main issues
to develop successfully the viticulture was to find the
varieties the most adapted to these specific environmental
conditions. To achieve this goal, many trials, testing
and introductions of material had to be done. Thereby,
different varieties according to the countries have been
introduced and have allowed the development of the
viticulture, sometimes by luck, but also by the work and
the insight of some growers, researchers, enthusiasts or
personalities. The analysis and identification of accessions
from Argentina may provide a valuable testimony on the
origins of the different genetic resources and varieties
which have been sought and used to develop the vineyard
and the grape production specificity of this country. It may
also provide a special light on the mode of
distribution of the grapevine varieties and the respective
viticultural influences of countries from which they come
from [1,2].

2. Material and methods

54 accessions from Argentina were introduced in the
Vassal collection between 1952 and 1996. They come from
the old collections of INTA and from different vineyards
of this country (Table 1). These accessions have been
analyzed using 20 microsatellite markers according to
Laucou et al [3]. The profiles obtained were compared
to the profiles previously referenced in the data base of
INRA with a specific query created to detect the duplicates
and to identify the samples. Today the dataset represents
2722 unique profiles of Vitis vinifera varieties. When
similarities between DNA profiles were detected, they
were then checked at the phenotypic and ampelographic
levels to confirm the identifications by morphological
comparisons following the code of description proposed by
OIV [4].

3. Results

Finally, of the 54 accessions, 43 distinct varieties have
been identified after DNA genotyping and ampelography
checking (Table 2).

Among them, 22 varieties correspond to old
traditional wine or table grape varieties from Spain,
France, Italy [5], but also from Hungary, Greece, Turkey,
Syria and Lebanon. 12 varieties are probably varieties
selected in Argentina or South America and are mostly
descendants of Muscat of Alexandria and Mission [6–
8] (Table 3). In this category Torrontes mendocino is an
exception and for the moment none of its parents were
found. 4 varieties (Moscato Cerletti, Gold, Ruby Cabernet,
Yubiley) are seedlings obtained in Italy, USA and Bulgaria.
2 varieties are specific mutants (Almeria rosada, Mission
mutant floral) and 3 varieties (Arvina di Petralia, Santa
Paula faux, Sauvignon piccolo faux) are still original and
of undetermined origin.

