

PLETHORA OF PLANTS – COLLECTIONS OF THE BOTANICAL GARDEN, FACULTY OF SCIENCE, UNIVERSITY OF ZAGREB (8): GENUS *SALVIA* L. (LAMIACEAE)

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Sandev, D.: *Plethora of plants – collections of the Botanical Garden, Faculty of Science, University of Zagreb (8): genus *Salvia* L. (Lamiaceae). Nat. Croat., Vol. 32, No. 1., 257-292, 2023, Zagreb.*

This paper comprises a study of the plant lists of *Salvia*, as genus of plants from 11 subgenera in the mint family (Lamiaceae) grown in Zagreb Botanical Garden of the Faculty of Science since 1895 until 2022. Synonymy, nomenclature and origin of plant material have been sorted. Lists of species grown in the last 127 years have been constructed to show that during that period at least 126 taxa from the genus *Salvia* (2 from subgen. *Audiberia*, 40 from subgen. *Calosphace*, 6 from subgen. *Glutinaria*, 8 from subgen. "*Heterosphace*" (informal designation for this group), 2 from subgen. *Perovskia*, 2 from subgen. *Rosmarinus*, 18 from subgen. *Salvia* and 48 from subgen. *Sclarea*) inhabited the Garden's collections. Today, the genus is represented by 61 taxa from 8 subgenera in Botanical Garden: 1 from subgen. *Audiberia*, 12 from subgen. *Calosphace*, 4 from subgen. *Glutinaria*, 4 from subgen. "*Heterosphace*", 1 from subgen. *Perovskia*, 1 from subgen. *Rosmarinus*, 13 from subgen. *Salvia* and 25 from subgen. *Sclarea*.

Key words: Zagreb Botanical Garden, Faculty of Science, historic plant collections, *Salvia*, subgenera

Sandev, D.: *Obilje bilja – zbirke Botaničkoga vrta Prirodoslovno-matematičkoga fakulteta Sveučilišta u Zagrebu (8): Zbirka roda kadulja – *Salvia* L. (Lamiaceae). Nat. Croat., Vol. 32, No. 1., 257-292, 2023, Zagreb.*

U ovom članku nastavlja se s prikazom zbirke Botaničkog vrta PMF-a u Zagrebu te se donosi povijesni prikaz kadulja (porodica Lamiaceae) uzgajanih između 1895. i 2022. godine. Uređena je sinonimika i nomenklatura te istraženo podrijetlo biljnog materijala. Rezultati pokazuju da je tijekom 127 godina kroz zbirke Botaničkog vrta prošlo najmanje 126 svojiti iz osam podrodova roda *Salvia*: 2 iz podroda *Audiberia*, 40 iz podroda *Calosphace*, 6 iz podroda *Glutinaria*, 8 iz podroda "*Heterosphace*", 2 iz podroda *Perovskia*, 2 iz podroda *Rosmarinus*, 18 iz podroda *Salvia* and 48 iz podroda *Sclarea*. Od ukupno 11 podrodova koji pripadaju rodu kadulja (*Salvia*) danas se uzgaja 61 svojita iz 8 podrodova: 1 iz podroda *Audiberia*, 12 iz podroda *Calosphace*, 4 iz podroda *Glutinaria*, 4 iz podroda "*Heterosphace*", 1 iz podroda *Perovskia*, 1 iz podroda *Rosmarinus*, 13 iz podroda *Salvia* and 25 iz podroda *Sclarea*.

Ključne riječi: Botanički vrt PMF-a u Zagrebu, povijesne zbirke biljaka, rod kadulja, *Salvia*, podrod

INTRODUCTION

Following the guidelines established in earlier publications in this series (Kovačić, 2015; Sandev *et al.*, 2018; Sandev, 2021), started in 2012, we are continuing our comprehensive survey of indigenous, wild and cultivated taxa with the family Lamiaceae, genus *Salvia* L. in the Botanical Garden of the Faculty of Science, University of Zagreb (hereinafter "Botanical Garden" or "the Garden"). There are more than 7000 species

