PLETHORA OF PLANTS – COLLECTIONS OF THE BOTANICAL GARDEN, FACULTY OF SCIENCE, UNIVERSITY OF ZAGREB (5): GLADIOLUS, CROCUS AND OTHER MEMBERS OF IRIDACEAE FAMILY

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The plant lists of Gladiolus, Crocus and other members of the Iridaceae family grown in the Botanical Garden from 1895 to 2021 are studied, with a supplement for the genus Iris, analyzed in 2019. The nomenclature, synonymy and origin of plant material were arranged. Lists of species grown in the last 126 years are constructed to show that throughout that period at least 448 taxa of wild and cultivated Iridaceae from 30 genera inhabited the Garden’s collections. Today we have 371 taxa out of 21 genera. Out of this number, the genus Gladiolus accounts for 35 taxa (formerly 50), Crocus 7 (formerly 27), while Iris includes as many as 291 species, cultivars and hybrids. The remaining 18 Iridaceae genera are represented by 38 taxa.

Key words: Zagreb Botanical Garden, Faculty of Science, historic plant collections, Gladiolus, Crocus, Iridaceae collection

INTRODUCTION

The full review of the plant collections in the Botanical Garden of the Faculty of Science, University of Zagreb (in further text “Botanical Garden” or “the Garden”) initiated in 2012 is continuing with inventories of indigenous, wild and cultivated taxa of the Iridaceae Juss. family, with the emphasis on the genera Gladiolus L. and Crocus L.
General facts about the Garden and its collections were published in the first paper of this series (Kovačić, 2015) and here will not be repeated. Following the established principles, I made an inventory of the Iridaceae family members cultivated in our Botanical Garden since 1895: as the genus Iris was described in Kovačić (2019), in this paper I am presenting only a supplement to the published inventory of that large genus. The emphasis among Iridaceae in general is this time on gladioli, hybrids and cultivars of which, together with the ‘bearded’ iris hybrids, constitute the Garden’s Iridarium. There is also a broader portrayal of the crocuses in our Garden’s collections.

The monotypic Iridaceae family, of possible Antarctic-Australian origin, arose between 107 and 82 million years ago (Janssen & Bremer, 2004; Goldblatt et al., 2008). The family is nearly worldwide in its distribution, but is by far the most abundant and diversified in Africa. Most of the species live in temperate, subtropical and tropical regions, but generally occur in a broad range of habitats; some are also adapted to very particular conditions, such as swamps or subarctic grasslands. Iridaceae are mostly deciduous perennial herbs, with only several South-African endemic shrubs and evergreen subshrubs of fynbos.

The family today includes at least 66 genera with 2200 species (Christenhusz & Byng, 2016), but this conservative number could be much higher (for example, up to 80 genera are cited by the Flora of China). One of the most famous Iridaceae-experts, South African–American professor Peter Goldblatt (1943–) named more than 1300 taxa during his productive career, and divided the family into several subfamilies and tribes (Goldblatt, 2000; Goldblatt & Manning, 2008; Goldblatt et al., 2008), the complex inter-relations of which are not included in this inventory. Nevertheless, it is interesting to note that, unlike many others, the genera of Iridaceae have seldom changed affiliations (not a single one in our collection!): they are easy to recognize, characterized by long, narrow leaves with parallel venation, three-partite flowers and underground (rhizomatous, bulbous or cormous) storage organs. However, during the centuries many taxa changed genera, while some local genera have been incorporated into larger ones (as could be seen, for example, in The World Flora Online).

From the botanic garden point of view, it is also interesting that many of the Iridaceae taxa are well-known ornamental plants. Several genera are extensively cultivated: Iris being the most famous, followed by Gladiolus, Crocus, Freesia and many smaller ones, like Crocosmia, Libertia, Tigridia or Triteleia (Photo-tab. 1). The number of cultivars and hybrids today is enormous: for example, there are more than 42,000 officially registered ‘bearded’ iris taxa alone, with at least twice as many unregistered, making this genus generally the most popular monocotyledon in horticulture, worldwide (details in Kovačić, 2019). Genus Gladiolus follows.

Instead of rhizomes or bulbs, gladioli have corms (bulbotubers). In the colder parts of the world, those are commonly dug up and stored during wintertime, while most of the genus’ natural range is in the Mediterranean climates of the Old World (Southern Europe, African Cape Region).

There are about 300 wild Gladiolus species recognized today (Barker & Govaerts, 2016), with about 250 indigenous to southern and another 75 to tropical regions of Africa (Goldblatt & Manning, 1998). The Mediterranean region contains less than 10% of this wealth: according to the Euro+Med Plantbase only 22 species, out of which five are indigenous to Croatia: Gladiolus illyricus W.D.J. Koch, G. italicus Mill., G. com-
**munis** L., *G. imbricatus* L. and *G. palustris* Gaudin (*Flora Croatica Database*). The genus *Gladiolus* is subdivided into many sections, but the references alone would surpass the extent of this inventory: it should be simply emphasized that the systematics of both wild and cultivated gladioli are complicated and highly ambiguous (f.e. *Datta*, 2020). Gladioli have also been extensively hybridized since the end of the 18th century and, again, the relevant literature is immense (f.e. *Anonymous*, 1904; *Crawford*, 1911; *Creasey*, 1911). As for the irises (*American Iris Society*), the world authority registering gladioli hybrids is also situated in the USA: since 1958, it has been the *North American Gladiolus Council*. Still, there are many more unregistered than registered hybrids. From the botanic garden point of view it would be sufficient to emphasize that, leaving aside the natural species and varieties, the most common classification of the modern-day gladioli is in to three hybrid groups (*Brickell*, 1989), as in our collections (*Kovacic*, 2020). Winter hardy, ‘Nanus’ hybrids are the smallest and most gracious old forms of 19th century horticultural gladioli with several stems, the flowers of which are simple and wide open, commonly wearing colourful spots on their perianth leaves (Photo-tab. 3ab). Here are also placed some of the historic hybrids; for example, the branched ‘Ramosus’, which are taller than the ordinary ‘Nanus’-es, or dense-flowering ‘Butterfly’ of bright colours (Photo-tab. 3b). The gladioli of the ‘Primulinus’ group are a bit taller and sturdier, single-stemmed and carrying bicolour, more or less triangular-shaped flowers (Photo-tab. 3ac). They are recognized by their “hoods”: the folded top perianth leaf covers the centre of the flower, more or less hiding the pistil and the stamen. Some of the ‘Primulinus’-es are almost as tall as the modern ‘Grandiforus’ giants (Photo-tab. 3ad), resulting in these groups being often merged for commercial purposes. The largest, but frost-tender, ‘Grandiforus’ gladioli can be up to two meters high; bearing a metre long flowering spike with huge, fully open flowers in all different colours and nuances. Today the formerly famous ‘Gandavensis’ group is incorporated into this hybrid line of gladioli (Photo-tab. 3d), a crucial 19th century stepping-stone in the history of the hybridization of this genus (*Missouri Botanical Garden Research*). However, if one is growing members of all aforementioned groups – as we are in our Garden *Iridarium* – one will soon realize that there are many types of hybrids which come “in-between”, having features of more than a single group – or none in particular. Moreover, we are also saving the seeds collected from our gladioli (Photo-tab. 3a), bringing more confusion to their systematics. And more colours!

*Crocus* is also one of the Croatian native Iridaceae-genera, and a truly complicated one: the species’ distributions of this Euro-Asian genus are partly disjunctive, partly overlapping, leaving the number of wild taxa somewhere between 90 (*Mathew*, 1983) and 235 (*Rukansk*, 2017).

Although not as much as irises or gladioli, crocuses are also horticulturally interesting: the range of cultivars and hybrids, comparatively, is quite modest, and there is no world authority to register their “names”. However, there is “The Saffron”(*Crocus sativus* L., but probably a cultivar from long ago), a mythical plant of unknown origin, of which the red stigmas are “the most expensive spice in the world”, accoring to the widely disseminated (and not wrong) belief. Besides the – in nature extinct – saffron, the immense horticultural popularity is also the reason for the endangerment of some Iridaceae in their natural habitats. The *IUCN Red List of Threatened Species* evaluates more than 50 Iridaceae-taxa as CR, EN and VU (including 9 gladioli), while the
European Red List \cite{bilz2011} depicts European endemic \textit{Iris boissieri} Henriq. as critically endangered (CR), while \textit{Crocus cypricus} Boiss. \& Kotschy and \textit{C. hartmannanus} Holmboe are vulnerable (VU). Many more Iridaceae are being assessed as of low concern (NT), or data deficient (DD).

Total of 35 Iridaceae species and subspecies from five genera inhabit the Croatian national territory: besides \textit{Crocus}, \textit{Gladiolus} and \textit{Iris} \cite{hermodactylus} (incl. \textit{Hermodactylus} acc. to the recent views), there is also \textit{Romulea} \cite{flora_croatica}. \textit{Flora Croatica Database Red List} holds two vulnerable (VU) irises (depicted in \textit{Kovačić}, 2019). According to the \textit{Ordinance of strictly protected species} the whole \textit{Iris} genus (12 species, two subspecies and two natural hybrids) and the whole \textit{Gladiolus} genus (five species) are statutorily strictly protected in all Croatian wild habitats, as well as three endemic crocuses: \textit{Crocus dalmaticus} Vis., \textit{C. malyi} Vis. and \textit{C. thomasii} Ten.

**MATERIAL & METHOD**

All the recent gladioli, crocuses and most of the other Iridaceae-taxa grown in the collections of our Botanical Garden are planted outdoors, with a minority overwintering in the cold greenhouse, depending on the life requirements of each particular taxon. Samples for the wild taxa collections in our Garden are obtained through field research in Croatia (or, during that time, ex-Yugoslavia) or through the \textit{Delectus (Index) Seminum}-network of inter-botanic-garden seed exchange; while the collections of cultivars and hybrids are supplemented from the specialist nurseries, or from private collectors. Details on Iridaceae acquisition in general were published in \textit{Kovačić} (2019), as were the main sources used for constructing the lists of taxa growing in the Garden’s collections from its establishment until January, 2021 \cite{kovačić2015, budisavljević2020}.

The initial part of this study is based on a booklet written by the founder of our Botanical Garden, Professor Antun Heinz \cite{heinz1895–1896}, imprecise though it was in stating the details in the inventory. After that, there is a gap of more than 50 years throughout which the data on the Garden collections are missing – until the recent records were founded in the late 1940s, and since then systematically gathered.

The inventory-lists of taxa described here comprise three informal data-sets:

1. Iridaceae-taxa of various genera are listed in Tab. 1: partially of wild (incl. \textit{Iris} and \textit{Gladiolus}), but mostly of cultivated origin, brought to the Garden from the field excursions or/and obtained via \textit{Index (Delectus) Seminum} publications. The taxa are systematized according to the recently valid nomenclatural views whenever possible. However, as explained in \textit{Kovačić} (2015), we are also trying to conserve the original plant names, i.e. the entries under which the specimens arrived to our collection, especially when the plants are long-gone and it is impossible to establish the recent status of some taxon. This is often the case for the taxa of Croatian (and wider, ex-Yugoslavian and Balkan) flora, notorious for the immense range of “small species” described, which are hardly traceable or/and incorporated to the other species-ranges. Therefore, for the indigenous Iridaceae-taxa \textit{Croatian Flora Database} was consulted first, as a nomenclatural authority, besides \textit{The World Flora Online} (for the exotics).

2. \textit{Gladiolus}-garden varieties of the prominent horticultural groups, grown in the Garden \textit{Iridarium} among the ‘bearded’ irises for the Summer-effect, are listed in Tab.
2 by their hybrid (‘Early Rose’, Photo-table 3d) or cultivar (‘Murielae’, Photo-table 3a) names. Due to the many “untraceable” (not registered by the North American Gladiolus Council) names, (possible) affiliation and valid name of the hybrid/cultivar is depicted in a separate column, while most of the plants growing in our collection could at least be placed in one of the common horticultural gladioli groups (Brickell, 1989).

