IDENTIFICATION AND MORPHO-BOTANIC CHARACTERIZATION OF OLD CAMELLIA JAPONICA L. CULTIVARS GROWN IN HISTORIC GARDENS OF THE LAKE MAGGIORE (ITALY)

Dora Remotti  
Dipartimento di Agronomia  
Selvicoltura e Gestione del Territorio  
Università di Torino  
Via Leonardo da Vinci, 44  
10095 Grugliasco (TO)  
Italy  
remotti@agraria.unito.it

Keywords: germplasm, floriculture, genetic resource, ancient cultivars, phenotypic characterization.

Abstract

The introduction of Camellia japonica L. in Italy is dated about 1760, but only during the XIXth century this species became popular. Many Italian nurserymen started growing Camellias at that time and soon this business became of remarkable importance. In two well defined areas, the Lucchesia (Tuscany) and the lake Maggiore zone, camellia production was famous, due to the local nurserymen, breeders, and collectors. In these areas camellias were grown in a great number of gardens and still today it is possible to find old specimens. This paper reports the results of a research on old camellias grown in historic gardens of the lake Maggiore area and on their characterization and determination. On the whole, 100 old C. japonica cultivars were determined (such as ‘Eleonora Franchetti’, ‘Corallina’, ‘Nebulosa’, ‘Sericea’, ‘Marmorata’, ‘Cruciata’, ‘Sacco’, ‘Vergine di Collebeato’, ‘Stella Polare’, ‘Francesco Ferruccio’, ‘Marchesa Margherita Serra’, ‘Bella Romana’, ‘Angela Cocchi’, ‘Maria Antonietta’, ‘Vittorio Emanuele II’, ‘Triphosa’, ‘Bella Lambertii’, ‘Roma Risorta’, ‘Gran Sultano’, ‘L’Avvenite’, ‘Prof. Filippo Parlatore’, ‘Gloria delle Isole Borromee’, ‘Montironi’, ‘Bella di Firenze’) by means of descriptions found on old catalogues, prints on old garden reviews, and characterized by means of a detailed morphologic-botanical card. The aim of this study was to define specific guidelines for the phenotypic characterization, rediscover forgotten cultivars and introduce them again in the commercial practice, as today in Italy the camellia production is based only on a few number of cultivars and is widely depending on import.

1. Introduction

While in the agronomic field the need to save genetic variability has been realized since long time through the development of germplasm conservation programmes and the establishment of genetic banks, only lately, in floriculture, research work has been undertaken to safeguard cultivarual variability (Petrova, 1996). The decrease of genetic variability of the cultivated species is presently retained a problem of considerable importance, considering the impossibility to reconstruct, once lost, the genetic diversity gained throughout time with genetical improvement. Continuously creating biotopes with new characteristics, requested and appreciated by the consumer, is the major responsible factor of the disappearance of genetic variability and, at the same time, it is by far very dependant for its success from the available genetic variability (Alba and Russo, 1995).

Genetical erosion is obvious and assumes an alarming significance especially in the species in which genetic improvement has originated an extremely high number of cultivars. Among these, Camellia japonica L. represents a bright example, totalling currently about 30,000 cultivars: during the XIXth century, in Italy, it reached a high productive importance, also

Proc. XX EUCARPIA Symp. on New Ornamentals II  
Eds. J. Van Huylenbroeck et al.  
Concerning genetic improvement, that decreased in the following period (Corneo et al., 2000). In particular, Florence, Milan, and Pallanza (Verbania) were the main cultivation centres of camellia; in these realities a flourishing commercial activity developed, based on the sale of over one thousand varieties. Today, the Italian production, even if it covers a considerable economic importance, is limited to the commercialization of about 200 cultivars, of which 50% of Northamerican origin, 15-20% Japanese, 4-7% Australian, and 20-28% European; only 5-9% is of Italian origin (Remotti, 2001).

A second phenomenon that involves old cultivars is their loss of identity: even when we still hold them, several of them are without name. Moreover, there are frequently some cases of synonymy, homonymy and wrong namings.

In order to safeguard a botanical heritage of considerable value, to find out cultivars, surely adapted to local pedo-climatic conditions, and to reintroduce them on the Italian market, so to decrease the foreign dependence, an investigation was conducted with the aim to detect XIXth century *C. japonica* cultivars present in historical gardens placed along the western side of the lake Maggiore, an area that represents a rich reservoir of germplasm for its favourable eco-pedologic conditions.

