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THE COLLECTION OF AZALEAS AND CAMELLIAS OF THE BOTANICAL GARDEN IN IAȘI – BOTANICAL, HORTICULTURAL, HISTORICAL, AESTHETIC AND EDUCATIONAL VALUES

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Abstract: The azalea and camellia collection of the "Anastasie Fătu" Botanical Garden of the "Alexandru Ioan Cuza" University of Iași holds an important significance for the horticultural value of the plant inventory cultivated in greenhouses. It includes 45 valuable taxa, mainly due to their size and age. The specimens in the collection are showcased through exhibitions organized annually since 1975, so in 2025 the 50th edition took place. In the Romanian botanical space, this collection has represented a constant, even in cases where specialized information regarding these taxa was rare or confusing.

Keywords: *Camellia* genus, exotic plants exhibition, informal education, phytonyms, *Rhododendron* genus.

Introduction

The Greenhouse Complex of the "Anastasie Fătu" Botanical Garden of the "Alexandru Ioan Cuza" University of Iași has a botanical inventory that includes about 2,200 taxonomic units (almost 2/3 of the spontaneous taxa in Romania). The taxa of the *Camellia* and *Rhododendron* genera are 45 in number, representing 2% of the total inventory of the Greenhouses, but constitute a representative collection, valuable due to the age and size of the specimens, but especially due to their rarity and history. The joining of these two groups of plants is justified by their belonging to phylogenetically related families (they belong to the same botanical order – Ericales), by the similar requirements regarding the cultivation method and by some popular names that refer to roses.

The specimens from this collection are accessible to the visiting public only during the Exotic Plants Exhibitions, events organized annually within the Greenhouse Complex section of the "Anastasie Fătu" Botanical Garden.

Little information is known about the cultivation of these types of plants in the Romanian space (especially Moldova), although their presence in the assortment of plants sold for horticultural purposes is reported before the 1870s.

Material and methods

The botanical material mainly referred to in this work consists of the hundreds of specimens that are part of the *Camellia* and *Rhododendron* genera collection cultivated within the Greenhouse Complex section of the "Anastasie Fătu" Botanical Garden of the "Alexandru Ioan Cuza" University of Iași.

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The current collection of azaleas and camellias represents a continuation of the initiative carried out in the greenhouse on the previous site of the garden (until 1962-1963), located in the immediate vicinity of the "Alexandru Ioan Cuza" University building on Carol I Boulevard, called at that time 23 August street. The plant material that makes up this collection was purchased over time from various sources represented by private collections (Sibiu) or horticultural research centers (Codlea, Cluj-Napoca) that cultivated this type of plants [TEODORESCU & MITITIUC, 2002].

Aspects regarding the taxonomy, cultivation conditions, educational and decorative value of these plants were analyzed. For this, internal documents (registers, inventories, personal observations, etc.), catalogs and specialized literature, as well as other relevant articles or publications were analyzed.

The characteristics of the cultivars mentioned in the paper are consistent with the information in the specialized literature [GALLE, 1987; ROGER & RIX, 1999; LESLIE, 2004; LOGAN, 1991; BUNDESSORTENAMT; RHS].

The leaf micromorphological aspects were observed using the Optika SZM-1 stereo microscope and were captured using the Levenhuk M1 200 Plus Digital Microscope Camera.

Results and discussions

Botanical values

Azalea collection / *Rhododendron* genus

The terms azalea and rhododendron designate taxa belonging to the genus *Rhododendron* L., which includes over 1,000 species [GIBBS & al. 2011] organized in different systematic units, depending on morphological characteristics.

The species are distributed in nature from the arctic regions to the tropics, in areas with very different climates. The greatest diversity of species of the genus *Rhododendron* is found in the eastern area of the Himalayas, but their natural distribution area extends from southeast Asia (Indo-China, Korea, Japan and Taiwan) to northern Australia. A much smaller number of species are distributed in North America and Europe (*R. ferrugineum* L., *R. luteum* Sweet, *R. ponticum* L.). Approximately one third of the known species are united in a group of tropical rhododendrons called "vireyas". They develop mainly in warm climate areas of Borneo, New Guinea, Sulawesi, Sumatra, Philippines [CĂPRAR & al. 2014].