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and 232 genera in the Lamiaceae family, making it one of the largest families in the world (POWO, 2023). One of the largest genera of flowering plants with more than 1,000 taxa, *Salvia* L. (Lamiaceae: Nepetoideae: Mentheae: Salviinae) is the most diverse in the Lamiaceae family and displays a remarkable range of morphological, ecological, and geographic variation. Sage distribution is noteworthy not just because the lineage is young and extensive (the parent clade dates to the early Oligocene, according to DREW & SYTSMA, 2012), but also because there are diversity hotspots of *Salvia* on four different continents. There are 500 taxa of *Salvia* in Central and South America, approximately 250 species in southwestern Asia, the Mediterranean region, and southern Africa, and approximately 100 species in eastern Asia (WALKER & SYTSMA, 2007). More unexpectedly, distinct from other genera of Lamiaceae, *Salvia* has two fertile stamens and it appears to have independently evolved different staminal lever mechanisms using an extended connective in each of these three geographical locations (CLASSEN-BOCKHOFF *et al.*, 2003, 2004; WALKER *et al.*, 2004, 2015; WALKER & SYTSMA, 2007; DREW *et al.*, 2017; HU *et al.*, 2018). Consequently, due to a huge variety of habit, flower, and stamen morphology it is difficult to define infrageneric borders within the genus. As a result, very different classifications have been offered by other authors (e.g., STIBAL, 1934; EPLING, 1938, 1939; POBEDIMOVA, 1954; WU, 1977; MURATA & YAMAZAKI, 1993).

The first traditional *Salvia* classification based on the morphology of the calyx, corolla, and stamens was created by BENTHAM (1832–1836). The traditional definition of *Salvia*, however, has been demonstrated to cause taxonomic uncertainty with modern molecular phylogenetic analyses. In this study, a subgeneric classification of *Salvia* is used, in which 11 subgenera are recognized: subgen. *Audibertia* (Benth.) J.B.Walker, B.T.Drew & K.J.Sytsma, subgen. *Calosphace* (Benth.) Epling, subgen. *Dorystaechas* (Boiss. & Heldr. ex Benth.) J.B.Walker, B.T.Drew & J.G.González., subgen. *Glutinaria* (Raf.) G.X.Hu, C.L.Xiang & B.T.Drew, subgen. "*Heterosphace*" (the informal name "*Heterosphace*" is provided for now to New World sect. *Salviastrum*, the "*Salvia verticillata* group" of the Old World), subgen. *Meriandra* (Benth.) J.B.Walker, B.T.Drew & J.G.González., subgen. *Perovskia* (Kar.) J.B.Walker, B.T.Drew & J.G.González., subgen. *Rosmarinus* (L.) J.B.Walker, B.T.Drew & J.G.González., subgen. *Salvia* L., subgen. *Sclarea* (Moench) Benth. and subgen. *Zhumeria* (Rech. f. & Wendelbo) J.B.Walker, B.T.Drew & J.G.González (WILL & CLASSEN-BOCKHOFF, 2017). The modern view, proposed by DREW *et al.* (2017), placed within *Salvia* five new small subgenera, until recently considered separate genera (*Dorystaechas*, *Meriandra*, *Perovskia*, *Rosmarinus*, and *Zhumeria*) because they share a number of synapomorphic morphological characters with *Salvia*, including having only two stamens with some connective elongation. *Salvia* comprises three well-supported major clades, including 11 named subgenera. The first clade, which includes the subgen. *Salvia*, *Sclarea*, and "*Heterosphace*", includes primarily Southwest Asian and Mediterranean species, but also includes species from South and East Africa, Madagascar, and the eastern to southwestern United States and adjacent Mexico. The early diverging lineages of this first clade are represented by the subgenera *Perovskia* and *Rosmarinus*, both of which were previously identified at the genus level. The second clade (subgen. *Glutinaria*) is almost exclusively East Asian with some species distributed more widely in Central and Western Eurasia. HU *et al.* (2018) have shown that the subgen. *Glutinaria* is monophyletic, although its constituents contain a diversity of stamen types and were previously placed in three separate subgenera (*Salvia*, *Sclarea*, and the former *Allagospadonopsis*). The third clade, which is related to the Asian subgen. *Glutinaria*, includes the three Old World subgenera *Zhumeria*, *Meriandra* and *Dorystae-*

chas, and the New World-only subgen. *Audibertia* (western North America) and *Calosphace* (mainly Mexico to South America).