2. Materials and methods

Based on bibliographic information derived from the check of the lists of cultivated plants in the historical gardens of the Verbania province (VB), we proceeded, during the months of March and April 1999, at the blooming time, to characterize the camellias obtained in the XIXth century existing in the gardens of Villa San Remigio (VB), Villa Taranto (VB), Villa Ada Troubetzkoy (Ghiffa-VB), Villa Rusconi-Clerici (VB), Villa Anelli (Oggebbio-VB), Botanical Garden of the Isola Madre (VB), and the Nursery 'La Margotta' (Cannero Riviera -VB).

In these gardens only some of the cultivars have been taken in account, considering the introduction period of the cultivar in Italy, the age of the specimen (established on the grounds of the size of the specimen) and its typicity, that is a determinant factor to attain a correct determination. This characterization consisted in the editing of a morpho-botanical card, specifically prepared, in which the phenotypical features necessary for the identification were written and described and are hereafter listed.

To evaluate such characters 3 flowers in full blooming and 3 mature leaves were considered, so to check the variability existing within a cultivar. The samples were chosen excluding the non characteristical and anomalous elements.

Each card was also accompanied by a close photograph of the flower of the specimen, taken during the central hours of the day and in a shaded position, so to avoid colour alterations.

The data collected were then compared with the descriptions found in the literature. (Del Lungo, 1928; De Medici Spada, 1957; Franchetti, 1856; Luzzatti, 1851; Mercatelli, 1881; Roda, 1885; Savige, 1993) and with old prints published on horticultural magazines of the time (Berlese, 1841, Van Houtte 1845-1860; Verschaffelt, 1848-60).
### MORPHOLOGIC FEATURES

#### Flower
- **Shape**
  - Simple: only one row of petals, or at most two but incomplete, is present around the receptacle. The androecium is made of stamens.
  - Semidouble: there are two or more rows of petals around the receptacle. The androecium is made of stamens.
  - Peony-form: the stamens are mixed to petaloids, similar in size and aspect to external petals. The flower assumes an almost semispherical shape.
  - Anemone-form: there are one or more series of external petals and a central globose body made almost exclusively of petaloids.
  - Informal double: the flower is made only of petals, also in the central part, arranged without any particular order.
  - Double imbricated: the flower is made of imbricated petals arranged in an ordered way. Fertile parts are missing.
- **Diameter:** it is expressed by a numerical range having as limits the minimum and maximum values detected during measurements.
- **Depth:** it is expressed by a numerical range having as limits the minimum and maximum values detected during the measurements and consists in the distance, measured orthogonally to the flower plane, between petal apex and base of the receptacle.
- **Size**
  - Miniature: diameter less than 6 cm.
  - Small: diameter between 6 and 7.5 cm.
  - Medium: diameter between 7.5 and 10 cm.
  - Large: diameter between 10 and 13 cm.
  - Very large: diameter over 13 cm.

#### Petals
- **Number:** it is expressed by a numerical range given by the minimum and maximum numbers counted.
- **Shape**
  - Rounded: petal rather isodiametric, with marginal curving homogeneous and constant.
  - Elliptic: the petal length is obviously greater than the width.
  - Heart-shaped: the greater petal width is placed distally. The external margin shows medially a typical depression.
  - Irregular: the petal margin shows an irregular edge.
- **Surface**
  - Flat: the surface is without deformations.
  - Concave: the petal assumes the shape of a spoon with the concavity towards the inner part of the flower.
  - Convex: the petal assumes the shape of a spoon with the concavity towards the outer part of the flower.
  - Curled: the petal shows concave and convex parts, irregularly.
  - Wrinkled: the petal surface appears crumpled.
- **Edge**
  - Linear: the petal edge is without irregularities.
  - Wavy: the edge shows depressions and expansions.
  - Incised: the petal edge shows a marked cut in a central position.
  - Occasionally fringed: there are some cuts on the petal edge.
  - Fringed: the edge is notched.
  - Convolute: the petal edge is folded on itself.
- **Colour:** it was evaluated by comparison with the Colour Chart of the Royal Horticultural Society.

#### Stamens
- **Number:** it is given by a numerical range having as limits the minimum and maximum numbers counted.
- **Arrangement**
  - Connate: stamens are joined in a single bunch with a common base.
  - In groups: stamens are joined in small groups and mixed with petaloids.
Sparse: some stamens are isolated and mixed with petaloids.