3. As a supplement to the Tab. 4 published in Kovacić (2019), Tab. 3 here enumerates the ‘bearded’ Iris-hybrids acquired for our Garden Iridarium collection since the last count in September, 2019 (Photo-tab. 4). As the main authority for checking the “names”, Iris Encyclopedia of the American Iris Society was consulted, as in Kovacić (2019).

RESULTS & DISCUSSION

Iridaceae

Besides four Iris-species named by Heinz (1895–1896, p. 23) as living in our Botanical Garden in the late 19th century (described in Kovacić, 2019), “different species and cultivars” of gladioli at the time also lived outdoors, as well as “some springtime, some autumn” species of crocuses, among which (singled out by its name) Crocus sativus. “In the houses” lived Tigridia pavonia and “some” Sisyrinchium(s?), as well as “some” Ixia, Sparaxis and Babiana species. Unfortunately, we do not know which taxa were there, nor where those plants originated from (Tab. 1).

Representatives of Heinz’s (1895–1896) Iridaceae-genera we hold in the Garden up to the day: during the years, as Tab. 1 shows, besides Iris (described in Kovacić, 2019) we grew the representatives of about 30 genera (that number, of course, depends on the nomenclature authority consulted). Several deserve some further details.

Representatives of the Babiana genus never lived long in our Garden collections. However, two samples of B. fragrans (Jacq.) Steud. and B. pygmaea (Burm.f.) Baker seemed to survive for decades, which is hardly believable: though today there is nobody left working in the Garden who could know more about these plants, the years from the database cards are doubtful. In those two cases there is nothing else written in the cards, but the year “1984”, which could be only the year of database checking, not the date of babianas actually living in our greenhouses. Crocosmias were also cultivated in the greenhouses from the beginning (Heinz, 1895–1896), most probably the C. × crocosmiiflora (Lemoine) N.E.Br. hybrids, often referred to as “montbretias”. Those tender plants were established by the famous French horticulturist, Victor Lemoine, in 1880. “Montbretias” does not overwinter outdoors, and in our Garden lived shortly. Since the hardy Crocosmia ‘Lucifer’ – hybridized by the British gardener Alan Bloom in 1979 – was introduced to our Garden, we are growing it outdoors (recently in our Iridarium, Photo-tab. 1). Libertias are fully hardy, though flower for a short period of time. Native species, Romulea bulbocodium (L.) Sebast. & Mauri was repeatedly brought from many wild locations during the years, but lives shortly. On the contrary, American genus Sisyrinchium is often found growing scattered, as naturalized in Croatia (S. montanum Greene and S. bermudiana L. are included to Flora Croatica Database), so in the Garden. For several recently found specimens we do not know the origin (“nn” in Tab. 1), while they probably came to the Garden as
“companions” to other plants (f.e. the ‘carnivorous’ hybrids we purchased for our collection), and spread sub-spontaneously (Photo-tab. 1). Tiger-flowers also never lived long in our collection, especially the specimens that were sawn from the seed received as *Tigridia pavonia* (L.f.) DC., also named by Heinz (1895–1896). One strain, purchased recently as “*Tigridia mix*”, shows extraordinary flowering potential, exhibiting flowers in our *Iridarium* from late May to late September (Photo-tab. 1). These also comprehend some named cultivars/hybrids, such as ‘Lilacina’ or ‘Alba’ that could be purchased separately.

It is worth mentioning that since the 1950-ies, for decades, the non-native small bulbs lived in the Garden nursery closed to the public, as a permanent collection planted in clay pots (*bulbarium*). However, some more proliferate species often self-seeded themselves around, subsequently pushed out original, more sensitive, species from their pots. Such events most probably went unrecognized, due to the many staff changes and shortages throughout the years, and constant lack of specialists. Today we know very little of this *bulbarium*, which seized to exist in the late 1980-ies.

**Crocus**

The confusion with existing, missing and probably never existing data-cards of the crocuses in our database is astonishing. For example, the *Crocus* “napolitanus”, “nea-politanus” and “naepolitanus” were considered synonyms at some point, and then separated by person or persons unknown, according to the unidentified literature authority (Tab. 1).

Native crocuses were brought to the Garden from various field-trips during 20th century by Garden employees, as well as by our Faculty professors and their colleagues, and were placed in the poorly documented nursery bulb-collection (Dr Regula, pers. comm.), often without being inventoried. I have found in my retired colleagues’ personal lists some *Crocus* taxa which were never registered to the Garden database (among them, all three Croatian statutorily strictly protected species). Also, I found some among a huge collection of over 250,000 photographs of our Garden’s long-time amateur photo-documentarist, Mirna Kirin (Tab. 1). According to Dr Regula (pers. comm.) the bulbs were sometimes brought from the field trips without the knowledge on their affiliation (or just as “*Crocus* sp.”) and were left unnamed in the *bulbarium* “until flowering”– but then never further examined. Most of these withered in time, but several taxa left their pots and spread across our Arboretum fields. Today we do not know much of the origin of crocuses that “went astray”, while they were never inventoried to our database. So, today, there is the “purple-and-white lake” in our Arboretum (Photo-tab. 2), which allegedly originated from “several bulbs” (unregistered), brought in the 1950s from the nearby Mt Medvednica by our first Garden manager, Dr Sala Ungar (Dr Regula, pers. comm.). These crocuses were “since always” referred to as “*Crocus vernus*” (as syn. of “*C. napolitanus*”) or “*C. neapolitanus*” (even “*C. naepolitanus*”, also used as syn. of “*C. napolitanus*”) in the broadest sense, which are not registered in our database as growing free throughout our Arboretum.

Crocuses of our part of Europe were always difficult to identify and fragmented into numerous sub-special categories: subspecies, varieties, subvarieties and forms (cf. MiLOVIĆ, 2016; and literature within). To (over)simplify the problem, POLDINI &
Coassini Lokar (1979) stated: “The Crocus of this region [South-eastern Alps] is represented by four entities: C. napolitanus Mord. & Loisel., C. albiflorus Kit. ex Schult., C. reticulatus Stev. ex Adam. and C. weldenii Hoppe ex Baker”. However, Milović (2016) established that 10 Crocus species could be easily distinguished in Croatia alone: using the key provided, we found that the purple taxon prevailing in our Arboretum (Photo-tab. 2) is actually C. heuffelianus Herb. (ex C. vernus (L.) Hill. ssp. vernus), followed by C. vernus (L.) Hill (ex “C. albiflorus”, i.e. C. vernus ssp. albiflorus (Kit.) Asch. et Graebn.) and a bit of C. variegatus Hoppe et Hornsch. (ex C. reticulatus Steven ex Adams). If Dr Ungar indeed brought – what is today known as – C. heuffelianus from Mt Medvednica, the origins of the other taxa, mixed with this one, are unknown.

Meanwhile, to complicate things even more, commercial Crocus cultivars purchased for the horticultural purposes, which were planted around the Garden for the “Spring effect”, remained unregistered (for some reason, for a long time all “horticultural purchases”of corms, bulbs, rhizomes and annuals, which were not pre-grown from seed in our Garden nurseries, were not inventoried in our Garden database). During the years, at least some hybridizations among the crocuses must have taken place, while odd forms and shapes occur among the “common” plants in our Arboretum (the same is happening with our sub-spontaneously growing primroses, genus Primula). Only at several spots in the Rockeries with native flora do we have information on the origin of crocuses (Tab. 1, Photo-tab. 2), which was sometimes from the recent ex-Yugoslavian countries. Here, also, a problem exists: there are some small, hand-written cards depicting some taxa, inserted at the end of the Crocus genus regular data-cards in our database, with unclear purpose. Some of these “names” were also registered in our regular paper cards (e.g., “Crocus naepolitanus Mord. et Loisel. is C. vernus (L.) Hill subsp. vernus”), but mostly not, just carrying some synonymy (for example, “Crocus biflorus Mill. var. alexandri (Ničić) Vel. is C. alexandri Ničić”). These small cards every now and then specify location or/and year (Tab. 1), but without any further explanation. Today we do not know when or why they were written. According to Dr Regula (pers. comm.), some crocuses were received during the 1960s from the Montenegrin expert, Dr V. Pulević, who wrote the revision of Yugoslavian taxa (Pulević, 1976) of the time, so the little cards could be the remnants of those samples. We do not know where those plants, if any, were kept: in the bulbarium, or planted in the open? Why so many taxa were not registered in the Garden database, today we do not know. We could assume that some lists and names were left in the private field-diaries, cultivated bulbs purchased for the horticultural displays were unregistered, and at least some of the original data-cards were lost. Until the ongoing analysis of our recording system is finished, coordinated and explained (c.f. Budisljević & Kovačić, 2020) it is hard to tell how many Crocus (and many other) taxa we had in the Garden during the years: an estimation is all we have.

Gladiolus

Gladiolus is another perplexing Iridaceae genus, but – as we never had many wild species in the Garden, but hybrids – most of the confusion is related to the cultivated plants. Several wild gladioli (though not always from wild localities) are listed in Tab. 1, while the cultivars and hybrids are given separately in Tab. 2. The reason for this is practical: horticultural nomenclature is difficult to follow, while an important part of our varieties, forms and hybrids is not recognised by the world authority for registering hybrid gladioli, the North American Gladiolus Council.
### Indigenous, wild and cultivated Iridaceae grown in the Botanical Garden collections since 1895.

Hybrid, horticultural gladioli and irises are excluded to separate tables 2 and 3. (HR) depicts Croatian native species and (ex-YU) species of former Yugoslavian territory grown in the Rockeries with Croatian flora, as indigenous of the time. Details in text.