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| Accession name       | Accession code | Year of entry | Provenance   |
|----------------------|----------------|---------------|--------------|
| Agostenga            | 649Mtp6        | 1990          | Rio Negro    |
| Almeria rosada       | 0Mtp18         | 1970          | Mendoza      |
| Angelina             | 0Mtp28         | 1990          | Rio Negro    |
| Arvina di Petralia   | 0Mtp42         | 1990          | Rio Negro    |
| Balsamina            | 0Mtp74         | 1988          | Mendoza      |
| Balsamina            | 150Mtp28       | 1968          | Mendoza      |
| Bonarda              | 157Mtp15       | 1968          | Mendoza      |
| Cereza               | 2121Mtp1       | 1968          | Mendoza      |
| Cereza               | 2121Mtp2       | 1971          | Vineyard     |
| César                | 225Mtp6        | 1968          | Mendoza      |
| Criolla chica n°2    | 2116Mtp1       | 1952          | Vineyard     |
| Criolla grande       | 2118Mtp2       | 1968          | Mendoza      |
| Criolla mediana n°2  | 2117Mtp1       | 1952          | Vineyard     |
| Criolla n°1          | 0Mtp276        | 1996          | Mendoza      |
| Criolla n°2 = n°125  | 0Mtp277        | 1996          | Mendoza      |
| Criolla n°3 = Criolla blanca | 0Mtp278 | 1996 | Mendoza |
| Criolla n°5 = Criolla Grande | 0Mtp279 | 1996 | Mendoza |
| Criolla n°6          | 0Mtp280        | 1996          | Mendoza      |
| Criollina San Juanina | 2118Mtp1  | 1952          | Vineyard     |
| Faux Trebbiano       | 45Mtp7         | 1972          | San Rafael   |
| Folle blanche        | 317Mtp12       | 1968          | Mendoza      |
| Gobi                 | 45Mtp6         | 1971          | San Rafael   |
| Gobernador Benegas   | 1248Mtp3       | 1968          | Mendoza      |
| Gold                 | 0Mtp424        | 1990          | Rio Negro    |
| Graciano             | 9Mtp12         | 1968          | Mendoza      |
| Grossa da serra      | 0Mtp461        | 1990          | Rio Negro    |
| Jubilé               | 2024Mtp1       | 1970          | Mendoza      |
| Malvasse musquée     | 2425Mtp3       | 1972          | San Juan     |
| Moscatel negro du Pérou | 2571Mtp2      | 1970          | Mendoza      |
| Moscatel rosado      | 2120Mtp1       | 1952          | Vineyard     |
| Moscatel rosado      | 2120Mtp3       | 1968          | Mendoza      |
| Moscato Caitarrato   | 715Mtp1        | 1970          | Mendoza      |
| Muscat d’Alexandrie  | 308Mtp36       | 1971          | San Juan     |
| Pedro Gimenez        | 0Mtp863        | 1968          | Mendoza      |
| Pinot gris           | 458Mtp18       | 1968          | Mendoza      |
| Pins de chèvre rouge | 0Mtp907        | 1990          | Rio Negro    |
| Raboso piave         | 352Mtp10       | 1968          | Mendoza      |
| Refosco              | 2047Mtp3       | 1968          | Mendoza      |
| Riesling italicico   | 199Mtp39       | 1968          | Mendoza      |
| Ruby Cabernet        | 2313Mtp2       | 1968          | Mendoza      |
| San Francisco        | 2119Mtp1       | 1952          | Vineyard     |
| Sangioveto grosso    | 1354Mtp4       | 1968          | Mendoza      |
| Santa Morena         | 848Mtp1        | 1970          | Mendoza      |
| Santa Paula          | 1365Mtp6       | 1970          | Mendoza      |
| Sauvignon            | 334Mtp7        | 1971          | Mendoza      |
| Sauvignon (Arizu)    | 334Mtp12       | 1972          | San Rafael   |
| Sauvignon Piccolo    | 0Mtp1042       | 1990          | Rio Negro    |
| Sauvis               | 0Mtp1044       | 1990          | Rio Negro    |
| Sultana              | 1678Mtp6       | 1968          | Mendoza      |
| Torrontel riojano    | 2425Mtp2       | 1971          | Vineyard     |
| Torrontes mendocino  | 2421Mtp1       | 1965          | Vineyard     |
| Torrontes riojano    | 2425Mtp1       | 1965          | Vineyard     |
| Torrontes sanjuanino | 2420Mtp1       | 1965          | Vineyard     |
| Uva anis             | 0Mtp1157       | 1989          | Mendoza      |

**Table 1.** List of the accessions introduced from Argentina in the collection of Vassal.

| Variety name       | Origin   | Accession name       | Accession code |
|--------------------|----------|----------------------|----------------|
| Ahlm Derani        | SYR      | Santa Morena         | 848Mtp1        |
| Almeria rosada     |          | Almeria rosada       | 0Mtp18         |
| Arvina di Petralia |          | Arvina di Petralia   | 0Mtp42         |
| Balsamina faux      |          | Balsamina            | 0Mtp74         |
| Béquignol          | FRA      | Raboso piave         | 352Mtp10       |
| Bonamico           | ITA      | Sangioveto grosso    | 1354Mtp4       |
| Canari             | FRA      | Pinot gris           | 458Mtp18       |
| Cereza             |          | Cereza               | 2121Mtp1       |
| Créos              |          | Créos                | 2121Mtp2       |
| Chardonnay         | FRA      | Riesling italicico   | 199Mtp39       |
| Corbeau            | FRA      | Bonarda              | 157Mtp15       |
| Criolla 5          |          | Criolla n°2 = n°125  | 0Mtp277        |
| Criolla blanca     |          | Criolla n°3 = Criolla blanca | 0Mtp278     |
| Criolla grande sanjuaniana |      | Criolla n°1      | 0Mtp276        |
| Folle blanche      | FRA      | Folle blanche        | 317Mtp12       |
| Gibi               | ESP      | Gibi                 | 45Mtp6         |
| Giro sardo         | ITA      | Sauviss              | 0Mtp1044       |
| Gold               | USA      | Gold                 | 0Mtp424        |
| Kecskésecsu roszas piros | HUN | Pis de chèvre rouge | 0Mtp907       |
| Kichmich rond      | TUR      | Sultana              | 1678Mtp6       |
| Lambrusco Maestri  | ITA      | Refosco              | 2047Mtp3       |
| Madeleine Salomon = Agostenga blanc | ITA | Agostenga | 649Mtp6 |
| Mission            | ESP      | Criolla n°6          | 0Mtp280        |
| Mission mutant floral |          | Moscatel negro du Pérou | 2571Mtp2      |
| Morrastel          | ESP      | Graciano             | 9Mtp12         |
| Moscatel rosado    |          | Moscatel rosado      | 2120Mtp1       |