Genus *Salvia*, which means "health" in Latin, includes herbaceous, shrubby, or suffruticose annual, biennial, or perennial plants. It typically contains glandular hairs and has a strong odor. It has two-lipped, white, yellow, pink, blue, or purple flowers. Numerous *Salvia* species play a significant role in the economy, being used as food, spices, cosmetics, drinks and as medicinal plants (CHALCHAT *et al.*, 1998; BAYLAC & RACINE, 2003). They have antioxidant, antidiabetic, antibacterial, anticancer, antiplasmodial, and anti-inflammatory properties and are utilized in traditional medicine all over the world (ULUBELEN, 2003; KAMATOU *et al.*, 2008). For instance, traditional Chinese medicine uses the endemic Chinese plant *Salvia miltiorrhiza* Bunge (also known as "Danshen"; Photo-table 1) to treat hyperlipidemia, cardiovascular and cerebrovascular illnesses, and other conditions (WANG, 2010). *Salvia hispanica* L., a crucial staple and therapeutic herb in Mesoamerica during pre-Columbian times, is today sold commercially as a "superfood" throughout the world (ALI *et al.*, 2012). Additionally, *Salvia* species are grown as ornamental plants in parks and gardens (MARIN *et al.*, 1996). The horticultural industry actively markets at least 150 species (CLEBSCH, 2003).

As seen in Fig. 1, there have been four peaks in the Garden's 127-year history of growing sages. The first was in 1904 with the cultivation of 24 *Salvia* species; we did not have that many for the next 60 years. The second was in the early 1980s, when samples were vigorously collected from the natural habitats in Croatia and the former Yugoslavia, and these species were mostly grown in the rock gardens (Tab. 1). The third peak occurred at the turn of the millennium (2007-2018), when Biserka Juretić, the former Garden head, created a flowerbed in the systematic field exclusively for sages. Unfortunately, many species perished during those ten years or so because they were annual or biennial species, or perennials sensitive to low temperatures. The

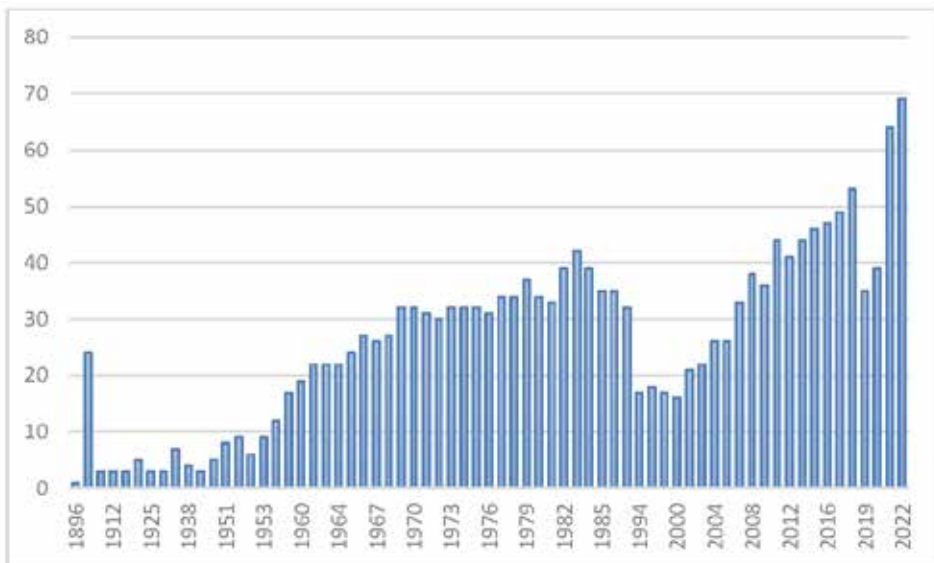


Fig. 1. Number of living taxa of *Salvia* in Botanical Garden collection through 127 years (since 1895).