#### Tab. 1.

| Species of Iridaceae            | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection            | Arrived as         | Notes in the original inventory-card |
|---------------------------------|----------------------------------------|-------------------|---------------|-----------------------|--------------------|---------------------------------------|
| Aristaea ecklonii Baker         | Adelaide                               | 1953              | 1961          | Glasshouse            |                    |                                       |
| Babiana ambigua (Roem. & Schult.) G.J.Lewis | Kirstenbosch                           | 1979              | 1979          | Glasshouse            | B. ambigua (Roem. & Schult.) Lewis |                                       |
| Babiana angustifolia Sweet      | Kirstenbosch                           | 1961              | 1963          | Glasshouse            | B. pulchra (Salisb.) Lewis |                                       |
| Babiana fragrans (Jacq.) Steud. | Coimbra                                | 1963              | 1984(?)       | Cold greenhouse       | B. disticha Ker Gawl. |                                       |
| Babiana odorata L. Bolus        | Kopenhagen                             | 1964              | 1964          | Glasshouse            | B. plicata Ker Gawl. | original card is lost                 |
| Babiana pygmaea (Burm.f.) Baker | Kirstenbosch                           | 1954              | 1984(?)       | Cold greenhouse       | B. macrantha MacOwen |                                       |
| Babiana ringens (L.) Ker Gawl.  | Kyoto                                  | 1997              | 2002          | Nursery               | Antholyza ringens L. | original card is lost                 |
| Babiana "spp."                 | nn                                     | nn                | 1886          | Glasshouse            |                    | original data of Heinz (1885-1886)    |
| Babiana stricta (Aiton) Ker Gawl. | Warsaw                        | 1961              | 1961          | Glasshouse            |                    |                                       |
| Chasmanthe aethiopica (L.) N.E.Br. | Basel                                | 1962              | 1963          | Cold greenhouse       | Antholyza aethiopica L. |                                       |
|                                 | Kopenhagen                            | 1969              | 1988          | Cold greenhouse       | Antholyza aethiopica L. |                                       |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|---------------------|-----------------------------------------|------------------|--------------|------------|------------|------------------------------------|
| Kopenhagen          |                                        | 1966             | 1982         | Cold greenhouse | Antholyza aethiopica L.          |                                    |
| Palermo             |                                        | 1954             | 2000         | Cold greenhouse | Antholyza aethiopica L.          |                                    |
| Porto               |                                        | 1967             | 1988         | Cold greenhouse | Antholyza aethiopica L.          |                                    |
| Kopenhagen          |                                        | 1966             | 2000?        | Cold greenhouse | Antholyza aethiopica L.          |                                    |
| Mali Lošinj         |                                        | 1983             | 2000?        | Cold greenhouse | Antholyza aethiopica L.          | Zephyranthes took over            |
| Stuttgart           |                                        | 2011             | 2021         | Cold greenhouse | Antholyza aethiopica L.          | Zephyranthes took over            |
| Chasmanthe bicolor  | Blanes                                  | 2004             | 2005         | Temperate greenhouse |                                      |                                    |
| (Gasp.) N.E.Br.     |                                        |                 |              |             |                                      |                                    |
| Ventimiglia         |                                        | 2019             | 2021         | Nursery     |                                      |                                    |
| Chasmanthe floribunda | Adelaïde                              | 1964             | 1979         | Cold greenhouse |                                      |                                    |
| (Salisb.) N.E.Br.   |                                        |                 |              |             |                                      |                                    |
| Basel               |                                        | 2019             | 2021         | Cold greenhouse |                                      |                                    |
| Marseille           |                                        | 2019             | 2021         | Cold greenhouse |                                      |                                    |
| Crocosmia aurea     | München                                 | 1979             | 2000??       | Cold greenhouse |                                      |                                    |
| (Pappe ex Hook.) Planch. |                                    |                 |              |             |                                      |                                    |
| Crocosmia ×         | nn                                      | 1950             | 1950         | Greenhouse   | Tritonia crocosmiiflora Voss. (syn. Montbretia crocosmaeflora Lemoine) |                                    |
| crocosmiiflora      |                                        |                 |              |             |                                      |                                    |
| (Lemoine) N.E.Br.   |                                        |                 |              |             |                                      |                                    |
| Meyrin              |                                        | 1987             | 1989         | Nursery     |                                      |                                    |
| nn                  |                                        | 1961             | 1961         | Greenhouse   |                                      |                                    |
| Cluj                |                                        | 1960             | 1960         | Nursery     |                                      |                                    |
| Warsaw              |                                        | 1966             | 1988         | Cold greenhouse | incorrect                 |                                    |
| Stuttgart           |                                        | 1984             | 2000         | Flowerbeds   | incorrect                  |                                    |
| Crocosmia ×         | UK Nursery                             | 2019             | 2021         | Iridarium   | Crocosmia ×  C.pottsii              |                                    |
| crocosmiiflora      |                                        |                 |              |             |                                      |                                    |
| (Lemoine) N.E.Br.   |                                        |                 |              |             |                                      |                                    |
| 'Norwich Canary'    |                                        |                 |              |             |                                      |                                    |
| Crocosmia 'hyb. Mix'| UK Nursery                             | 2019             | 2021         | Iridarium   |                                      |                                    |
| Crocosmia 'Lucifer' | Harrogate                              | 1993             | 1995         | Flowerbeds   | C.paniculata × C.crocosmiifolia   |                                    |
| Manchester          |                                        | 1997             | 2021         | Iridarium   |                                      |                                    |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|----------------------|-----------------------------------------|------------------|--------------|------------|-----------|--------------------------------------|
| Crocosmia masoniorum (L.Bolus) N.E.Br. | Leiden | 1972 | 1988 | Cold greenhouse | | |
| | Leiden | 1979 | 2000? | Cold greenhouse | | |
| Crocus angustifolius Weston | Pruhonice | 1970 | 2000 | Nursery | | recorded in a separate small card: “Crocus susianus is C. angustifolius” |
| | Yalta | 1972 | 1989 | Nursery | | recorded in a separate small card: “Crocus susianus is C. angustifolius” |
| | St. Petersburg | 1973 | 1977 | Nursery | | |
| | Izmir | 1973 | 1988 | Nursery | | |
| | Wuppertal | 1977 | 1989 | Nursery | | recorded in a separate small card: “Crocus susianus is C. angustifolius” |
| Crocus biflorus Mill. (HR) | nn | nn | nn | nn | | original card is lost; found in one of the inventorial lists, undated |
| Crocus biflorus Mill. ‘White Lady’ | Pruhonice | 1970 | 2005(?) | Nursery | | possibly withered earlier and replaced by some other species |
| Crocus biflorus Mill. subsp. alexandri (Ničić ex Velen.) B.Mathew | nn | nn | nn | nn | | recorded only in a small card: “Crocus biflorus Mill. var. alexandri (Ničić) Vel. is C. alexandri Ničić” |
| Crocus cancellatus Herb. | nn | nn | nn | nn | | original card is lost; found in one of the inventorial lists, undated |
| Crocus chrysanthus (Herb.) Herb. (ex YU) | nn | nn | 2021 | Submed. rockery | | there is no card; taxon found recorded in photo of Ms. Kirin; also in one of the undated inventorial lists |
| | nn | nn | nn | nn | | the original card is lost; found in one of the inventorial lists, undated |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|----------------------|----------------------------------------|------------------|--------------|------------|------------|--------------------------------------|
| Crocus dalmaticus Vis. (HR) | nn | nn | nn | nn | | the original card is lost; found in one of the inventorial lists, undated |
| Crocus flavus Weston | nn | nn | 2017 | Alpinum? | Crocus aureus Sm. | there is no card; taxon found recorded in photo of Ms. Kirin |
| | nn | nn | 2015 | Alpinum? | | there is no card; taxon found recorded in photo of Ms. Kirin |
| Sofia | 1973 | nn | nn | unknown sample (maybe one of the two above?) | recorded in a separate small card: “Crocus aureus Sibth.et Sm. is C. flavus Weston” |
| | nn | nn | nn | unknown sample (maybe one of the above?) | recorded in a separate small card: “Crocus aureus Sibth.et Sm. is C. flavus Weston” |
| Crocus heuffelianus Herb. (HR) | nn | nn | 2021 | Arboretum | nn | determinated in 2018, acc.to dr. Regula (pers.cont.) initially brought from the nearby Medvednica Mt in 1960-ies |
| Lvov | 1972 | 1985 | nn | unknown sample (maybe the one above?) | recorded in a separate small card: “Crocus heuffelianus is C. veluchensis” (later changed: “C. heuffelianus is C. vernus (L.) Hill subsp. vernus, C. veluchensis has no synonyms acc. to Flora Europaeae”), Acc. to WFO, C. veluchensis Herb var. uniflorus (Schur) Nyman = C. heuffelianus Herb. |
| Crocus imperati Ten. | Wuppertal | 1976 | 2005 | Nursery | | |
| Linz | 1980 | 1989 | Nursery | | | |
| Crocus malyi Vis. (HR) | nn | nn | nn | nn | | original card is lost; found in one of the inventorial lists, undated |
| Crocus olivieri J.Gay | nn | nn | nn | nn | | original card is lost; found in one of the inventorial lists, undated |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|----------------------|----------------------------------------|------------------|--------------|------------|------------|-------------------------------------|
| Crocus pulchellus Herb. | Sofia | 1972 | 2005 | Alpinum | | |
| Crocus reticulatus Steven (ex Adam subsp. reticulatus, acc. to Euro+Med Plantbase; ex-YU) | | nn | 2021 | Arboretum (subspontaneous) | unknown sample | there is no original card - maybe originated from the sample below? |
| Crocus sativus | | nn | 1896 | nn | unknown sample | (without an author) |
| Crocus serotinus Salisb. subsp. clusii (Gay) Mathew | Porto | 1969 | nn | Nursery | | recorded only in a small card: "Crocus variegatus Hoppe et Horrsch. is C. reticulatus Steven" |
| Crocus sieberi J.Gay | Wuppertal | 1978 | 2003 | Alpinum? | | original card is lost: taxon found recorded in photo of Ms. Kisin |
| Crocus speciosus M. Bieb. | | nn | nn | nn | | original card is lost: found in one of the inventorial lists, undated |
| Crocus "spp." | | nn | 1896 | Outdoors | several taxa, incl. "Crocus sativus" | original data of Heinz (1885-1886) |
| Crocus tommasinianus Herb. (HR) | | nn | nn | nn | | original card is lost: found in one of the inventorial lists, undated |
| Crocus thomasii Ten. (HR) | Wuppertal | 1977 | 1977 | Nursery | | |
| | Halle | 1979 | 1988 | Nursery | | |
| | Linz | 1980 | 1985 | Nursery | | |
| | King's Lynn | 1979 | 1983 | Nursery | | |
| | Dizdarica* | 1978 | 2021 | Submed. rockery | | |
| Species of Iridaceae                  | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection          | Arrived as                                                                 | Notes in the original inventory-card                                                                 |
|--------------------------------------|-----------------------------------------|-------------------|--------------|---------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Crocus vernus (L.) Hill subsp. vernus (HR?) | Skoplje*                                 | 1968              | 1989         | Nursery             | Crocus neapolitanus Mord. et Loisel.; at some point changed to C. vernus (L.) Hill subsp. vernus | inventoried as Crocus vernus (L.) Hill subsp. vernus, which Milović (2016) describes as C. heuffelianus Herb. |
|                                      | Šar planina*                             | 1982              | 1989         | Submeriterranean rockery | Crocus neapolitanus Mord. et Loisel.; at some point changed to C. vernus (L.) Hill subsp. vernus | inventoried as Crocus vernus (L.) Hill subsp. vernus, which Milović (2016) describes as C. heuffelianus Herb. |
|                                      | Žuta Lokva*                              | 1978              | 1989         | Nursery             | Crocus neapolitanus Mord. et Loisel.; at some point changed to C. vernus (L.) Hill subsp. vernus | inventoried as Crocus vernus (L.) Hill subsp. vernus, which Milović (2016) describes as C. heuffelianus Herb. |
|                                      | Podkljuka*                               | 1971              | 2009         | Karstic rockery     | Crocus neapolitanus Mord. et Loisel.; at some point changed to C. vernus (L.) Hill subsp. vernus | recorded in a separate small card: "Crocus napolitanus Mord. et Loisel. is C. vernus (L.) Hill subsp. vernus" |
|                                      |                                          |                   |              |                     |                                                                           | ex „C. albiflorus“, i.e. C. vernus ssp. albiflorus (Kit.) Asch. et Graebn.                                          |
|                                      |                                          |                   |              |                     |                                                                           | original card is lost; found in one of the inventorial lists as “C. albiflorus f. violaceus”, undated |
| Crocus vernus (L.) Hill 'Dutch Yellow' | Zagreb Nursery                           | 2005              | 2005         | Alpinum             |                                                                           | there is no card; taxon found recorded in photo of Ms. Kirin                                            |
| Crocus vernus (L.) Hill 'Yellow Grandiflorus' | Zagreb Nursery                         | 2005              | 2005         | Alpinum             |                                                                           | there is no card; taxon found recorded in photo of Ms. Kirin                                            |
| Crocus hyb. 'Gelber Riesen'           | Linz                                     | 1961              | 1961         | Greenhouse          |                                                                           | there is no card; taxon found recorded in photo of Ms. Kirin                                            |
| Crocus hyb. 'Grosser Gelber'          | Zagreb Nursery                           | 2020              | 2021         | Flowerbeds          |                                                                           | there is no card; taxon found recorded in photo of Ms. Kirin                                            |
| Crocus hyb. 'Ruby Giant'              | nn                                       | nn                | 2021         | Alpinum             |                                                                           | there is no card; taxon found recorded in photo of Ms. Kirin                                            |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|----------------------|----------------------------------------|------------------|--------------|------------|------------|-------------------------------------|
| Cypella herbertii (Lindl.) Herb. | nn | 1962 | 1962 | Systematic fields | |
| Dierama pendulum (L.f.) Baker | Antibes | 1979 | 1988 | Cold greenhouse | |
| | Porto | 1981 | 1981 | Alpinum | D. pendula (L.f.) Bak. |
| Dierama pulcherrimum (Hook.f.) Baker | Adelaide | 1965 | 1965 | Nursery | D. pulcherrima Hook.f. |
| Dietes grandiflora N.E.Br. | Frankfurt | 1979 | 1983 | Cold greenhouse | |
| | Frankfurt | 1984 | 1988 | Cold greenhouse | |
| | Dresden | 2002 | 2003 | Cold greenhouse | |
| | Porto | 1981 | 1981 | Alpinum | D. pendula (L.f.) Bak. |
| | Frankfurt | 1979 | 1983 | Cold greenhouse | |
| | Frankfurt | 1984 | 1988 | Cold greenhouse | |
| | Vienna | 1997 | 2000? | Cold greenhouse | |
| | Cluj | 2002 | 2021 | Cold greenhouse | |
| | Ferraria crispa Burm. | nn | 1951 | 1968 | Cold greenhouse | F. undulata L. |
| | Copenhagen | 1964 | 2000? | Cold greenhouse | F. undulata L. |
| | Goettingen | 1965 | 1965 | Cold greenhouse | F. undulata L. |
| | Vienna | 1997 | 2000? | Cold greenhouse | |
| | Ferraria cult. | Nancy | 1955 | 1963 | Greenhouse | F. hybrida hort. |
| | Manchester | 1989 | 1989 | Greenhouse | F. hybrida hort. |
| | Reiden | 1953 | 1962 | Greenhouse | F. hybrida tubergenii hort. |
| | Zagreb Nursery | 2020 | 2021 | Flowerbeds | |
| | Freesia 'Gloria Salis' | Ljubljana Nursery | 1970 | 1970 | Greenhouse | incorrect |
| | Freesia grandiflora (Baker) Klatt | Graz | 1982 | 1983 | Cold greenhouse | Lapeirousia grandiflora Bak. |
| | | | | | | "plant detected in a pot labelled as Zephyranthes carinata, Cluj 70" |
| | Freesia laxa (Thunb.) Goldblatt & J.C.Manning | nn | 1961 | 1983 | Cold greenhouse | Lapeirousia cruenta Bent. (syn. L. laxa (Thunb.) N.E.Br.), changed to Anomatheca laxa (Thunb.) Goldblatt. |
| | | | | | | "new inventory card made" |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|---------------------|----------------------------------------|------------------|--------------|------------|------------|--------------------------------------|
| Lapeirousia laxa (Thunb.) N.E.Br., changed to Anomatheca laxa (Thunb.) Goldblatt. | Wisley | 1979 | 2021 | Cold greenhouse | (syn. Lapeyrousia laxa, L. cruenta) |
| | | | | | | |
| Anomatheca laxa (Thunb.) Goldblatt | Wisley | 1979 | 2000 | Cold greenhouse | |
| | | | | | |
| Freesia Mix | Zagreb Nursery | 2018 | 2021 | Cold greenhouse | at some point changed to F. hybrida hort. 'Pimpernel' |
| | | | | | |
| Freesia 'Double' Mix | Zagreb Nursery | 2020 | 2021 | Flowerbeds | |
| | | | | | |
| Freesia 'Pimpernel' | Ljubljana Nursery | 1970 | 1970 | Greenhouse | |
| | | | | | |
| Freesia refracta (Jacq.) Klatt | Frankfurt | 1951 | 1961 | Greenhouse | |
| | | | | | |
| Jibou | 1979 | 2000? | Cold greenhouse | |
| | | | | | |
| Marseille | 1980 | 2000 | Cold greenhouse | |
| | | | | | |
| Freesia sparrmanii (Thunb.) N.E.Br. | Vienna-Belvedere | 1955 | 1961 | Greenhouse | F. refracta Klatt var. odorata Voss. |
| | | | | | |
| Freesia 'Stockholm' | Ljubljana Nursery | 1970 | 1970 | Greenhouse | "new inventory card made" (missing) |
| | | | | | |
| Freesia verrucosa (B. Vogel) Goldblatt & J.C.Manning | nn | 1962 | 1962 | Systematic fields | |
| | | | | | |
| | Koeln | 1960 | 1963 | Greenhouse | |
| | | | | | |
| | Greifswald | 1989 | 2021 | Cold greenhouse | |
| | | | | | |
| | Greifswald | 1989 | 2000 | Cold greenhouse | |