- Colour filaments: evaluated as mentioned above.
- Colour anthers: evaluated as mentioned above.

Petaloids

- Number: it is given by a numerical range having as limits the minimum and maximum numbers counted.
- Arrangement:
  - Regular: when they are arranged in order.
  - Irregular: when they are arranged in disorder.
- Variegation
  - Striped: there are bands of only one colour spread along the petal.
  - Streaked: there are bands of more colours spread along the petal.
  - Spotted: they are non linear-shaped variegations, but rather isodiometric ones, with distinct edges against the petal colour.
  - Flecked: there are tiny punctations of a colour distinct against the petal one.
  - Marbled: the variegations have a variable shape and fade gradually in the background colour.

Leaf

- Length: it is the distance between apex and base (insertion point of the stalk on the leaf page) of the leaf. It is expressed by a numerical range having as limits the minimum and maximum values measured.
- Width: it is the measure corresponding to the leaf maximum width. It is expressed by a numerical range having as limits the minimum and maximum values measured.
- Leaf index: it corresponds to the mean of the ratios between the leaf length and width.
- Shape:
  - Lamina:
    - Elliptic: the length is about the double of the width.
    - Lanceolate: the length is more than the double of the width.
    - Ovate: the length is less than the double of the width.
  - Apex:
    - Acute: it narrows progressively and has a limited length (0.5-0.7 cm).
    - Acuminate: it narrows more abruptly and the length is intermediate (0.7-1.2 cm).
    - Cuspidate: it is very marked and of considerable length (>1.2 cm).
  - Edge:
    - Deeply serrate: the notches are deeper or equal to 2 mm.
    - Slightly serrate: the notches, less deep than 2 mm, are spaced at least 2 mm from each other.
    - Densely serrate: notches are near to each other, closer than 2 mm.
- Colour:
  - Upper surface: it was evaluated by comparison with the Colour Chart of the Royal Horticultural Society.
  - Lower surface: it was evaluated by comparison with the Colour Chart of the Royal Horticultural Society.

OBSERVED SPECIMEN

Place

It refers to the garden or collection where the measurements were made and the locality.

Sizes

- Trunk girth: it concerns the circumference of the trunk measured at a few centimetres above the grafting or collar point.
- Height: it is measured or, when it is impossible to measure it precisely, estimated.
- Canopy diameter: it is the measure of its projection on the ground.

Growth habit:

- Upright: if the angle formed between the branches and the trunk is less than 30°
- Open: if this angle is more than 30°

Flowering

- Flowering time:
Early: from 25th February to 10th March.
Early to midseason: from 10th March to 25th April.
Midseason-late midseason: from 25th March to 10th April.
Late: from 10th April to 25th April.

- Density:
  - Low: less than one flower per bud.
  - Medium: one flower per bud.
  - Medium-high: from one to three flowers per bud.
  - High: over three flowers per bud.

### 3. Results

100 cultivars of *C. japonica* have been characterized and identified and among them, those listed hereafter, are of Italian origin, extremely rare and out of our production. The morpho-botanic characterization has been reported, with reference to the following outlines:

Name: origin, year of origination, name of the raiser, city of origin. Flower: shape, size (diameter x depth), number of petals (pt.), shape of the petal that sometimes is different from inside part of the flower (in) and outside part (out), surface, edge (ed), colour (Royal Horticultural Society, 1966), and, if present, variegation, stamens (number, arrangement, filament colour, anthers colour) if present, petaloids (if present). Leaf: shape, size (length x width), edge, apex (ap.). Leaf index (I_Lf), colour of upper surface (up. sur.) and lower surface (lw. sur.). Growth habit (Gh.). Blooming (Bl.): time, density.

**‘Albino Botti’**: Italy, <1867, Alessandro Botti, Chiavari (GE). Double imbricated, medium (7.6-9.0 x 3.5-4.0 cm), pt. 63-74, rounded, flat, ed. linear, 55D streaked 55A. Lf. elliptic (7.2-9.0 x 3.8-4.7 cm), ed. slightly serrate, ap. acuminate, I_Lf 1.9, up. sur. 147A, lw. sur. 144A. Gh. upright. Bl. midseason-early, medium low.