fourth peak occurred in the last two years (2020-2022). New and some old, lost *Salvia* taxa were planted intensively, and the flowerbed has been replenished with directly planted hardy sages. *Salvia* taxa that are frost tender were planted in pots and placed between them, overwintering in a cold greenhouse. The majority of the specimens in Botanic Garden collections were either harvested from the wild or obtained through the *Index Seminum*-network of botanic gardens for the exchange of seeds and plants. Investigation of an old, but newly discovered notebook database, then the old paper-card database followed by a new on-line database, showed the extraordinary collection of taxa from the genus *Salvia* in the Garden. From a total of 11 recognized subgenera in the genus *Salvia*, Garden collections have representatives of 8 subgenera. These are discussed in this article: namely, *Audibertia*, *Calosphace*, *Glutinaria*, "Heterosphace", *Perovskia*, *Rosmarinus*, *Salvia*, and *Sclarea*.

"Notebooks database" (from the late 19th century until 1970)

As explained in our previous publications (e.g., Kovačić, 2015), the main sources used for constructing the inventories of each plant group growing in Botanical Garden are the published records on the historic collections from the late 19th century, and our central plant database, established in the late 1940s. The initial part of previous studies was based on the publication of HEINZ (1895–1896), who gave imprecise information details about the inventory of the Garden. Then there was a gap of more than 50 years during which the data on our collections were missing (details in Kovačić, 2015), until recent records of notebooks, lists coming from forgotten archives of the first half of 20th century, the "notebooks database" (BUDISAVLJEVIĆ & KOVAČIĆ, 2020). Since nothing from our sage collection was officially published during this "notebooks database" inventory period, we do not have much information about the plants listed in the register: where were they purchased, how were they grown – from seeds, vegetatively or collected as living plants. The only well-documented data in the "notebooks database" were taxa inventory lists with a year of cultivation. In the early 1950s, the first Garden manager, Dr Sala Ungar, launched the typed paper-card database, but the "notebooks database" continued to operate. Therefore, we have found that at least for the last eighteen years of the "notebooks database" (from 1952 to 1970) data have been recorded twice: first entered as an inventory in notebooks, then copied in the paper-card database, or vice versa (we are unable to reconstruct the exact order of inventorying).

Paper-card database (ca 1952 to 2019)

As mentioned before, Dr Ungar initiated a typed paper-card database in the early 1950s which was a significant improvement over the 'notebooks database': a lot more information was written on the paper-cards, such as place of origin, date of acquisition, how they were grown – seeds or cuttings, how many individual plants we had from the exact origin, redetermination of species if checked and needed, year of withering and so on. So, for the inventories written in the 'notebooks database' over the last 20 years, we discovered a lot more data in the paper-card database. However, over the decades, this database became recorded on rejected, unused or reused cards, many duplicates etc., as explained by Kovačić (2015). In 2021 the new Online-Garden Database was completed and all the paper-cards were digitalized (BUDISAVLJEVIĆ & KOVAČIĆ, 2020).

On-line database (2020 to 2022)

Without a doubt, the launch of the on-line database created by Alan Budisavljević in 2021 represented a significant practical and constructive advance over previous inventories. Each entry is made by the curator of the plant collection and includes a wealth of detailed information, such as the IPEN number (if known), photos, and the original notes from our older databases. Due to immense synonymy, the on-line database is designed in accordance with the currently valid nomenclature of the *World Flora Online* (<http://www.worldfloraonline.org>) database. However, it was compared to the *Plants of the World Online* (<http://www.plantsoftheworldonline.org>) nomenclature, which was launched in March 2017 by the Royal Botanic Gardens, Kew (Tab. 1), which is more regularly supplemented.