In Romania, only one representative of this genus grows spontaneously – *R. myrtifolium* Schott & Kotschy (syn. *R. kotschyi* Simonk., Figure 4), frequently called [BORZA, 1968] **smârdar** or **bujor de munte** (mountain peony). It is a protected plant that grows in the subalpine zone of the Eastern and Southern Carpathians. The flowers have therapeutic properties and are also used for culinary purposes.

As the name suggests, rhododendrons are trees or shrubs remarkable for the presence of bell-shaped (campanulate), trumpet/chalice (hypocrateriform) or funnel-shaped (infundibuliform) flowers. The rough leaves have dimensions that can vary from 1(2) to approximately 70 cm in length.

Despite the undeniable beauty of the flowers, azaleas are toxic, due to their bitter, astringent and narcotic properties. Over time, cases of poisoning have been reported, either due to honey or nectar, and this fact has been explained by pharmacognosy studies. The toxicity of the species is due to the presence of grayanotoxin, a diterpene that in high concentrations affects the gastrointestinal, cardiac and central nervous systems. Most cases of poisoning are known as

mad honey disease, as it is due to the ingestion of honey contaminated with grayanotoxin [JANSEN & al. 2012].

Most of the taxa in the greenhouse collection are indoor azaleas, sometimes called Indian azaleas by horticulturists. The name alludes to the area of the islands in the Indian Ocean (especially Java), from where the first azaleas were brought to Europe, but that has often created confusion regarding their origin [TEODORESCU, 2003]. Amateur horticulturists still use the name *Azalea indica* for both *R. indicum* (L.) Sweet and *R. simsii* Planch., because the first specimens of *R. simsii* were exported to England after 1800 (probably 1808, WILSON, 1921) under the name *indicum*. These are the best known of the parental species of most indoor azaleas, to which are added the lesser-known R. *scabrum* G. Don and *R. mucronatum* (Blume) G. Don [HEURSEL, 1994], and recent genetic studies also support the contribution of the species *R. ripense* Makino [KOBAYASHI & al. 2021].

Rhododendron simsii is probably the most studied of the few azalea species suitable for indoor cultivation and is accepted as the main ancestor of modern varieties [CHRISTIAENS, 2014]. The species is native to East Asia, where it grows in the hilly areas of China, Thailand, Laos and Myanmar at altitudes of 1000-2600 meters. Once it reached Europe, in the early 19th century, the species was subjected to hybridization, over time obtaining a large number of horticultural varieties. Belgium and Germany are the European countries suitable for the title of leader in the production of hybrids.

There are over 25,000 horticultural varieties in the world [LESLIE, 2004], but of these only a few hundred are involved in the indoor azalea trade.

The qualities of cultivars that are constantly being improved in the horticultural field refer to the shape and color of the flowers, the shape of the leaves, the vigor of growth, the general appearance of the plant, the precocity of flowering, as well as the resistance to diseases and pests [CHRISTIAENS, 2014].

In order to be able to describe and identify the varieties of azalea, artificial classifications of flower types have been developed, the varieties obtained through horticultural improvement having intermediate or combined characters. One of the most frequently used classifications [LEE & al. 1952] presents 6 types of flowers (Figure 2):

- Single – the most frequent form, with five petals and stamens in multiples of five;
- Semi-double – some stamens are “transformed in petal-like structures, so that the true petals and the transformed stamens look substantially alike”;
- Double – some stamens are transformed in petal-like structures;
- Single hose-in-hose – combination of the two types;
- Semi-double hose-in-hose – combination of the two types;
- Double hose-in-hose – combination of the two types.

The term hose-in-hose refers to a mutation affecting flower appearance, present in cultivars of the Kurume group. In this case, the sepals are converted into petaloid sepals, so the first rosette (usually of the calyx) has an appearance much more similar to the petals [CHEON & al. 2016]; this shape is genetically determined.

The difficulties in completing the database of *R. simsii* cultivars are illustrated by the situation of the cultivar 'Violacea'. It was commercialized [VERKADE, 1948] and described in the literature as having burgundy flowers [SHEN, 2004], but is not listed in the international register [LESLIE, 2004].