**‘Arciduchessa Augusta’**: Italy, around 1845, Piccioli, Florence. Double imbricated, medium (7.1-8.4 x 2.4-3.4 cm), pt. 68-74, rounded, flat, ed. linear, 62 D-49D, striped 50B-2B. Lf. lanceolate (6.7-7.0 x 3.1-3.4 cm), ed. densely serrate, ap. acuminate, I_Lf 2.1, up. sur. 139A, lw. sur. 137B. Gh. upright. Bl. midseason-early, medium low.

**‘Bella di Florence’**: Italy, around 1850, Cav. Cesare Franchetti, Florence. Double imbricated, medium (7.0-7.7 x 3.0-3.3 cm), pt. 56-63, rounded (out) and elliptic (in), convex, ed. slightly convolute, 52B-55A, striped 54D. Lf. lanceolate (6.1-8.7 x 2.4-3.6 cm), ed. slightly serrate, ap. acuminate, I_Lf 2.6, up. sur. 144A-146B, lw. sur. 144B. Gh. upright. Bl. midseason-early, medium-low.

**‘Bella Lambertii’**: Italy, <1851, unknown. Informal double, medium (8.0-9.5 x 4.0-5.0 cm), pt. 51-60, rounded (out) and elliptic (in), convex and curled (in), ed. linear, 52B-61D. Lf. ovate (6.8-7.8 x 4.6-5.5 cm), ed. densely serrate, ap. acute, I_Lf 1.4, up. sur. 139A, lw. sur. 146A. Gh. open. Bl. late, low.