Lapeirousia juncea (L.f.) Pourr., changed to Anomatheca verrucosa (Vogel) Goldblatt | Greifswald | 1989 | 1989 | Cold greenhouse | |

Lapeirousia juncea (L.f.) Pourr., changed to Anomatheca verrucosa (Vogel) Goldblatt | Greifswald | 1989 | 2000 | Cold greenhouse | |

Anomatheca verrucosa (B. Vogel) Goldblatt |
| Species of Iridaceae                        | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection               | Arrived as                                      | Notes in the original inventory-card |
|-------------------------------------------|------------------------------------------|-------------------|--------------|--------------------------|------------------------------------------------|--------------------------------------|
| Freesia viridis (Aiton) Goldblatt & J.C.Manning | Basel                                    | 2019              | 2021         | Cold greenhouse          | Anomatheca viridis (Aiton) Goldblatt           |                                     |
| Gladiolus communis L. (HR)               | Trsteno*                                 | 1978              | 1989         | Mediterranean rockery    | G. illyricus W.D.J.Koch                         |                                     |
|                                            | Istanbul                                 | 1968              | 1978         | Nursery                  | G. communis L. subsp. byzantinus (Miller) A.P.Hamilton (syn. G. byzantinus Mill.) |                                     |
| Gladiolus dalenii Van Geel               | Bordeaux                                 | 1983              | 1985         | Nursery                  | G. dracocephalus Hook.f. incorrect             |                                     |
|                                            | Mali Lošinj                              | 1983              | 2007         | Nursery                  | G. dracocephalus Hook.f.                       |                                     |
| Gladiolus gregarius Welw.ex Baker        | Legon                                    | 1969              | 1969         | Nursery                  | G. klattianus Hutch.                           |                                     |
| Gladiolus illyricus W.D.J.Koch (HR)      | Lastovo*                                | 1962              | 1972         | Mediterranean rockery    | G.imbricatus L. "var. illyricus"               |                                     |
|                                            | Porto                                    | 1973              | 1980         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Mljet*                                   | 1981              | 1989         | Nursery                  | G.segetum Ker.                                 |                                     |
|                                            | Krka*                                    | 2016              | 2021         | Nursery                  | G.segetum Ker.                                 |                                     |
| Gladiolus italicus Mill. (HR)            | Vienna-Belvedere                        | 1962              | 1964         | Nursery                  | G.segetum Ker.                                 |                                     |
|                                            | Cres*                                    | 1965              | 1989         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Mljet*                                   | 1968              | 1989         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Pčeljašac*                              | 1968              | 1989         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Vir*                                     | 1966              | 1989         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Trsteno*                                | 1978              | 1989         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Mljet*                                   | 1970              | 1989         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Soline*                                  | 1979              | 1989         | Mediterranean rockery    | G.segetum Ker.                                 |                                     |
|                                            | Mljet*                                   | 1979              | 2000         | Mediterranean rockery    | G. segetum Ker.                                |                                     |
|                                            | Cetina canyon*                          | 2006              | 2021         | Mediterranean rockery    | G. palustris Gaudin                            |                                     |
|                                            | Dubrovnik*                              | 2011              | 2021         | Mediterranean rockery    | G. palustris Gaudin                            |                                     |
| Species of Iridaceae                      | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as                                  | Notes in the original inventory-card                                      |
|------------------------------------------|------------------------------------------|-------------------|---------------|------------|--------------------------------------------|--------------------------------------------------------------------------|
| Gladiolus palustris Gaudin (HR)          | Dresden                                  | 1964              | 1980(?)       | Nursery    | probably incorrect                         |                                                                          |
| Gladiolus tristis L.                     | Edinburgh                                | 1960              | 1961          | Glasshouse | G.tristis var. concolor (without authors)  |                                                                          |
| Herbertia pulchella Sweet                | Kyoto                                    | 2002              | 2005          | Cold greenhouse |                                             |                                                                          |
| Hesperantha baurii Baker                 | Wisley                                   | 1975              | 1978          | Nursery    | arrived without an author                  |                                                                          |
| Hesperantha coccinea (Backh. & Harv.)   | Nantes                                   | 1997              | 1998          | Nursery    | Schizostylis coccinea Backh. & Harv.       |                                                                          |
|                                          | UK Nursery                               | 2019              | 2021          | Nursery    |                                             |                                                                          |
| Iris bloudowii Ledeb.                    | nn                                       | 2008              | 2021          | Nursery    | material of prof. Mitić, not inventorized |                                                                          |
|                                          | Osnabruck                                | 2019              | 2021          | Nursery    |                                             |                                                                          |
| Iris chrysographe Dykes 'Dark Form'      | Wickford                                 | 2019              | 2021          | Nursery    |                                             |                                                                          |
| Iris dichotoma Pall.                    | Blagovešensk                             | 2012              | 2021          | Nursery    | Pardanthopsis dichotoma (Pall.) L.W.Lenz   |                                                                          |
| Iris ensata Thunb. 'Aogata'              | Brno                                     | 2019              | 2021          | Nursery    |                                             |                                                                          |
| Iris suaveolens Boiss. & Reut.           | nn                                       | 2008              | 2021          | Nursery    | Iris glockiana O.Schwarz                   | material of prof. Mitić, not inventorized                                |
| Iris gracilipes A.Gray                   | Sendai                                   | 2019              | 2021          | Nursery    |                                             |                                                                          |
| Iris hookeri Penny ex G.Don              | Montreal                                 | 2019              | 2021          | Nursery    |                                             |                                                                          |
| Iris magnifica Vved.                     | Goeteborg                                | 2011              | 2013          | Greenhouse | Juno magnifica (Vved.) Vved.                |                                                                          |
| Iris mandshurica Maxim.                 | nn                                       | nn                | 2021          | Nursery    | material of prof. Mitić, not inventorized |                                                                          |
| Iris milesii Baker ex Foster             | Amiens                                   | 2019              | 2021          | Nursery    |                                             |                                                                          |
| Iris perrieri Simonet ex N. Service      | nn                                       | 2008              | 2021          | Nursery    | material of prof. Mitić, not inventorized |                                                                          |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|---------------------|-----------------------------------------|------------------|---------------|------------|------------|-------------------------------------|
| Iris pumila L. subsp. attica (Boiss. et Heldr.) Hay. | Kozjak Mt (North Macedonia)* | 2009 | 2021 | Nursery | I. attica Boiss. et Heldr. | material of prof. Mitić, not inventorized |
| Iris × rothschildii Degen (I. illyrica Tomm. × I. variegata L.; HR) | nn | 2009 | 2021 | Nursery | (Valid) member of Croatian flora. Valid acc. to WFO: I. × germanica L. | material of prof. Mitić, not inventorized |
| Iris × sambucina L. (I. pallida Lam. × I. variegata L.; HR) | nn | 2009 | 2021 | Nursery | (Valid) member of Croatian flora. Valid acc. to WFO: I. × germanica L. | material of prof. Mitić, not inventorized |
| Iris × trojana A.Kern. ex Stapf. (uncertain origin) | nn | 2008 | 2021 | Nursery | Valid acc. to WFO: I. × germanica L. | material of prof. Mitić, not inventorized |
| Iris versicolor L. | Montreal | 2019 | 2021 | Nursery | | |
| Ixia abbreviata Houtt. | Kirstenbosch | 1981 | 1988 | Cold greenhouse | I. conferta Foster var. ochroleuca (Ker.) Lewis | incorrect in 2000 (probably withered and something else seeded itself) |
| Ixia capillaris L.f. | Kopenhagen | 1964 | 1986 | Cold greenhouse | I. capillaris Thunb. (unknown) | incorrect in 2000 (probably withered and something else seeded itself) |
| Ixia flexuosa L. | Kopenhagen | 1964 | 1964 | Greenhouse | | |
| Ixia latifolia D. Delaroche | Palermo | 1954 | 1954 | Greenhouse | I. scariosa Thunb. | |
| Ixia Mix | German Nursery | 2021 | 2021 | Greenhouse | | |
| Ixia polystachya L. | Kopenhagen | 1964 | 1980 | Cold greenhouse | I. leucantha Jacq. | |
| | Kopenhagen | 1966 | 1982 | Cold greenhouse | | |
| Ixia 'Rainbow Choice Mix' | UK Nursery | 2019 | 2021 | Cold greenhouse | | |
| Ixia "spp." | | 1886 | Greenhouse | | original data of Heinz (1885-1886) |
| Ixia 'Yellow' | German Nursery | 2021 | 2021 | Greenhouse | | |
| Libertia chilensis (Molina) Gunckel | Amsterdam | 1964 | 1975 | Greenhouse | L. elegans Poepp. | |
| | | 1962 | 1962 | Systematic fields | L. formosa Grah. | |
| Species of Iridaceae                  | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection          | Arrived as          | Notes in the original inventory-card |
|--------------------------------------|------------------------------------------|-------------------|---------------|---------------------|---------------------|---------------------------------------|
| Libertia grandiflora (R.Br.) Sweet    | nn                                       | 1961              | 1961          | Systematic fields   | L. grandiflora Sw.  |                                       |
|                                       | Leiden                                   | 1985              | 1988          | Nursery             | L. grandiflora Sw.  |                                       |
|                                       | Bern                                      | 2015              | 2021          | Flowerbeds          | L. grandiflora Sw.  |                                       |
| Libertia ixioides (G. Forst.) Spreng.  | Zagreb Nursery                           | 2020              | 2021          | Flowerbeds          |                     |                                       |
| 'Goldfinger'                          |                                          |                   |               |                     |                     |                                       |
| Melasphaerula ramosa (L.) Klatt       | Basel                                    | 2019              | 2021          | Cold glasshouse     |                     |                                       |
| Moraea collina Thunb.                 | London                                   | 1961              | 1961          | Glasshouse          | Homeria collina Vent.|                                       |
| Moraea ramosissima (L.f.) Druce       | Melbourne                                | 1983              | 1984          | Alpinum             |                     |                                       |
| Moraea sisyrinchium (L.) Ker Gawl.    | Geneve                                   | 1968              | 1971          | Nursery             | Iris sisyrinchium L.| syn. Gynandriris sisyrinchium (L.) Parl.|
|                                      | Würzburg                                 | 2010              | 2011          | Nursery             | Gynandriris sisyrinchium (L.) Parl. |                                       |
| Moraea vegeta L.                      | Basel                                    | 1972              | 1988          | Cold greenhouse     | Dietes vegeta (L.) N.E.Br. |                                       |
|                                      | Stuttgart                                | 1979              | 1988          | Cold greenhouse     | Dietes vegeta (L.) N.E.Br. |                                       |
|                                      | Stuttgart                                | 1981              | 1988          | Cold greenhouse     | Dietes vegeta (L.) N.E.Br. |                                       |
|                                      | Jibou                                     | 1980              | 1988          | Cold greenhouse     | Dietes vegeta (L.) N.E.Br. |                                       |
| Neomarica gracilis (Herb.) Sprague    | Bruxelles                                | 1960              | 2021          | Temperate greenhouse|                     |                                       |
| Neomarica longifolia (Link & Otto) Sprague | Bruxelles | 1961              | 1963          | Greenhouse          | Marica longiflora Link. | (misspelled syn. M. longifolia Link & Otto) |
|                                      | Montreal 19                             | 2019              | 2021          | Cold greenhouse     |                     |                                       |
|                                      | UK Nursery                               | 2020              | 2021          | Cold greenhouse     |                     |                                       |
|                                      | Kaliningrad                              | 2020              | 2021          | Cold greenhouse     |                     |                                       |
| Olsynium douglasii (A.Dietr.) E.P. Bicknell | Jena                                    | 2011              | 2012          | Nursery             |                     | original card is lost                  |