Table 1. Peculiarities of some azalea varieties from the Botanical Garden Iași collection

Cultivar	Synonyms	Year of registration	Parentage	Form / horticultural group
'Aquarell(e)'		1992	Sport of 'Helmut Vogel'	Semidouble / Indian
'Concinnum'		1848/1849	unknown	Single / Indian
'De Waele's Favorite'		1958	Radiation-induced mutation of 'Knut Erwén'	Semidouble / Indian
'Eri Schäme'	'Eri', 'Eric(h) Schäme', 'Pink Ruffles'	1928	Sport from 'Paul Schäme'	Semidouble / Indian
'Henny'		1955	unknown	Semidouble
'Hexe'	'Firefly'	1878 (?)	'Duc de Nassau' × 'Amoenum'	Single hose-in-hose / Indian
'Hino-Crimson'		1944	'Amoenum' × 'Hinodegiri'	Single hose-in-hose / Kurume
'Pax'		1923	'Président Comte Oswald de Kerchove' × 'Madame Petrick'	Double / Indian
'Petrick Alba'	'Schepen's Kerstperel'	1915	Sport of 'Madame Auguste van Damme'	Semidouble / Indian
'Robert van Oost'		1941	'Theodor Findeisen' × 'Paul Schäme'	Double / semi-double / Indian
'Rolko'	Enzett Rolko	1968	Artificially induced mutation of 'Ernst Thiers'	Single / Indian
'Sachsenstern'		1996	unknown	Single / Indian
'Terra Nova'		1994	Sport of 'Helmut Vogel'	Double/ Indian

The chromatic palette of the corollas of the cultivars in the collection covers a narrow group of shades. This is due to the parental species that generally has a large share in the genetic heritage – *R. simsii*. In nature, specimens with flowers with shades from vermillion to red have been observed [HANG & al. 2010]. The specimens of this species used in horticultural breeding have colors determined by anthocyanins and flavonols that influence the decorative qualities of the obtained cultivars. In order to better study the different characteristics related to the pigments that give color, the cultivars of *R. simsii* have been divided into 6 categories: white, red, carmine, pink, violet (purple) and lilac [HEURSEL, 1981]. Other characteristics of this species valued in breeding practice are early flowering and the ability to produce natural variations (sports).

The cultivars in the greenhouse collection have white ('Pax', 'Petrick alba'), pink ('Terra Nova'), cinnabar red ('Robert van Oost'), carmine red ('Hino-Crimson'), purple ('Concinnum') or bicolor ('Aquarelle', 'De Waele's Favorite', 'Eric Schäme', 'Sachsenstern') corollas.

Most varieties have as their main ancestor the species *R. simsii*, so they retain many morphological peculiarities, including those related to the indument. *R. simsii* belongs to the Tsutsusi section, characterized by the presence of simple hairs and stipitate glands [CHAMBERLAIN & RAE, 1990]. These are responsible for the irritating sensation it causes to people who come into contact with the leaves of these plants (Figure 1).

Figure 1. *Rhododendron* 'Hexe'
Leaf: trichomes on dorsal face
135 x (original)

From the genus *Rhododendron*, the species *R. decorum* Franch. and *R. luteum* Sweet are also cultivated in the greenhouses of the Botanical Garden Iași, both obtained through international exchange of botanical material. Since 1998, some taxa of the genus are available for exchange of vegetal material through the Seed Catalogue (1998).

Camelias collection / *Camellia* genus

The genus *Camellia* L. groups about 230 species originating from forested areas of tropical and subtropical Asia, from sea level to altitudes of over 2000 m.

The Latin name *Camellia* is due to the great botanist Carl Linnaeus who wanted to honor the work of the Jesuit missionary Georg Kamel (1661-1706). He spent a large part of his life in the Philippines, where he collected, described and studied numerous plants from the spontaneous flora. He maintained an extensive correspondence with the botanists of the time that he signed Pater Camellus. Georg Kamel never met Carl Linnaeus (who was born in 1707) and apparently never saw a camellia, not even a herbarium. It was not until 1712 that Engelbert Kaempfer described a camellia for the first time, following his trip to Japan, where the plants are designated by the term tsubaki [LOGAN, 1991].

Camellias are small shrubs or trees with evergreen, leathery, glossy leaves; the variously colored flowers are solitary or frequently grouped in groups of 3.

The history of the introduction of camellias into Europe is unclear. Some unproven claims show that the first specimens arrived from Japan in Portugal in the 16th century [TREHANE, 2007]. *Camellia japonica* was introduced as an ornamental plant in Europe in 1793 [BERLESE, 1840], however it seems that before 1745 a camellia specimen was cultivated in Essex (England) obtained from seeds [TREHANE, 2007].