**‘Calypso Vera’**: Italy, <1858, unknown. Anemone-form, small (6.5-6.7 x 3.5-3.7 cm), pt. heart-shaped, curled, ed. incised, 46C, st. rare, ptd.136-239 irregular arrangement. Lf. lanceolate (7.1-8.2 x 3.9-4.3 cm), ed. slightly serrate, ap. cuspidate, I_Lf 1.9, up. sur. 147A, lw. sur. 146B. Gh. open. Bl. midseason-late, low.
<table>
<thead>
<tr>
<th>Name</th>
<th>Origin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camilla Hebert</td>
<td>Italy, &lt;1859, D'Aste, Genova.</td>
<td>Informal double, large (11.5-13.0 x 4.7-5.0 cm), pt. 49-62, rounded, flat and concave, ed. wavy and incised, 155D. Lf. ovate (9.5-10.0 x 5.2-6.5 cm), ed. deeply serrate, ap. cuspidate, $l_f$ 1.7, up. sur. 139A, lw. sur. 137C. Gh. upright. Bl. midseason-late, medium-high.</td>
</tr>
<tr>
<td>Carolina Franzini</td>
<td>Italy, &lt; 1855, Madono, Brescia.</td>
<td>Double imbricated, medium (8.0-9.0 x 3.5-4.0 cm), pt. 40-56, elliptic, concave, ed. linear, 47A-50A. Lf. elliptic (7.0-8.3 x 3.8-4.6 cm), ed. slightly serrate, ap. acuminata, $l_f$ 1.8, up. sur. 137A, lw. sur. 146B. Gh. open. Bl. midseason-late, medium-low.</td>
</tr>
<tr>
<td>Caryophylliflora Major</td>
<td>Italy, &lt; 1832, unknown (perhaps Luigi Sacco from Milano). Anemone-form, medium (7.4-8.4 x 7.0-4.4 cm), pt.5-7, heart-shaped, convex, ed. incised, 50A, st. sparse, 22-37, pted. 75-93 regular arrangement. Lf. elliptic (9.0-10.2 x 4.9-5.4 cm), ed. slightly serrate, ap. acute, $l_f$ 1.8, up. sur. 139A, lw. sur. 147A. Gh. upright. Bl. midseason-early, medium-low.</td>
<td></td>
</tr>
<tr>
<td>Compte de Gomer</td>
<td>Italy, &lt;1860, Count Bernardino Lechi, Milano.</td>
<td>Double imbricated, medium (8.2-9.3 x 3.2-3.7 cm), pt. 81-88, heart-shaped, convex (out) and concave (in), ed. incised, 56C, striped and flecked 54B. Lf. elliptic (8.2-10 x 4.1-5.2 cm), ed. slightly serrate, ap. acuminata, $l_f$ 2.0, up. sur. 147A, lw. sur. 146B. Gh. open. Bl. midseason-early, medium-high.</td>
</tr>
<tr>
<td>Conte di Cavour</td>
<td>Italy, &lt;1881, Cav. Cesare Franchetti, Florence.</td>
<td>Semidouble, medium (9.1-10.3 x 5.5-6.0 cm), pt. 23-27, rounded, convex, ed. linear, sometimes incised, 51A, spotted 155A. St. 21-25, in group, fil. 20C, ant. 15A, pted. 10-15 irregular arrangement. Lf. ovate (6.5-6.8 x 3.8-4.4 cm), ed. slightly serrate, ap. acute, $l_f$ 1.7, up. sur. 139A, lw. sur. 144A-146A. Gh. open. Bl. midseason-late, medium-low.</td>
</tr>
<tr>
<td>Contessa Woronzoff</td>
<td>Italy, around 1858, Conte Demetrio Bouturline, Florence.</td>
<td>Double imbricated small (6.6-6.9 x 2.5-2.7 cm), pt. 32-41, heart-shaped (out) and elliptic (in), flat, ed. incised, 62C. Lf. lanceolate (7.7-8.8 x 3.4-4.1 cm), ed. slightly serrate, ap. acuminata, $l_f$ 2.2, up. sur. 147A, lw. sur. 144A-146A. Gh. upright. Bl. midseason-early, medium-low.</td>
</tr>
<tr>
<td>Crucifera</td>
<td>Italy, around 1840, Marquis Ridolfi, Florence.</td>
<td>Double imbricated, small (5.4 x 2.7-2.8 cm), pt. 36-42, rounded, concave (in) and convex (out), ed. incised, 50A-50B, striped 155D. Lf. elliptic (7.1-8.4 x 4.1-4.6 cm), ed. slightly serrate, ap. acuminata, $l_f$ 1.8, up. sur. 147A, lw. sur. 146A. Gh. open. Bl. midseason-late, medium-low.</td>
</tr>
<tr>
<td>Duchesse d'Orleans</td>
<td>Italy, around 1839, M. Mariani, Milano.</td>
<td>Double imbricated, medium (8.5-9.0 x 3.9-4.0 cm), pt. 68-76, rounded, convex (out) and concave (in), ed. linear, 75D, striped and flecked 68A. Lf. lanceolate (7.9-9.2 x 4.2-4.7cm), ed. slightly serrate, ap. acuminata, $l_f$ 1.5, up. sur. 147A, lw. sur. 146A. Gh. upright. Bl. midseason-early, medium high.</td>
</tr>
<tr>
<td>Name</td>
<td>Location, Date</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Gloria del Verbano</td>
<td>Italy, around 1845, Rovelli, Pallanza (VB)</td>
<td>Double imbricated, small (6.5-7.6 x 2.4-2.8 cm), pt. 49-61, elliptic, convex, ed. slightly incised, 50B. Lf. elliptic (7.0-8.4 x 4.1-4.8 cm), ed. slightly serrate, ap. acuminate, Lf 1.7, up. sur. 146A, lw. sur. 146B. Gh. open. Bl. late, medium-low.</td>