| Species of Iridaceae                  | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as                     | Notes in the original inventory-card                                                                 |
|--------------------------------------|-----------------------------------------|-------------------|---------------|------------|--------------------------------|---------------------------------------------------------------------------------------------------|
| Olsynium junceum (E. Mey. ex C.Presl) Goldblatt subsp. depauperatum (Phil.) R.A.Rodr. & Martic. | nn                                       | nn                | 2021         | Nursery    | ?                               | determined as Sisyrinchium depauperatum (syn.)                                              |
| Orthrosanthus multiflorus Sweet      | Chelsea                                  | 2012              | 2021         | Cold greenhouse |                                |                                                                                                  |
| Patersonia fragilis (Labill.) Asch. & Graebn. | Adelaide                                 | 1982              | 1989         | Cold greenhouse |                                | from native locality                                                                             |
| Phalocallis coelestis (Lehm.) Ravenna | Vienna                                   | 1957              | 1961         | Greenhouse  | Cypella plumbea Ldl.            | "Tigridia aurea hort." (probably T. azurea auct.)                                              |
|                                       | Wuppertal                                | 1985              | 2000         | Cold greenhouse | Cypella coelestis (Lehm.) Diels |                                                                                                  |
|                                       | Chemnitz                                 | 2019              | 2021         | Cold greenhouse |                                |                                                                                                  |
| Romulea bulbocodium (L.) Sebast. & Mauri (HR) | nn                                       | 1952              | 1961         | Cold greenhouse | R. bulbocodium Sebast. et Mauri |                                                                                                  |
|                                       | Gent                                     | 1961              | 1961         | Cold greenhouse | R. bulbocodium Sebast. et Mauri |                                                                                                  |
|                                       | Lisbon                                   | 1961              | 1963         | Cold greenhouse | R. bulbocodium Sebast. et Mauri |                                                                                                  |
|                                       | Krk*                                     | 1964              | 1989         | Nursery      | R. bulbocodium Sebast. et Mauri |                                                                                                  |
|                                       | Zagori*                                  | 1965              | 1973         | Nursery      | R. bulbocodium Sebast. et Mauri |                                                                                                  |
|                                       | Supetar*                                 | 1966              | 1980         | Nursery      | R. bulbocodium Sebast. et Mauri |                                                                                                  |
|                                       | Lim channel*                             | 1966              | 1989         | Mediterranean rockery | R. bulbocodium Sebast. et Mauri |                                                                                                  |
|                                       | Vir*                                     | 1980              | 1989         | Nursery      |                                |                                                                                                  |
|                                       | Boka kotorska*                           | 1978              | 1989         | Nursery      |                                |                                                                                                  |
|                                       | Rogoznica*                               | 1980              | 1989         | Nursery      |                                |                                                                                                  |
|                                       | Polače*                                  | 1981              | 1989         | Nursery      |                                |                                                                                                  |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|----------------------|-----------------------------------------|------------------|---------------|------------|------------|-------------------------------------|
| Olib*                |                                        | 1983             | 1983          | Nursery    |            |                                     |
| Mljet*               |                                        | 1982             | 1986          | Nursery    |            |                                     |
| Pelješac*            |                                        | 2011             | 2015          | Mediterranean rockery |          |                                     |
| Romulea clusiana (Lange) Nyman | Porto                     | 1969             | 1970          | Nursery    |            | Trichonema clusianum Lge. var. serotina Samp. (unknown variety) |
| Romulea columnae Sebast. & Mauri (HR) | Genova                   | 1980             | 1989          | Nursery    |            |                                     |
| Romulea columnae Sebast. & Mauri subsp. grandiscapa (Webb) J.Gay | Wuppertal                  | 1981             | 1989          | R. grandiscapa J. Gay | from Tenerife |                                     |
| Romulea flava (Lem.) M.P.de Vos | Kirstenbosch*             | 1982             | 1989          | Cold greenhouse | R. flava (Lem.) de Vos |                                     |
| Sisyrinchium angustifolium Mill. | Mali Troglav*             | 1963             | 2002          | Submeriterranean rockery | at one point, “acc. to Flora Europea”, at the same card were placed (as syn.), S. angustifolium, S. bermudiana L. and S. montanum Greene |
| Sisyrinchium bellum S. Watson | Zaprešić*                 | 1971             | 1971          | Systematic fields |            |                                     |
| Sisyrinchium bermudiana L. | Wuppertal                 | 1985             | 1988          | Systematic fields |            |                                     |
| Sisyrinchium californicum (Ker Gawl.) Dryand. | Wuppertal                 | 1985             | 2003          | Flowerbeds |            |                                     |
| Sisyrinchium californicum (Ker Gawl.) Dryand. | Sheffield                 | 1985             | 1989          | Nursery | S. boreale (without an author) |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|----------------------|-----------------------------------------|-----------------|--------------|------------|------------|---------------------------------------|
| Kiel                 |                                         | 1983            | 1989         | Nursery    | S. californicum Dry.          |                                      |
| nn                   |                                         | nn              | 2021         | Nursery    | found growing subspontaneous   |                                      |
| Sisyrinchium littorale Greene | Wisley                                 | 1997            | 2001         | Flowerbeds |                         |                                      |
| Sisyrinchium montanum Greene | Wuppertal                              | 1985            | 2021         | Systematic fields | “S. angustifolia” |                                      |
| Sisyrinchium “spp.”   |                                         | nn              | nn           | Glasshouses|                         | original data of Heinz (1885-1886)  |
| Sparaxis bulbifera (L.) Ker Gawl. | Kirstenbosch*                         | 1982            | 1985         | Cold greenhouse |                         | redet. as S. grandiflora           |
| Sparaxis cult.        | Zagreb Nursery                          | 2018            | 2021         | Nursery    |                         |                                      |
| Sparaxis Mix          | German Nursery                          | 2021            | 2021         | Nursery    |                         |                                      |
| Sparaxis “spp.”       |                                         | nn              | nn           | Glasshouses|                         | original data of Heinz (1885-1886)  |
| Sparaxis tricolor (Schneev.) Ker Gawl. | Palermo                        | 1956            | 1965         | Greenhouse |                         |                                      |
|                      | Kirstenbosch*                          | 1982            | 1989         | Cold greenhouse | S. bulbifera (L.) Ker Gawl. | redet.                          |
|                      | Copenhagen                              | 1964            | 1964         | Greenhouse | S. tricolor (Curt.) Ker    |                                      |
|                      | Antibes                                 | 1962            | 1973         | Nursery    | S. tricolor (Curt.) Ker    |                                      |
| Tigridia flammea (Lindl.) Ravenna | Versailles                        | 1975            | 1977         | Nursery    | Rigidella flammea Lindl.    |                                      |
| Tigridia mix          | Zagreb Nursery                          | 2019            | 2021         | Iridarium  |                         | mix of colourful cultivars         |
| Tigridia pavonia (L.f.) DC. | nn                                   | nn              | 1896         | Greenhouse | without an author           | original data of Heinz (1885-1886)  |
|                      | Antwerpen                              | 1961            | 1963         | Greenhouse |                         |                                      |
|                      | Chelsea                                | 1962            | 1963         | Greenhouse |                         |                                      |
|                      | Leipzig                                | 1962            | 1963         | Greenhouse |                         |                                      |
|                      | Frankfurt                              | 1982            | 2000         | Cold greenhouse |                         |                                      |
|                      | Angers                                 | 1982            | 1989         | Cold greenhouse |                         |                                      |
|                      | Bergen                                 | 1983            | 1989         | Cold greenhouse |                         |                                      |
|                      | Puerto de la Cruz                      | 1983            | 1983         | Cold greenhouse |                         |                                      |
|                      | Erlangen                               | 1984            | 1989         | Cold greenhouse |                         |                                      |
| Species of Iridaceae | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Arrived as | Notes in the original inventory-card |
|----------------------|----------------------------------------|------------------|---------------|------------|------------|--------------------------------------|
| Harrogate            | Cold greenhouse                        | T. "Tiger Flower" |
| Dresden              | Cold greenhouse                        |                  |              |            |            |                                      |
| Aachen               | Cold greenhouse                        |                  |              |            |            |                                      |
| Warsaw               | Cold greenhouse                        |                  |              |            |            |                                      |
| Berlin               | Cold greenhouse                        |                  |              |            |            |                                      |
| Strasbourg           | Cold greenhouse                        |                  |              |            |            |                                      |
| UK Nursery           | Iridarium                              |                  |              |            |            |                                      |
| T. pavonia (L.f.) DC. 'Lilacina' | German Nursery                        | 2021             | 2021         | Iridarium  |            |                                      |
| T. pavonia (L.f.) DC. 'Alba Grandiflora' | German Nursery                        | 2021             | 2021         | Iridarium  |            |                                      |
| Trimezia martinicensis (Jacq.) Herb. | Bonn*                                 | 1981             | 1984         | Temperate greenhouse  | "T. martinicensis" Herb. | collected in the Caribbeans |
| Tritonia gladiolaris (Lam.) Goldblatt & J.C.Manning | Kopenhagen                          | 1966             | 2000?        | Nursery    | T. lineata Ker (val. syn. T. lineata (Salisb.) Ker Gawl.) |
| Tritonia mix         | Nursery                                |                  |              |            |            |                                      |
| Tritonia laxifolia (Klatt) Baker | UK Nursery                            | 2020             | 2021         | Cold greenhouse |            |                                      |
| Watsonia borbónica (Pourr.) Goldblatt | Blanes                              | 1987             | 1989         | Nursery    | W. pyramidata (Andr.) Stapf. | ? older val. syn. is W. pyramidata (Andrews) Klatt |
| Watsonia coccinea (Herb. ex Baker) Baker | Zürich                              | 1979             | 1979         | Greenhouse | W. coccinea Herb. |                                      |
| Watsonia fulgens Ker Gawl. (?) | Oxford                              | 1980             | 1981         | Nursery    | W. fulgens (without an author) | W. fulgens (Andrews) Pers. is today W. meriana (L.) Mill. |
| Watsonia meriana (L.) Mill. | Florence                            | 1957             | 1961         | Greenhouse |            |                                      |
| Stuttgart            | Flowerbeds                             |                  |              |            |            |                                      |
| Watsonia pillansii L. Bolus | Frankfurt                          | 2019             | 2021         | Nursery    |            |                                      |
As already explained with crocuses, many plants purchased or received for the horticultural purposes were not inventoried in our database (until the early 2000s), while the “same names” received via Index Seminum network were registered, sometimes under different species (Tab. 2). This is today difficult to trace, and a lot of the plants in question are no longer in our collection. Several examples: Gladiolus ‘Murie-la’ from different sources was separately inventoried as G. callianthus Marais ‘Murie-la’, Acidanthera murielae (Kelway) Hoog and A. bicolor Hochst. var. murielae R.H.Perry (Photo-tab. 3a). Gladiolus × gandavensis Van Houtte ‘Early Rose’ from Košice could have been the same as G. hybridus ‘Early Rose’ from Sofia (Photo-tab. 3d). Horticultural hybrids ‘Las Vegas’ and ‘Peter Pears’ can be purchased under both Primulinus and Grandiflorus groups, as well as recognized in the “mix” of corms (Tab. 2) – however, though the flower patterns are quite similar, the heights of the plants, number of flowers and their size are very different (Photo-tab. 3d). As already emphasized, many historic lines of hybrid gladioli are today incorporated in three general groups (e.g., ‘Ramosus’ and ‘Butterfly’ in the Nanus group, Photo-tab. 3b), but we are still trying to keep the original affiliations, as far as is possible.