The greenhouse collection includes 15 cultivars from four parental species: *C. japonica* L. (12), *C. cuspidata* (Kochs) Bean, *C. reticulata* Lindl. and *C. sinensis* (L.) Kuntze.

The classification of the thousands of cultivars of this genus is difficult. In his famous monograph (among the first of its kind in Europe), BERLÈSE (1840) proposed their classification according to "general" color into two main categories ("classes"): unicolor and bicolor. Currently, an artificial classification is frequently used that proposes 6 types of flower, which are differentiated according to the characteristics of the petals and stamens. It is usually used for *C. japonica* [camelliasaustralia] and allows the description and identification of cultivars:

- *Single*: a maximum of eight petals in a single row, with an uninterrupted cluster of stamens.
- *Semi-double*: two or more rows of petals, with an uninterrupted cluster of stamens.
- *Irregular semi-double*: a semi-double with an interrupted cluster of stamens. Sometime this type is replaced by rose form double [LOGAN, 1991].
- *Formal double*: any number of petals, regularly disposed, tiered or imbricated, but no visible stamens.
- *Informal double* (previously peony form): a double with any number of petals and petaloids. Stamens may or may not be visible.
- *Elegans form* (previously anemone form): an informal double with one or more rows of large outer petals lying flat or undulating; the centre a convex mass of intermingled petaloids and stamens.

The color palette within the collection is relatively narrow (Figure 3); white (cv. of *C. sinensis*, *C. japonica* 'Alba simplex', 'Snow Ball'), pink (cv. of *C. reticulata*, *C. japonica* 'Elegans'), carmine-red (*C. japonica* 'Alexander Hunter', 'Robert Casamajor'), red ('Dr. King',

'Evelyn'). Three cultivars have flowers with bicolored petals: 'Brusfield's Yellow' (white marginal petals and central petaloid stamens with light yellow shades), 'Elegans Variegated' (pink with irregular white spots) and 'Flashlight' (white petals with irregular deep pink striations).

It is worth noting that some varieties are quite old: 'Alba Simplex' – 1816-1817, 'Elegans' – 1831, 'Adolphe Audusson' – 1910.

Since 2013, some camellia specimens have been grown in soil, thus providing their roots with a much more generous space than in a regular pot. Under the new conditions, these specimens have had much more vigorous and rapid development, reaching heights of over 3.5 m. Since 1991, some taxa of the genus are available for botanical material exchange through the Seed Catalog of Iași Botanical Garden (1991).

WANG & al. (2021) have documented the difficulties in identifying camellia cultivars, mainly due to the large number of synonyms in the specialized literature. According to the authors, the largest number of synonyms (121!) belongs to a variety obtained in 1788 ('Masayoshi'). The variety 'Elegans', present in the Botanical Garden of Iași collection, apparently has 68 synonyms.

Other problems affecting precise identification are represented by morphological variability that can manifest itself "among specimens grouped in the same cultivar" or "within a single plant" [COUSELO & al. 2010]. TREHANE (2007) notes that the shape of the corolla itself can vary within the same cultivar, depending on the characteristics of the climate in which it is grown ("formal double" flower in "cool, wet climates", but "peony-form" in "warmer, drier conditions").

Horticultural values

In the inventory of the Greenhouse Complex, azalea and camellia taxa have always been considered to belong to a "specialized collection" of great horticultural importance. That is why LAZĂR (1982) grouped them in the theme "Horticulture", considered one of the four themes that must be developed in a botanical garden (alongside "Botanics", "Ethnobotany" and "Relaxation and rest").

RHS specialists state that it is difficult to cultivate indoor azaleas, as does TOMA (2009), contrary to what SADOFSKY & MILIȚIU (1966) recommended. However, it seems that their optimism was not justified, because after about 60 years, the cultivation of potted azaleas is quite rare among amateur horticulturists in Romania.

The fact that these plants have been successfully grown in Botanical Garden of Iași greenhouses for over 50 years is nevertheless proof that they are worth introducing into the assortment of plants cultivated and used for interior decoration, but certain rules must be observed.