</tr>
<tr>
<td>Gloria delle Isole Borromeo</td>
<td>Italy, 1845, Rovelli, Pallanza (VB)</td>
<td>Informal double, small (7.2-7.7 x 2.8-3.3 cm), pt. 87-91, rounded (out) and elliptic (in), concave, ed. wavy, 53C (out) 54A (in), striped 156D. Lf. elliptic (7.5-8.7 x 4.0-4.9 cm), ed. slightly serrate, ap. acute, Lf 1.8, up. sur. 147A, lw. sur. 146B. Gh. upright. Bl. midseason-late, medium low.</td>
</tr>
<tr>
<td>Humilis</td>
<td>Italy, &lt; 1832, perhaps L. Sacco from Milano.</td>
<td>Double imbricated, small (6.2-6.8 x 2.5 cm), pt. 63-66, rounded (out) and elliptic (in), convex, ed. linear, 66D (in) 51A (out), marbled 155A. Lf. ovate (6.7-7.8 x 3.8-4.8 cm), ed. slightly serrate, ap. acute, Lf 1.7, up. sur. 147A, lw. sur. 146B. Gh. upright. Bl. midseason-early, medium-high.</td>
</tr>
<tr>
<td>Il Tramonto</td>
<td>Italy, &lt;1858, Conte Bernardo Lechi, Brescia.</td>
<td>Double imbricated, medium (7.4-8.8 x 3.5-4.0 cm), pt. 52-72 heart-shaped (out) and elliptic (in), convex (out) and concave (in), ed. incised, 52B, sometimes white spotted, evident veins. Lf. lanceolate (8.0-9.6 x 4.0-4.9 cm), ed. slightly serrate, ap. acuminate, Lf 2.0, up. sur. 147A, lw. sur. 146B. Gh. upright. Bl. midseason-early, medium high.</td>
</tr>
<tr>
<td>L’Avvenire</td>
<td>Italy, around 1851, V. Corsi, Florence.</td>
<td>Double imbricated, medium (8.5-11.0 x 3.3-4.0 cm), pt. 45-56, elliptic, convex, ed. linear, 52C-52D, lighter in center of the flower. Lf. lanceolate (8.1-9.1 x 2.9-3.4 cm), ed. densely serrate, ap. cuspidate, Lf 2.8, up. sur. 137A, lw. sur. 144A-137C. Gh. upright. Bl. midseason-early. high.</td>
</tr>
<tr>
<td>Madame de Strekaloff</td>
<td>Italy, &lt;1835, unknown.</td>
<td>Double imbricated, medium (7.8-8.0 x 3.5-3.8 cm), pt. 51-59, rounded and elliptic (in), concave, ed. linear or slightly convolute, 55B, striped 19D. Lf. elliptic (7.2-9.4 x 3.8-5.1 cm), ed. slightly serrate, ap. acuminate, Lf 2.0, up. sur. 147A, lw. sur. 144A. Gh. upright. Bl. midseason-early, medium-low.</td>
</tr>
<tr>
<td>Madoni</td>
<td>Italy, &lt; 1845, Madoni, Brescia.</td>
<td>Informal double, medium (9.2-10.1 x 4.3-4.5 cm), pt.40-45, rounded, flat, ed. linear, 155D, striped 55A, st. 3-6, connate, fil. 4C, ant. 21A. Lf. elliptic (7.8-8.6 x 4.2-4.6 cm), ed. slightly serrate, ap. acuminate, Lf 1.9, up. sur. 137A, lw. sur. 144A-146B. Gh. upright. Bl. midseason-early, medium-low.</td>
</tr>
<tr>
<td>Montironi</td>
<td>Italy, around 1840, Casoretti Giovanni, Milano.</td>
<td>Double imbricated, medium (6.5-7.0 x 2.8-3.0 cm), pt. rounded, flat, ed. linear, 56D, striped 55A. Lf. Lanceolate-ovate (7.5-9.2 x 4.1-5.7 cm), ed. slightly serrate, ap. acuminate, Lf 1.7, up. sur. 137A-146A, lw. sur. 144A. Gh. upright. Bl. early, medium-high.</td>
</tr>
<tr>
<td>Nebulosa</td>
<td>Italy, around 1830, Dr. Luigi Sacco, Milano.</td>
<td>Anemone-form, large (10.4-11.4 x 4.0-4.5 cm), pt. 16-24, heart-shaped, curled, ed. incised, 54A, ptd.164-207, regular arrangement, with a short white apical rest. Lf. ovate (10.2-10.8 x 5.4-6.2cm), ed. deeply serrate, ap. cuspidate, Lf 1.8, up. sur. 139A-147A, lw. sur. 146A. Gh. open. Bl. midseason-early, medium-low.</td>
</tr>
<tr>
<td>Oscar Borrini</td>
<td>Italy, 1835, Dr. Angelo Borrini, S. Andrea di Compito (LU).</td>
<td>Informal double (8.0-8.9 x 3.7-4.3 cm), pt. 67-69, rounded, convex, ed. linear, 69D, striped 62B-66C. Lf. ovate (9.3-11.3 x 5.8-6.4 cm), ed. slightly serrate, ap. acute, Lf 1.7, up. sur. 139A-137A, lw. sur. 144A. Gh. open. Bl. late, low.</td>
</tr>
</tbody>
</table>
Every card was also completed with a series of historical news concerning the origin, the synonyms, the first description and bibliographic references concerning the first picture published. Finally, when found, the XIXth century print was reproduced.