While Croatian native gladioli are living in the Garden Rockeries with indigenous flora, hybrids today enrich the Iridarium collection (Photo-tables 3abcd). These are exclusively cultivated varieties or hybrids of various progenitors, as the history of hybridization of ornamental gladioli is even more elaborated than that of the ‘bearded’ irises. Literature about this famous and popular genus is extensive, but many hybrids are not registered. This is especially the case with a group of corms, still grown in our collection today (Tab. 3, Photo-tab. 3d), which arrived from Košice Botanical Garden in 1992. All of the samples arrived with names of the hybrids, under Gladiolus × gandavensis group. When I took over the collection in 2001, the names of hybrids were already misplaced, and I tried to link the plants with the names from our database. That was not very successful, while for these gladioli there are no descriptions as they are not registered by the World authority, but the results of extensive hybridization carried out by an individual, Mr J. Hečko of Košice. As I was informed by the colleagues in Košice Botanic Garden (pers. comm.) to which I turned for help, after Mr Hečko passed away, his collection succumbed to illnesses and gradually withered, without description of the hybrids being saved. Consequently, some of our ‘Gandavensis’ hybrids remain unconnected with the existing names, and many withered. To bring even more confusion to this collection, new corms were added replacing the missing ones during the years, again without proper inventory of names, which were mixed with the ‘Gandavensis’ gladioli. It is worth mentioning, also, that we are collecting, refrigerating and germinating seeds of our hybrid gladioli to gain new diversity among our cultivars (Phototab. 3a).

Even among the recently purchased corms, some hybrids turned out to be something else than the nametag advertised. Also, again, I found some never inventoried gladioli in the aforementioned photo-collection of Ms Kirin. Following all these irregularities, there are quite a lot of plants in our collection today that are undetectable and untraceable. Nevertheless, Tab. 2 contains a column with some “proper” names of the groups to which each of the hybrids (could) belong, if they still exist in our collection: at least, as I see them.
Tab. 2. Horticultural hybrids of gladioli grown in the Botanical Garden collections since 1985, alphabetized acc. to the name of cultivar. Details in text.

| Name of Gladiolus hybrid / cultivar | Taxon as originally arrived | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Valid name (probably) | Notes in the original inventory-card |
|-----------------------------------|-----------------------------|-----------------------------------------|------------------|-------------|------------|----------------------|--------------------------------------|
| Atom’                             | Nanus hyb. mix.             | UK Nursery                              | 2020             | 2021        | Iridarium   | G. ser. Primulinus ‘Atom’ | Detected among G. ser. Nanus hyb.    |
| Belinda’                          | Butterfly hyb. ‘Belinda’    | UK Nursery                              | 2019             | 2021        | Iridarium   | G. ser. Primulinus aff. (white) | (incorrect name)                     |
| Blue Mist’                        | hybridus ‘Blue Mist’        | Kaunas                                  | 1985             | 1985        | Nursery     | impossible to confirm     | unknown hybrid                       |
| Blue Night’                       | × gandavensis Van Houtte ‘Blue Night’ | Košice | 1992 | 2002 | Systematic fields | impossible to confirm | unknown hybrid, probably incorrect |
| Blue Spire’                       | hybridus ‘Blue Spire’       | Sofia                                   | 1985             | 1985        | Nursery     | impossible to confirm     | unknown hybrid                       |
| Break Of Dawn’                    | Break Of Dawn’              | German Nursery                          | 2021             | 2021        | Iridarium   | G. ser. Grandiflorus ‘Break Of Dawn’ |                                      |
| Byzantinus’                       | Byzantinus’                 | UK Nursery                              | 2019             | 2021        | Iridarium   | G. communis subsp. byzantinus; i.e. val. G. communis cult. (garden growth) |                                      |
| Carnival’ mix                     | ?                           | ??                                      | ??               | 2021        | Iridarium   | G. ser. Grandiflorus ‘Carnation’ mix aff. | There is no inventory-card; colourful plants of different combinations |
| Charm’                            | Nanus hyb. ‘Charm’          | UK Nursery                              | 2019             | 2021        | Iridarium   | G. ser. Nanus ‘Charm’     | Used to be classified as one of the ser. Ramosus |
| Charming Lady’                    | Nanus hyb. mix.             | UK Nursery                              | 2019             | 2021        | Iridarium   | G. ser. Nanus ‘Charming Lady’ | Detected among G. ser. Nanus hyb.mix. |
| Cote d’Azur’                      | Cote d’Azur’                | Zagreb Nursery                          | 2020             | 2021        | Iridarium   | G. ser. Grandiflorus ‘Red’ |                                      |
| Early Rose’                       | hybridus ‘Early Rose’       | Sofia                                   | 1985             | 1989        | Nursery     | impossible to confirm     | unknown hybrid                       |
| Elvira’                           | Nanus hyb. ‘Elvira’         | UK Nursery                              | 2019             | 2021        | Iridarium   | G. ser. Nanus ‘Elvira’   |                                      |
| Exotica 185’                      | hybridus ‘Exotica 185’      | Kaunas                                  | 1985             | 1985        | Nursery     | impossible to confirm     | unknown hybrid                       |
| Name of Gladiolus hybrid / cultivar | Taxon as originally arrived | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Valid name (probably) | Notes in the original inventory-card |
|----------------------------------|-----------------------------|------------------------------------------|------------------|--------------|------------|---------------------|-------------------------------------|
| Finestone’ × gandavensis Van Houtte ‘Finestone’ | Košice | 1992 | 2004 | Systematic fields | impossible to confirm | unknown hybrid |
| Holland’s Glory’ hybrids ‘Holland’s Glory’ | Sofia | 1985 | 2012 | Nursery | impossible to confirm | unknown hybrid |
| Hunting Song’ Hunting Song’ | Zagreb Nursery | 2010 | 2012 | Systematic fields | G. ser. Grandiflorus ‘Hunting Song’ | Not entirely to description; photo of Ms Kirin |
| Jessica’ Jessica’ | Zagreb Nursery | 2018 | 2021 | Cold glasshouse | G. ser. Grandiflorus ‘Jessica’ |
| Las Vegas’ Las Vegas’ | Zagreb Nursery | 2020 | 2021 | Iridarium | G. ser. Grandiflorus ‘Las Vegas’ |
| Nanus hyb. | UK Nursery | 2019 | 2021 | Iridarium | G. ser. Primulinus ‘Las Vegas’ | Detected among G. ser. Nanus hyb.* |
| Mary Housley’ Mary Housley’ | Zagreb Nursery | 2020 | 2021 | Iridarium | G. ser. Grandiflorus ‘Velvet Eyes’ aff | (incorrect name) |
| (Mix) Nanus hyb. mix | UK Nursery | 2019 | 2021 | Iridarium | G. ser. Nanus hybrids | mix of small hybrids |
| Acidanthera murielae (Kelway) Hoog | Edinburgh | 1960 | 1963 | Cold glasshouse | G. murielae Kelway cult. | separate database card |
| Acidanthera bicolor Hochst. var. murielae R.H. Perry | Rouen | 1986 | 1986 | Cold glasshouse | G. murielae Kelway cult. | separate database card |
| Acidanthera bicolor Hochst. var. murielae R.H. Perry | Berlin | 2003 | 2004 | Cold glasshouse | G. murielae Kelway cult. |
| G. callianthus Marais ‘Murielae’ | UK Nursery | 2019 | 2021 | Iridarium | G. murielae Kelway cult. | separate database card |
| G. ‘Murielae’ | Zagreb Nursery | 2020 | 2021 | Iridarium | G. murielae Kelway cult. |
| Acidanthera ‘Murielae’ | German nursery | 2021 | 2021 | Iridarium | G. murielae Kelway cult. |
| My Love’ ? | nn | nn | 2021 | Iridarium | G. ser. Grandiflorus ‘My Love’ | Detected in several Ms. Kirin’s photos (2012), not inventorized |
| Name of Gladiolus hybrid / cultivar | Taxon as originally arrived | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Valid name (probably) | Notes in the original inventory-card |
|-----------------------------------|-----------------------------|------------------------------------------|------------------|--------------|------------|----------------------|-------------------------------------|
| My Love’                          | Zagreb Nursery              | 2020                                     | 2021             | Iridarium    | G. ser. Grandiflorus 'Friendship' | (incorrect name)                     |
| My Love’                          | German Nursery              | 2021                                     | 2021             | Iridarium    | G. ser. Grandiflorus 'Friendship' |                                      |
| Nathalie’                         | Nanus hyb. ’Nathalie’       | UK Nursery                               | 2019             | 2021         | Iridarium  | G. ser. Nanus 'Nathalie' |                                      |
| Nova Lux’                         | ?                           | nn                                       | nn               | 2012         | Nursery    | impossible to confirm | Detected in several Ms. Kirin’s photos (2012), not inventorized |
| Nova Lux’                         | Zagreb Nursery              | 2020                                     | 2021             | Iridarium    | G. ser. Grandiflorus 'Nova Lux' |                                      |
| Nymph’                            | Nanus hyb. ’Nymph’          | UK Nursery                               | 2019             | 2021         | Iridarium  | G. ser. Nanus 'Nymph' | Not entirely to description          |
| Perun’                            | × gandavensis Van Houtte ’Perun’ | Košice                              | 1992             | 2021         | Iridarium  | G. ser. Primulinus 'Perun' | unknown hybrid                      |
| Peter Pears’                      | ?                           | nn                                       | nn               | 2012         | Nursery    | G. ser. Primulinus 'Peter Pears' | Detected in several Ms. Kirin’s photos (2012), not inventorized |
| Peter Pears’                      | Zagreb Nursery              | 2020                                     | 2021             | Iridarium    | G. ser. Grandiflorus 'Peter Pears' |                                      |
| Plumtart’                         | Plumtart’                   | German Nursery                           | 2021             | 2021         | Iridarium  | G. ser. Grandiflorus 'Plumtart' |                                      |
| Prins Claus’                      | Prins Claus’                | UK Nursery                               | 2019             | 2021         | Iridarium  | G. ser. Nanus 'Prins Klaus' | Detected in several Ms. Kirin’s photos (2010), not inventorized |
| Priscilla’                        | ?                           | nn                                       | nn               | 2021         | Iridarium  | G. ser. Grandiflorus 'Priscilla' |                                      |
| Purple’                           | Purple’                     | Zagreb Nursery                           | 2020             | 2021         | Iridarium  | G. ser. Grandiflorus 'Purple' | aff. Purple Flora?                   |
| Red’                              | Red’                        | Zagreb Nursery                           | 2020             | 2021         | Iridarium  | G. ser. Grandiflorus 'Red' |                                      |
| Red Cascade’                      | hybridus 'Red Cascade’      | Kaunas                                   | 1985             | 1985         | Nursery    | impossible to confirm | unknown hybrid                      |
| Name of **G. hybrid / cultivar** | Taxon as originally arrived | Origin (botanical garden, city, nursery) | Year of obtaining | Last recorded | Collection | Valid name (probably) | Notes in the original inventory-card |
|---------------------------------|----------------------------|------------------------------------------|------------------|--------------|------------|----------------------|-------------------------------------|
| Red Rover' × **gandavensis** Van Houtte 'Red Rover' | Košice | 1985 | 1985 | Systematic fields | impossible to confirm | unknown hybrid | |
| Red Sea' × **gandavensis** Van Houtte 'Red Sea' | Košice | 1992 | 2021 | Iridarium | G. ser. Primulinus 'Red Sea' | unknown hybrid | |
| Silent Night' **hybridus** 'Silent Night' | Kaunas | 1985 | 1985 | Nursery | impossible to confirm | unknown hybrid | |
| Silver Wedding' **hybridus** 'Silver Wedding' | Kaunas | 1992 | 2021 | Systematic fields | G. ser. Grandiflorus 'Silver Wedding' | unknown hybrid | |
| **spp./cult.** | nn | nn | 1886 | Outdoors | impossible to confirm | Original data of Heinz (1885-1886) | |
| Spring Song' **hybridus** 'Spring Song' | Sofia | 1985 | 1989 | Nursery | impossible to confirm | unknown hybrid | |
| Stella' **Butterfly hyb.** 'Stella' | UK Nursery | 2019 | 2021 | Iridarium | G. ser. Nanus 'Stella' | | |
| The Bride' **x colvillei** 'The Bride' | UK Nursery | 2019 | 2021 | Iridarium | G. × colvillei Sweet 'The Bride' | | Detected in several Ms. Kirin's photos (2012), not inventorized |
| Traderhorn' | ? | nn | nn | 2012 | Nursery | G. ser. Grandiflorus 'Traderhorn' | |
| Traderhorn' | Zagreb Nursery | 2020 | 2021 | Iridarium | G. ser. Grandiflorus 'Traderhorn' | | |
| White Prosperity' | ? | nn | nn | 2021 | Nursery | G. ser. Grandiflorus 'White Prosperity' | Detected in several Ms. Kirin's photos (2012), not inventorized |
| White Prosperity' | Zagreb Nursery | 2020 | 2021 | Iridarium | G. ser. Grandiflorus 'White Prosperity' | | |
| Windsong' Windsong' | Zagreb Nursery | 2020 | 2021 | Iridarium | G. ser. Grandiflorus 'Rose Prosperity' aff | (incorrect name) | |
| Windsong' | German Nursery | 2021 | 2021 | Iridarium | G. ser. Grandiflorus 'Windsong' | | |
Iris