Successful cultivation of indoor azaleas requires compliance with three main rules: the use of an acidic substrate, ensuring high atmospheric humidity (over 70%) and avoiding high temperatures (heat waves). Compliance with these ecological requirements is mandatory not only for the survival of the specimens, but especially for the development and flowering of the plants, a phenomenon that occurs in the winter months [TEODORESCU & MITITIUC, 2002].

The conditions in the greenhouse are constantly influenced by the natural and climatic conditions of the city of Iași, especially when the microclimate is little artificially controlled, in the period late spring - summer - early autumn (June-September), in the absence of heating. The relatively strong temperature fluctuations throughout the year must be compensated by different methods: increasing the temperature – in cold periods, decreasing the temperature – in hot

periods. A very important aspect, but difficult to control, is represented by atmospheric humidity. In the climatic conditions of the city of Iași-Romania, this aspect becomes a real challenge, because in July and August the atmospheric humidity drops a lot, in accordance with the excessive continental climate that manifests itself in this area. In order to prevent damage to the plants and especially the formation of flower buds, it is necessary to intervene with additional watering or ensure artificial fog conditions that ensure the necessary humidity of 70-80%. In addition, these measures have the secondary effect of lowering the temperature by a few degrees.

Among the numerous specimens (over 500) of the collection are some that are over 45 years old and impressive in size: azaleas with a crown of about 3 m in diameter or camellias with a trunk over 2 m high. Their true value is expressed in the flowering period, which is not uniform. Some varieties of azaleas and camellias have early flowering, others late, so that the flowering period is not synchronous, but extends over a period of 3-4 months (December-March).

Several specimens of azaleas and camellias have been selected to be cultivated in bonsai style, thus becoming part of the collection that holds over 200 plants from 95 taxa.

Historical values

The Exotic Plants Exhibition is an annual event organized within the Greenhouse Complex section of the "Anastasie Fătu" Botanical Garden of the "Alexandru Ioan Cuza" University of Iași. The initial nucleus is represented by the collection of remarkable horticultural value of azaleas and camellias. The maximum flowering period of these plants is between January and March, this being the only time interval in which the collection is accessible to the visiting public [LAZĂR, 1988; TEODORESCU, 2003].

It is very likely that the azaleas and camellias exhibition organized during the winter period, starting with 1975 [MITITIUC & TONIUC, 2006], represents the first exhibition event organized annually, dedicated to scientific collections in a botanical garden in Romania.

Currently, this event is part of the cycle of thematic exhibitions with flowers, fruits and seeds, and contributes essentially to the uniqueness of the "Anastasie Fătu" Botanical Garden of the "Alexandru Ioan Cuza" University of Iași, and thus individualizes it in relation to similar institutions in the country and abroad. Through these traditional events, the team of the Botanical Garden of Iași offers scientific and cultural support, both to the community of Iași, as well as to visitors from the country or abroad [PETRE & IFRIM, 2016].

The beginning of these events was initially marked by the introduction, for didactic and research purposes, of a small number of azaleas and camellias, in the spaces of the greenhouse complex that were intended for their cultivation and maintenance, rather than for presentation to visitors in the form of "micro-exhibitions" [LAZĂR, 1988]. Over time, the exposure for visiting acquired the proportions of an exhibition event, especially after 2000.

Between 1975-2008 (Figures 5, 6), the azaleas and camellias were exhibited to the public in small spaces, specifically intended for the maintenance of these collections of plants with special ecological requirements. The small dimensions and narrow access paths had the advantage of offering visitors a direct approach to the plants, but they had the disadvantage of a lack of perspective and fragmentation of the overall image of the collection. During the flowering period, the azaleas and camellias were given special care, which highlighted their special decorative character. Often this aspect was enhanced with the help of conifers that harmoniously completed the aesthetic image. Throughout this period, the events were held

under the generic name of the *Azaleas and Camellias Exhibition*, except for 2008 when it was called *The Magic of Flowers*.

Starting with 2009, these events took place in the much more generous space of the exhibition greenhouse. Along with the main collections on display (azaleas and camellia cultivars), visitors could admire specimens belonging to numerous groups of exotic plants: orchids, peperomias, begonias, phytonias, arrowroots, crotons, euphorbias, crotons, dracaenas, ferns, citrus, cacti and succulents.