Excluding the 3 cultivars of American origin ('Covina', 'C.H.Hovey', and 'Sarah Frost'), 5 of Chinese origin ('Alba Plena', 'Anemonaeflora', 'Fimbriata', 'Rawesiana', 'Variegata Plena') and 5 of Japanese origin ('Donckelaeri', 'Magnoliaeflora', 'Oki-no-nami', 'Otome', 'Tricolor') the censused camellias were selected in Europe (Belgium, England, France, Germany) and as many as 57 in Italy, during the XIXth century. This witnesses the importance of such a species in the Italian floriculture of that time and, moreover, represents a high potential for today's floriculture. The survival of specimens of considerable age, points out their adaptability to our climates and their resistance against diseases, also considering the fact that they overcame periods of abandon of the gardens and natural calamities of remarkable importance.

### 4. Discussion

Besides permitting to save the studied cultivars and to deepen the knowledge of the...
botanical heritage of the historical gardens of the Verbania province, this work proposes precise guidelines for the phenotypical characterization of *C. japonica* cultivars and their identification. The description of the cultivars referable to this species, existing in the literature, are extremely heterogeneous and, often, poorly analytical to be employed as an instrument of identification. This work thus represents a contribution to define the main characteristics for the identification of the cultivars and proposes a model for their characterization. The identification of old cultivars is a complex task, that can be faced only after having carried out thorough bibliographic investigations that imply referring to old catalogues and books, and specific iconographies that are mentioned in this work.

The survival in historical gardens of the *C. japonica* cultivars, selected over one century ago, may be considered an extremely rigid selective factor and, therefore, these cultivars represent a surely valid botanical heritage for the local Italian environmental reality. But we must evaluate carefully their ornamental potentiality, since they must satisfy the requests of the consumer used to standardized canons. Concerning camellia, at first it is necessary to point out how some features existing in the XIXth century cultivars have been improved throughout time. These characters reduce the beauty and the possibility to employ the old cultivars as they are. One example concerns the flower senescence process that, in some old varieties, is manifested by the whole flower remaining on the plant and its progressive browning, causing a decrease of the ornamental value of the plant. However these cultivars may be used for genetic improvement supplying other valuable characters.

A second consideration concerns the flower characters of camellias of Italian origin with respect to today's Northamerican ones, that are well spread on our market. The latter ones are more and more distinguished for the flower size that reaches considerable diameters. Keeping in account the seasonal climatic trend in northern Italy, in which one of the highest rainfalls corresponds to the beginning of spring, it is obvious that these camellias are not adapted to our reality, since large flowers, made heavier by water, cannot be appreciated, unless they grow on specimens of remarkable height, because they bend downwards.

Other considerations concerning cultivation, such as the evaluation of the easiness of propagation, of the time necessary for the first blooming, of the susceptibility to diseases, etc., must be made to establish the actual success of the re-introduction of the studied cultivars in the cultivation practice.

Finally, of course the perfection standards of extreme symmetry may represent peculiar features that would characterize a typical Italian production.

**Acknowledgements**

This work was carried out by with the funds of the Regione Piemonte and the support of the Ministero delle Politiche Agricole e Forestali within the Cofinanced Interregional programme “Supporti per il settore floricolo” and is included in the strategic Project on Biodiversity “Caratterizzazione e valorizzazione delle risorse genetiche vegetali, animali e microbiche” of National Concil of Research (CNR).

**References**


De Medici Spada L., 1957. Catalogo generale delle piante che si coltivano nel Giardino del Conte De Medici Spada a Villa Quiete presso Treia nelle Marche”. Tipografia Tiburtina. Roma. Italy. 15 pp

Del Lungo A.E., and Girardi G., 1928. Le camelie, storia, coltivazione , varietà. Milano. Italy. 183 pp

Franchetti C., 1856. Collezione di camelie coltivate nel giardino di Cesare Franchetti. Firenze. Italy. 55 pp

Luzzatti C., 1851. Collezione di camelie e altre piante. Firenze. Italy

Mercatelli R., 1881. Catalogo delle Camelie. Firenze. Italy
Petrova E., 1996. Genetic resources of ornamental flower in the Czech Republic, Zahradnictvi, 23 (3):109-112
Roda F., 1885. Delle camelie, loro moltiplicazione e coltivazione, con una nota descrittiva delle più meritevoli varietà ora conosciute. Torino. Italy. 59 pp
Savige T., 1993. The international camellia register. The International Camellia Society. 3 vols. Sidney, Australia