**Table 2.** List of the varieties identified with their supposed country of origin (codes according to the ISO 3166-1 alpha 3 standard) and the corresponding accessions.
Table 2. Continued.

| Variety name          | Origin | Accession name      | Accession code |
|-----------------------|--------|---------------------|----------------|
| Moscato Cerletti      | ITA    | Moscato Cerletti    | 715Mtp1        |
| Muscat d’Alexandrie   | GRC    | Muscat d’Alexandrie | 308Mtp36       |
| Nielluccio            | ITA    | Angelina            | 0Mtp28         |
| Pascale = Pascale di Cagliari | ITA | Grossa d’africa serra | 0Mtp461 |
| Pedro Gimenez faux    |        | Pedro Gimenez       | 0Mtp863        |
| Rosa del Peru         |        | Criolla mediana n°2 | 2117Mtp1       |
| Rubi Cabernet         | USA    | Rubi Cabernet       | 2313Mtp2       |
| Santa Paula faux      |        | Santa Paula         | 1365Mtp6       |
| Sauvignon piccolo faux|        | Sauvignon Piccolo   | 0Mtp1042       |
| Sauvignonasse         | FRA    | Sauvignon (Arizu)   | 334Mtp12       |
| Syrah                 | FRA    | Balsamina           | 150Mtp28       |
| Torrontés mendocino   |        | Torrontés mendocino | 2421Mtp1       |
| Torrontés riojano     |        | Torrontés riojano   | 2425Mtp1       |
| Torrontés sanjuanino  |        | Torrontés sanjuanino| 2420Mtp1       |
| Uva anis              |        | Uva anis            | 0Mtp1137       |
| Yubiely               | BGR    | Jubile              | 2624Mtp1       |
| Zeini abiad           | LBN    | Gobernador Benegas  | 1248Mtp3       |

Table 3. Parentage of the varieties selected in South America according to the results obtained by [6–8].

| Variety name                        | Parent 1                  | Parent 2                  |
|-------------------------------------|---------------------------|---------------------------|
| Balsamina faux (collection Rio Negro)| Torrontés mendocino       |                          |
| Cereza                              | Torrontés mendocino       |                          |
| Criolla 5                           | Muscat d’Alexandrie       | Mission                   |
| Criolla blanca                      | Muscat d’Alexandrie       | Mission                   |
| Criolla grande sanjuanina           | Muscat d’Alexandrie       | Mission                   |
| Pedro Gimenez faux                  | Muscat d’Alexandrie       | Mission                   |
| Rosa del Peru                       | Muscat d’Alexandrie       | Mission                   |
| Torrontés riojano                    | Muscat d’Alexandrie       | Mission                   |
| Torrontés sanjuanino                | Muscat d’Alexandrie       | Mission                   |
| Uva anis                            | Muscat d’Alexandrie       | Mission                   |
| Moscatel rosado                     | Muscat d’Alexandrie       | ?                         |

4. Discussion and conclusion

These results highlight the links and help to trace the flow and the relationships that have existed between the ancient world and Argentina, which led to the specificity of the present Argentina vineyard. They are a particularly good example of the interest of the 2 traditional ways of multiplication which may exist for the vine: cuttings to introduced already existing and possibly interesting varieties and seedlings to select new genotypes adapted to the specific environmental conditions of the country. Some of these resources are now also highly original and relatively rare that is why some effort must be done to preserve them by the best possible ways.

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