A prefiguration of the holding of exhibitions in a broader concept can be considered the manner in which, within the framework of the autumn exhibitions, until 2005, there was permanently a space intended for the exhibition of plants cultivated in the Greenhouse Complex. There, year after year, attractive specimens were exhibited to visitors, selected according to ornamental, but also ecological, biogeographical or taxonomic criteria.

Between 2009-2013, the event called *Messages with Flowers*, organized in the rehabilitated space and with a palette enriched with plant material, allowed for the diversification of the themes proposed to visitors.

During the 2011 edition (Figure 7) of the exhibition called *Messages with Flowers*, a message and photo contest dedicated to flowers was organized with the aim of promoting interest in the diversity of plant species in the collections of the Botanical Garden of Iași and inviting visitors to an exercise in imagination through which to express their own vision of the plant elements in the exhibition.

Under the same generous name – *Messages with Flowers* – subsequent editions were with the theme of the symbols of spring (2012), of the symbols of the Far East, inextricably linked to the plant collections through their Asian origin (2013). In 2015, the event was held with the theme of Dragobete (Romanian traditional feast in February), Mărțișor (Romanian traditional feast in March) and Chinese New Year.

The 2014 edition marked the inauguration of 2 new compartments intended for the cultivation of azaleas and camellias, spaces where the 2016 edition was organized, an event that opened the cycle of anniversary events dedicated to the 200th anniversary of the birth of naturalist Anastasie Fătu, founder of the first botanical garden in Romania, a garden that celebrated 160 years of existence.

In the exhibitions from 2015-2020, visual artists from Iași exhibited paintings or artistic installations under the theme Heart on the Symes. The parallel holding of these cultural events stimulated the artistic expression initiatives of the garden's landscapers, who used plant remains, represented by dry roots, stem bark, leaves, flowers or dried fruits, but also rocks or natural fibers, with which they created very refined decorative elements. The sources of inspiration were diverse: love (2016 edition), birds in the culture of peoples (2018 edition) or Japanese gardens (2019 edition, Figure 8).

In 2020, plants from the flora of Japan were selected for the landscape arrangements, as well as special specimens from the collection of tropical ferns. On this occasion, a permanent exhibition was inaugurated with species and hybrids of carnivorous plants, originating from different areas of the world. Also at that time, a new element was represented by the creation of vegetable walls made of perennial grass plants with contrasting foliage (species from the genera *Begonia*, *Fittonia*, *Peperomia*, *Pilea*, *Saxifraga*).

In 2021, due to restrictions during the pandemic, the exhibition could not be visited, as the greenhouses were closed, therefore the landscaping inspired by Asian gardens, made with exotic plants or, in the case of dry ones, made of gravel, stone blocks and sand, as well as artistic installations made of plant waste, inspired by the world of insects, were viewed online.

The exhibitions in the following years brought new elements from Asian culture to the attention of visitors, for example, plant and animal symbols in 2022, elements from Asian philosophy in 2023, iconic images of the Sino-Japanese space (2024). They were also exhibited in a diorama where habitats for species that show impressive adaptations to the environment are suggested, representative specimens from the Bromeliaceae family, which also includes the pineapple.

The year 2025 marked the 50th edition, held under the theme *Flowers in Celebration*, in which *Camellia* varieties were highlighted, as well as the ecological requirements of some plant groups.

Educational values

For those who know the history of the Botanical Garden of Iași, the phrase "giunimea studioasă" / "studying youth" is well known [BURDUJA & TOMA, 1979] and we consider it appropriate to point out a few aspects that highlight the instructive-educational value of the collection in different periods of time in an academic context.

The Botanical Garden is permanently a place of instruction, but the exhibition event mentioned is a special opportunity to educate the public through informal means. On this occasion, the educational act is carried out through a harmonious combination of information and affect. The design of the exhibition, each time different, has a double function: to ensure a special emotional state, but also to provide a special framework for mnemonic performances in the process of acquiring scientific information that accompanies the exhibits or that is transmitted in the exhibition context.

This information comes from very diverse fields: taxonomic, utilitarian, phytogeographic, horticultural, ecological, ethnobotanical, artistic, etc. Those from the taxonomic and utilitarian fields, for example, are presented in the form of written texts, those from the phytogeographic, horticultural or artistic fields are deduced from the location of the plants, their appearance or the accompanying decorative elements. It becomes obvious that the exhibition event can be considered important for the activity of ecological education, by capitalizing on informal learning techniques. Thus, the exhibition, as a specific manifestation within the botanical garden, is not "just an attraction" [WILSON & GREENE, 1994], but becomes a social and permanent learning space [WOLLENTZ & al. 2022].