Irises are the most abundant herbaceous plants in our Garden. Since the inventory of the ‘bearded’ irises finished in September, 2019 (Kovačić, 2019), until today (January, 2021), our collection has grown by a hundred “names”: most of them new to the collection, but also some older that we once had (for example, ‘Edith Wolford’, ‘Quetta’, ‘Elzee’). Tab. 3 amends the list of hybrids that we gained since my first report (Tab. 4 in Kovačić, 2019). This collection is being enlarged mostly via donations of the Garden Friends, colleagues and visitors; some exchanges, and some purchases of the target-hybrids representing particular group. I am trying, when possible, to gain the same historic hybrids that we once had in our collection. Unregistered “names” included in our collection were received as gifts, and are well described by their hybridizers/cultivators (Mr Zakis, Mr Golob and Mr Cetina; Tab. 3). Our Iridarium – enriched with the hybrid gladioli and crocosmias – became in the meantime too small for exhibiting all of the plants, so we are just in the process of expanding it.

Beside the new ‘bearded’ hybrids, depicted in Table 3 (Photo-tab. 4), several new species and cultivars of the Iris genus were acquired during 2020 (Tab. 1). Iris chrysographes Dykes ‘Dark Form’ (Photo-tab. 1) was purchased, while the others were grown from seeds obtained via Delectus (Index) Seminum exchange network. Also, some of the Professor B. Mitić’s scientific samples have been added to the list (details in Kovačić, 2019), while Pardanthopsis dichotoma (Pall.) L.W.Lenz was returned to Iris dichotoma Pall. and merged with the genus.

CONCLUSION

Combining the data of the irises published in Kovačić (2019) with those of the rest of the Iridaceae members, I can conclude that since the establishment of our Garden we grew at least 30 genera of that family, depending on the nomenclature authority consulted, with approx. 438 taxa. The genus Gladiolus accounted for at least 50 taxa, Crocus around 30 and Iris 273 of that number. Today, according to the recent nomenclature, we grow 371 taxa in 21 genera of the Iridaceae family: 291 Iris species, hybrids and cultivars; 35 gladioli, 7 crocuses, and 38 members of other genera.

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Tab. 3. Horticultural hybrids of ‘bearded’ irises acquired for the Botanical Garden *Iridarium* collection between September 2019 and January 2021 (Suppl. to the Tab. 4 published in Kovačić, 2019). If not stated otherwise (IB, SDB…), the hybrids are Tall Bearded (TB). The rest of the new irises, both species and cultivars, are included to the general Iridaceae list in Table 1. Details in text.

| Name of 'barbata' *Iris* hybrid | Origin and year of obtaining | Notes and remarks |
|---------------------------------|-----------------------------|------------------|
| Action Packed                   | Liepāja 2019                |                  |
| All Night Long                  | Gift (Mr. Hrgić) 2020       |                  |
| Antarctique (IB)                | Cayeux Nursery 2020         | Intermediate Bearded (IB) |
| Anvil of Darkness               | Gift (Mr. Hrgić) 2020       |                  |
| Arctic Fancy                    | Gift (Mr. Hrgić) 2020       |                  |
| Baltic Star                     | Gift (Mr. Hrgić) 2020       |                  |
|                                | Gift (Mr. Golob) 2020       |                  |
| Batik (BB)                      | German Nursery 2021         | Border Bearded (BB) |
| Beguine                         | Gift (Mr. Hrgić) 2020       |                  |
| Bering Sea (IB)                 | Gift (Mr. Cetina) 2020      | Intermediate Bearded (IB) |
| Beverly Sills                   | Gift (Mr. Hrgić) 2020       |                  |
| Bonnie Babe (MDB)               | Cayeux Nursery 2020         | Miniature Tall Bearded (MTB) |
| Bord de Mer                     | Gift (Mr. Cetina) 2020      |                  |
| Brides Halo                     | Gift (Mr. Hrgić) 2020       |                  |
| Broadway Baby (IB)              | Gift (Mr. Cetina) 2020      | Intermediate Bearded (IB) |
| Cabibi                          | Gift (Mr. Hrgić) 2020       |                  |
| Calamus (SDB)                   | Gift (Mr. Cetina) 2020      | Standard Dwarf Bearded (SDB) |
| Cameroun                        | Cayeux Nursery 2020         |                  |
| Cat’s Eye                       | Wickford Nursery 2019       |                  |
| Celebration Song                | Cayeux Nursery 2020         |                  |
| Celtic Tartan                   | Liepāja 2019                |                  |
| Champagne Frost                 | Liepāja 2019                |                  |
| Champagne Waltz                 | Gift (Mr. Hrgić) 2020       |                  |
| Cherry Garden (SDB)             | Gift (Mr. Cetina) 2020      | Standard Dwarf Bearded (SDB) |
| Christmas Angel                 | Liepāja 2019                |                  |
| Ci Sei (BB)                     | Gift (Mr. Cetina) 2020      | Border Bearded (BB) |
| City Lights                     | Gift (Mr. Hrgić) 2020       |                  |
| Clarence                        | Wickford Nursery 2019       |                  |
| Cloud Ballet                    | Gift (Mr. Hrgić) 2020       |                  |
| Coffee Whispers                 | Gift (Mr. Cetina) 2020      |                  |
| Color Strokes                   | Gift (Mr. Cetina) 2020      |                  |
| Conjuration                     | Gift (Mr. Hrgić) 2020       |                  |
| Country Manor                   | Gift (Mr. Golob) 2020       | instead of ‘Autum Leaves’ |
| Dark Triumph                    | Liepāja 2019                |                  |
| Depute Nomblot                  | Hamilton 1995               | bloomed among others, after a long time |
| Name of 'barbata' *Iris* hybrid | Origin and year of obtaining | Notes and remarks |
|---------------------------------|-----------------------------|------------------|
| Devil’s Playground (IB)         | Gift (Mr. Cetina) 2020      | Intermediate Bearded (IB) |
| Dynamite                        | Gift (Mr. Hrgić) 2020       |                  |
| Edith Wolford                   | Zagreb Nursery 2020         | we had this hybrid in the past |
|                                 | Gift (Mr. Cetina) 2020      | we had this hybrid in the past |
|                                 | German Nursery 2021         |                  |
| Elzee                           | Gift (Mr. Cetina) 2020      | we had this hybrid in the past |
| Festive Spirit                  | Gift (Mr. Cetina) 2020      | we had this hybrid in the past |
| Frühlingskleid                  | Gift (dr. Regula) 2019      | designated as “unknown 2” in Kovačić (2019) |
| Golden Ruffles                  | Liepāja 2019                |                  |
| Goldkist                        | Gift (Mr. Cetina) 2020      |                  |
| Goodbye Heart                   | German Nursery 2021         |                  |
| Goodnight Moon                  | Gift (Mr. Hrgić) 2020       |                  |
| Green Oasis (SDB)               | Gift (Mr. Cayeux) 2020      | Standard Dwarf Bearded (SDB) |
| Hello Darkness                  | Gift (Mr. Hrgić) 2020       |                  |
| Hortense                        | Gift (Mr. Golob) 2020       |                  |
| I’ll Be Back (IB)               | Gift (Ms. Arpana) 2019      | Intermediate Bearded (IB), rebloomer |
| Indian Chief                    | Gift (Mr. Cetina) 2020      |                  |
| Indiscreet                      | Gift (Mr. Hrgić) 2020       |                  |
| Java Bleue                      | Gift (Mr. Cayeux) 2020      |                  |
| Kalići’s Black (SDB)            | Gift (Mr. Cetina) 2020      | Not registered. Hybridizer: Davor Cetina |
| Laughing Clown                  | Liepāja 2019                |                  |
| Lightshine                      | Gift (Mr. Hrgić) 2020       |                  |
| Lingering (IB)                  | Gift (Mr. Cetina) 2019      | Intermediate Bearded (IB) |
| Little Rosy Wings (SDB)         | Gift (Mr. Cetina) 2020      | Standard Dwarf Bearded (SDB) |
| Look Inside (SDB)               | Gift (Mr. Cetina) 2020      | Standard Dwarf Bearded (SDB) |
| Luna di Miele (BB)              | Gift (Mr. Cetina) 2019      | Border Bearded (BB) |
| Magharee                        | Gift (Mr. Hrgić) 2020       |                  |
| Mala Bruneta (SDB)              | Gift (Mr. Golob) 2020       | Standard Dwarf Bearded (SDB) |
| Mesmerizer                      | Liepāja 2019                |                  |
| Mižu Ciņa                       | Gift (Mr. Golob) 2020       | Not registered. Hybridizer: Laimonis Zakis |
| Mission Impossible              | Liepāja 2019                |                  |
| Montmartre                      | Nova Zagora 2019            |                  |
| Mrs. Horace Darwin (IB)         | Zagreb Nursery 2020         | Intermediate Bearded (IB) |
| Nibelungen                      | Gift (Mr. Cetina) 2020      |                  |
| Night Edition                   | Zagreb Nursery 2020         |                  |
|                                 | Gift (Mr. Hrgić) 2020       |                  |
| Orange Caper (SDB)              | Gift (Mr. Cetina) 2020      | Standard Dwarf Bearded (SDB) |
| Name of 'barbata' Iris hybrid | Origin and year of obtaining | Notes and remarks |
|-------------------------------|------------------------------|------------------|
| Palm Springs                  | Gift (Mr. Golob) 2020        |                  |
| Pamplemousse (IB)             | Gift (Mr. Golob) 2020        | Intermediate Bearded (IB) |
| Panocha                       | Gift (Mr. Hrgić) 2020        |                  |
| Pay The Price                 | Gift (Mr. Golob) 2020        |                  |
| Piste Noire                   | Gift (Mr. Cayeux) 2020       |                  |
| Power Point                   | Liepāļa 2019                |                  |
|                              | Gift (Ms. Arpana) 2019       |                  |
| Power Surge                   | Gift (Mr. Hrgić) 2020        |                  |
| Pumpkin Cheesecake            | Wickford Nursery 2020        |                  |
| Quaker Lady                   | Gift (Mr. Cetina) 2020       |                  |
| Queen of Angels               | Liepāļa 2019                |                  |
| Queen’s Circle                | Cayeux Nursery 2020          |                  |
| Quetta                        | Gift (Mr. Cetina) 2020       | we had this hybrid in the past |
| Rabadan                       | Gift (Mr. Cetina) 2020       |                  |
| Red Heart (SDB)               | Zagreb Nursery 2020          | Standard Dwarf Bearded (SDB) |
| Reg Wall                      | Gift (Mr. Golob) 2020        |                  |
| Rimfire                       | Wickford Nursery 2019        |                  |
| Rustic Cedar                  | Cayeux Nursery 2020          |                  |
| Sangreal (IB)                 | Gift (Mr. Cetina) 2020       | Intermediate Bearded (IB) |
| Saturn                        | Gift (Mr. Hrgić) 2020        |                  |
| Scrambled (MTB)               | Gift (Mr. Cetina) 2020       | Miniature Tall Bearded (MTB) |
| Screen Play                   | Gift (Mr. Hrgić) 2020        |                  |
| Song Of Norway                | Gift (Mr. Hrgić) 2020        |                  |
| Spectator (IB)                | Gift (Mr. Cetina) 2020       | Intermediate Bearded (IB) |
| Splashacata                   | Cayeux Nursery 2020          |                  |
| Spooky (IB)                   | Gift (Mr. Cetina) 2020       | Intermediate Bearded (IB) |
| Stairway To Heaven            | Gift (Mr. Hrgić) 2020        |                  |
| Stinger (SDB)                 | Gift (Mr. Cetina) 2020       | Standard Dwarf Bearded (SDB) |
| Stop The Music                | Gift (Mr. Hrgić) 2020        |                  |
| Strange Summer                | Liepāļa 2019                |                  |
| Sumatra                       | Gift (Mr. Golob) 2020        |                  |
| Superstition                  | Liepāļa 2019                |                  |
|                              | Gift (Mr. Golob) 2020        |                  |
| Tabac Blond                   | Liepāļa 2019                |                  |
| Thornbird                     | Cayeux Nursery 2020          |                  |
| Tour de France                | Liepāļa 2019                |                  |
| Ultimate (SDB)                | Cayeux Nursery 2020          | Standard Dwarf Bearded (SDB) |
| Wicked Good                   | Liepāļa 2019                |                  |
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SAŽETAK