The scientific value of the collection with an age of over 50 years is relevant especially in relation to the Romanian botanical context of the equivalent time period.

Camellia flowers (species *C. japonica*) were known in the Romanian space quite quickly after their entry into Europe (circa 1780). As we will see, the flowers became a real fashion around 1865, after which in a few decades they entered a shadow cone. Interestingly, they seem unknown for a long time in the field of Romanian taxonomy, the Theaceae family to which they belong not even being mentioned in the monumental work Flora RPR-RSR [ȚOPA, 1960], although *Thea sinensis* (syn. *Camellia sinensis*) is a species of economic importance worldwide. Unfortunately, the situation remains unchanged in the valuable work of CIOCÂRLAN (2000), although here we find much less known species such as: *Anthurium scherzerianum* or *Cycas circinalis*. It is likely that this fact is related to the lack of interest in the Romanian space towards tea consumption, almost non-existent until a few decades ago; in any case, far behind coffee consumption (*Coffea* sp.).

As for azaleas, their presence in specialized works reflects the pace at which they have become increasingly well-known. The Ericaceae family (to which they belong) has 13 representatives from 6 genera in the spontaneous flora, including the genus *Rhododendron*. The

species *R. simsii* is mentioned only in the 2000 [CIOCÂRLAN, 2000] volume, not in Flora RPR [ȚOPA, 1960]. CIOCÂRLAN (2000) mentions that *R. indicum* and *R. simsii* (both synonyms of *Azalea indica*) are grown in cold greenhouses, but does not specify that these are actually horticultural varieties, in no way spontaneous species.

We discover inaccuracies regarding azaleas, especially in specialized works in the horticultural field. Thus SADOFSKY & MILIȚIU (1966) show regarding azaleas that "*some* of them also grow in our mountains ...", although it is a single species. TOMA (2009) mentions varieties of *R. simsii* with yellow and orange flowers, but these probably belong to other species of the genus, since we have shown above that these colors are not characteristic of indoor azaleas. In addition, in the protocols established for the characterization of the color of the corolla of varieties of this species, only 9 groups are mentioned: white, three shades of pink, three shades of red, purple and violet [CPVO-TP, 2007], a diversification from previous classifications which only proposed 4 categories: purple, carmine red, red and white [HEURSEL, 1994]. Confusion regarding the taxonomy of the genus *Rhododendron* as well as the differentiation of horticultural groups are also found in works in the field of botany / plant anatomy [ANDRICI & al. 2005].

This lack of clarity of information is unexpected, if we consider that as early as 1864 a list of plants offered for sale was published in Iași, among which we find the species *Camellia japonica* "(in Sorten)", *Rhododendron* (!) *arboreum* and *R. hibrida* in the category "Plantes de serre froide / Kalthauspflanzen".

Phytonymy aspects

The popular names "azaleas" and "camellias" seem familiar nowadays, this type of plant being relatively frequently encountered in horticultural supply or in amateur horticulturist collections. Most likely, the increasingly easy access to information has contributed to this, but this aspect has evolved over time.

It is worth noting that the Romanian phytonyms for species of the genus *Camellia* are much more widespread and well-known compared to those for the genus *Rhododendron*. And this despite the fact that in the spontaneous flora there is a representative of the genus *Rhododendron – R. myrtifolium* (syn. *R. kotschyi*), which grows in mountainous areas.

There are probably at least two explanations for this situation.

1. *Rhododendron myrtifolium* is mentioned in the specialized literature with the popular names of smirdar or bujor de munte (mountain peony). Less well-known are the names: bujor (peony), coacăză, cocăzar (gooseberry), merișor (cranberry), trandafir de munte (mountain rose). We note that none of the phytonyms mention the terms rhododendron or azalea. Probably the popular names smîrdar or bujor de munte (mountain peony) did not facilitate the establishment of a botanical connection.

2. The name "camellia" became very well-known due to the numerous editions of the translations of the novel "The Lady of the Camellias".

From the analysis of the available information, it seems that there is no awareness among the uninformed public that the spontaneous species *R. myrtifolium* is from the same family as the azalea varieties found in gardens and flower shops. It is worth noting that the illustrious romanian folklorist Simion Florea MARIAN (2008) presents the phytonym "bujor" (peony) mainly as describing the species *R. myrtifolium* and only mentions that it can also be used to designate other plants, such as *Paeonia officinalis*.

The term azalea appears for a long time mainly in literary works, especially poems [ZAMFIRESCU, 1899; IOSIF, 1939], but the authors probably had information about the plant

either from their travels in western Europe (Italy, Austria) where the plants were much better known, or from foreign literature.

In the current period, DRĂGULESCU (2014) mentions the phytonym "azalea" collected from the Sibiu area for the species *R. indicum* or an unknown species of the genus. In addition he mentioned *Azalea indica* as a different taxon, despite he is a synonym of *R. indicum*. It is very likely that actually it is about varieties that have multiple parental species, so once again the difficulty of correctly identifying taxa is evident.

Camellias have a similar status, although they are known at least as the name of a flower due to the numerous editions of the translations of the novel "The Lady of the Camellias".

The image of Elena Cuza - in the memoirs of Lucia BORȘ (1936) - who appears as a great lover of camellias is very valuable.

"In her white dress ..., caught in bouquets of white **camellias**, her figure ... seemed to melt into the shiny black of her rich hair, gathered in the fashion of the Empress of France, Joséphine, wearing those flowers, which were also dear to her, and which represented at that time an entire era of romanticism."

In fact, camellia flowers were for a long time the preserve of the Romanian elite, following the model of the Western aristocracy.

"The fashion of the time gave the shows varied and curious decorations: dresses ..., vests ..., and everywhere natural flowers, worn in women's hair or at the waist, in men's buttonholes or in children's arms, and among them the most precious being the red or white **camellia** according to the taste or the significance given to it." [BORȘ, 1936].

In the same context, it is worth mentioning a composition by Ciprian Porumbescu, originally called "Florile dalbe" and which was dedicated to Mrs. Teresa Kanitz, honorary president of the Romanian students' society in Vienna "România Jună". This piano waltz was performed by Maestro Eduard Strauss with his orchestra at the "România Jună" ball in 1880. Since the conductor found the title incomprehensible, he requested that it be changed to one "that the Viennese would understand" [BORZA, 2012]; thus, the waltz was renamed "The Camellias". This little story illustrates the importance of phytonyms that confer a sense of knowledge and familiarity, as well as their importance in the tradition and culture of a people.

Conclusions

The azaleas and camellias collection represents an important link between generations, on the one hand, but also between specialists and visitors; it largely gives continuity to the existence of the botanical garden, especially in the context in which its turbulent history did not ensure the permanence of its location.

The horticultural and educational value of this collection has been manifested over time and has benefited both specialists and the uninitiated public. The exhibition events held around these collections have represented opportunities for ecological education, by capitalizing on the plant heritage preserved and enriched within the botanical garden. Information from very diverse fields is disseminated through informal education means: taxonomic, utilitarian, phytogeographic, horticultural, ecological, ethnobotanical, artistic, etc. The exhibition venue represents a social space and longlife learning.

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a. Single ('Concinnum')

b. Single hose-in-hose ('Hexe')

c. Double ('Terra Nova')

d. Double hose-in-hose (not in collection)

e. Semi-double ('De Waele's Favorite')

f. Semi-double hose-in-hose ('Varvaeniana')

Figure 2. Types of *Rhododendron* flowers (a, b, c, e, f - original, d – source www.rhs.org.uk)

Figure 3. *Camellia* flowers from collection: left - *C. cuspidata* cultivar, middle - *C. japonica* 'Snow Ball', right - *C. japonica* 'Elegans Variegated' (original)

Figure 4. *Rhododendron myrtifolium* on Rodna Mountains (photo C. M. Ifrim)

Figure 5. View from 2008 *Azaleas and Camellias* Exhibition (photo V. Delinschi)

Figure 6. View from 1990 *Azaleas and Camellias* Exhibition (photo A. Toniuc)

Figure 7. View from 2011 *Messages with Flowers* Exhibition (photo C. M. Ifrim)

Figure 8. View from 2019 *Exotic Plants* Exhibition (photo C. M. Ifrim)