Obilje bilja – zbirke Botaničkoga vrtta Prirodoslovno-matematičkog fakulteta Sveučilišta u Zagrebu (5): Gladiole (Gladiolus), šafrani (Crocus) i ostali pripadnici porodice perunikovki (Iridaceae).

S. Kovačić

Nakon prošlogodišnje analize perunika (rod Iris, porodic Iridaceae), u petom je nastavku serije o povijesti zbirki biljaka koje su rasle u Botaničkom vrtu PMF-a od osnutka do danas obrađen ostatak porodice perunikovki (Iridaceae), s naglaskom na rod šafrana (Crocus) i gladiola (Gladiolus).

Podatci pokazuju da je od vremena osnivača Vrta, profesora Antuna Heinza (1895–1896.), do danas (siječanj 2021.) kroz vrtne zbirke prošlo najmanje 448 svojti perunikovki: divljih (samoniklih) vrsta Hrvatske i susjednih zemalja bivše Jugoslavije, donošenih s terenskih istraživanja (planta viva) i sađenih na kamenjare – biljnogeografske vegetacijske skupine s domaćom floru; ostalih divljih vrsta uzgajanih iz sjemenki naručivanih putem mreže razmjene Index (Delectus) Seminum; ostalih – ukrasnih kultivara, varijeteta i križanaca poznatih vrsta, dijelom uzgajanih iz sjemenki, a dijelom iz podzemnih skladišnih organa (podanaka, lukovica, bulbotubera); te križanaca složenih koji su možda uzgajani isključivo vegetativno. Dio ukrasnih šafrana i gladiola, nabavljen u obliku lukovica i bulbotubera za sadnju na ukrasne površine, nikada nije bio uveden u vrtnu bazu podataka, dok su nazivi svojti dijela zbirke tijekom godina izgubljeni ili su se pokiazali pogrešno. S početkom 2021. u Botaničkom vrtu PMF-a živjela je najmanje 371 svojta unutar 21 roda porodice perunikovki, od čega čak 291 pripada samom rodu perunika (Iris). Gladiola imamo 35 svojti, šafrana sedam, dok 18 preostalih roda okuplja 38 vrsta i kultivara.
Photo-tab. 1
Representatives of seven Iridaceae-genera grown in various Botanical Garden collections. Details in text and Table 1. Authors: Mirna Kirin (MK) and Sanja Kovačić (SK).

Romulea bulbocodium (MK)  Libertia ixioides 'Goldfinger' (SK)

Triteleia laxa 'Queen Fabiola' (SK)  Crocosmia 'Lucifer' (MK)

Tirgridia pavonia 'Liliacea' (left) and 'Aurea' (right) (SK)  Iris chrysographes 'Black Form' (SK)

Sisyrinchium californicum (left), S. angustifolium (mid) and S. depauperatum (valid name Olsynium junceum subsp. depauperatum; right) growing sub-spontaneously in the Garden Nursery (SK)
**Photo-tab. 2**

Members of the *Crocus* genus, grown and sub-spontaneously spread in various Botanical Garden collections. Details in text and Table 1. Authors: Mirna Kirin (MK) and Sanja Kovačić (SK).

| Species                                      | Image Description                                      |
|----------------------------------------------|---------------------------------------------------------|
| *Crocus heuffelianus*                        | *Crocus heuffelianus* in purple and white form dominates the Garden Arboretum (left) in March (SK) |
| *Crocus tommasinianus*                       | *Crocus tommasinianus* in bud and in flower (MK)       |
| *Crocus vernus*                              | *Crocus vernus* in bud and in flower (MK)              |
| *Crocus sieberi*                             | *Crocus sieberi* (MK)                                   |
| *Crocus imperati*                            | *Crocus imperati* (MK)                                 |
| *Crocus neapolitanus*                        | *Crocus neapolitanus* (MK)                             |
| *Crocus vernus* cult.                        | *Crocus vernus* cult. (MK)                             |
| *Crocus 'Ruby Giant'*                        | *Crocus 'Ruby Giant' (MK)                              |
| *Crocus cultivars*                           | *Crocus cultivars* (MK)                                |
| *Crocus flavus* (incl. *C. aureus*; MK)      | *Crocus flavus* (incl. *C. aureus*; MK)                |
| *Crocus aureus* (valid name *C. flavus*; MK) | *Crocus aureus* (valid name *C. flavus*; MK)          |
| *Crocus chrysanthus p.p. (SK)*               | *Crocus chrysanthus p.p. (SK)                          |
| *Crocus 'Yellow Grandiflorus' (MK)*          | *Crocus 'Yellow Grandiflorus' (MK)                     |
Indigenous and exotic species, cultivars and hybrids of the genus *Gladiolus* grown in various Botanical Garden collections. Details in text, and Tables 1 and 2. Authors: Mirna Kirin (MK) and Sanja Kovačić (SK).
Gladiolus Nanus / Butterfly ‘Stella’ (SK) Nanus hyb. (SK) Nanus ‘Prins Klaus’ (SK)

Nanus / Ramosus hyb. (SK) Nanus / Ramosus ‘Charming Lady’ (SK)

Nanus / Ramosus ‘Charm’ (SK)
Clump of Gladiolus Primulinus 'Perun' with a single 'Red Sea' (MK)

Primulinus 'Perun' (MK)

Primulinus 'Red Sea' (MK)

Primulinus 'Las Vegas' (SK)

Primulinus 'Atom' (SK)

Primulinus / Grandiflorus hyb. (SK)

Grandiflorus 'Las Vegas' (SK)

Grandiflorus 'Peter Pears' (SK)

Primulinus 'Peter Pears' (MK)
Gladiolus \textit{Grandiflorus} ‘Velvet Eyes’ aff. (SK)

G. \textit{× gandavensis} ‘Silver Wedding’ (MK)

G. \textit{× gandavensis} ‘Holland’s Glory’ (MK)

G. \textit{× gandavensis} ‘Early Rose’ (MK)

G. \textit{× gandavensis} ‘Blue Spire’ (MK)

Grandiflorus hyb. (SK)

Grandiflorus ‘Priscilla’ (SK)

Grandiflorus ‘Carnival Mix’ aff. (SK)

Grandiflorus ‘My Love’ aff. (SK)

Grandiflorus ‘Traderhorn’ (SK)

Grandiflorus ‘Cote d’Azur’ (SK)

Grandiflorus ‘Red’ (SK)

Grandiflorus ‘Purple Flora’ aff. (SK)
Photo-tab. 4

Representatives of new ‘bearded’ Iris hybrids acquired for our Iríarium collection between the last inventory (September 2019; suppl. to Tab. 4 in Kovačić, 2019) and January 2021. Details in text and Tab. 3. Author of photos: Sanja Kovačić.

**Amoena group:** Iris TB Tour de France

**Blend group:** Iris TB ‘Tabac Blond’

**Self group:** Iris TB ‘Dark Triumph’

**Luminata group:** Iris TB ‘Montmartre’

**Iris TB Exception group** ‘Queen of Angels’ (white) and Line & Speckles group ‘Laughing Clown’ (blue-white)

**Iris TB Luminata group** ‘Clarence’ (top) and Plicata group ‘Rimfire’

**Luminata group:** Iris TB ‘Celtic Tartan’

**Self group:** Iris IB ‘Palm Springs’

**Self group:** Iris IB ‘Lingering’

**Self group:** clump of Iris IB ‘I’ll Be Back’