Subgen. *Audibertia*

Salvia subgen. *Audibertia* was at first identified as the separate genus *Audibertia* (BENTHAM, 1833). NEISESS (1983) divided the *Salvia* section *Audibertia* into the unrelated sections *Echinosphace* and *Audibertia* on the basis of morphological and phytochemical evidence. He concluded that the chemical components, shrubby habit, heavily wood-ed stems (although not present in all species), and especially the structure of the stamens distinguished this group of sages from the other *Salvia* taxa. Finally, WALKER *et al.* (2015) concluded in their genetic analysis that the two monophyletic groups, *Audibertia* (15 species) and *Echinosphace* (4 species), should be combined into the new subgenus *Audibertia*, which contains a total of 19 species. *Salvia* probably first invaded the New World (North America) from the Old World (southwest Asia) in the late Oligocene (24–22 Ma). This event led to the formation of the subgen. *Audibertia* (western North America to northern Mexico) and subgen. *Calosphace* (mainly Mexico to South America; KRIEBEL *et al.*, 2019). Dispersal occurred as far north as Alaska, where they became adapted to various forest biomes under the genus *Audibertia*. Later, they underwent extensive diversification to reach the desert and eventually Mediterranean biomes of western and southwestern North America, primarily in the California Floristic Province (WALKER *et al.*, 2015). The ancestor of sages was undoubtedly bee-pollinated (FRAGOSO-MARTÍNEZ *et al.*, 2018), although transitions to avian pollination by hummingbirds are observed in this and two other subgenera: twice in "*Heterosphace*" (southern Africa and eastern North America) and especially in *Calosphace* (WALKER *et al.*, 2015). It is noteworthy that pollination by hummingbirds is much more limited and recent in the subgenus *Audibertia*. According to KRIEBEL *et al.* (2019), all species in the subgenus *Audibertia* are monophyletic and are included in the New World subclade of the third major *Salvia* clade. Two types of stamens are described for the subgen. *Audibertia*: those with a reduced posterior theca - stamen type I, and those with an entirely aborted posterior theca and connective arm - stamen type H (WALKER & SYTSMAN, 2007).

The subgen. *Audibertia* has not been well represented in Botanical Garden since its foundation, and the first sage belonging to it was not recorded in the 'notebooks database' until 1955: *Salvia columbariae* Benth. The plant or seeds arrived from Ljubljana (Slovenia), but in the same year the specimen died. Since only 19 species are registered in this subgenus, the Botanical Garden today has at least one: *Salvia apiana* Jeps. (Tab. 1).

Tab. 1. Indigenous, wild, hybrid and cultivated *Salvia* grown in Botanical Garden collection since 1895. Details in text.

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
<i>Salvia abrotanoides</i> (Kar.) Sýtsma	<i>Salvia abrotanoides</i> (Kar.) Sýtsma	Perovskia	1966	1952 1958	1952		Perovskia abrotanoides Kar.	
<i>Salvia aethiopsis</i> L.	<i>Salvia aethiopsis</i> L.	Sclarea	2022		Delibatska pjesčara (Serbia), 1962	Leipzig, 2021	seeds	
			1972	1958	Skopje (Macedonia), 1975			
			1978					
			1977	Zagreb (seeds collected in Botanical Garden), 1968				probably from seeds collected on plants from Del. Pjaščara (Serbia)
			1990		Toscolano- Maderno (Italy), 1990			
			2008		Triesite, 2008		seeds	
				1904				
<i>Salvia algeriensis</i> Desf.	<i>Salvia algeriensis</i> Desf.	Sclarea	2008		Milano, 2008		seeds	
<i>Salvia apiana</i> Jeps.	<i>Salvia apiana</i> Jeps.	Audibertia	2022			Montpellier, 2021	seeds	
			2022			Nice, 2021	seeds	
<i>Salvia argentea</i> L.	<i>Salvia argentea</i> L.	Sclarea	2022		Halle, 2011		seeds	
			1986		Regensburg, 1985		seeds	
			1972	1953 1954/55 1958	1962			
			1968	Skopje (Macedonia), 1967			seeds	
			1951	1904 1925 (Malta) 1938 1951			seeds	
			1951	Vienna, 1951			seeds	
<i>Salvia aurea</i> L.	<i>Salvia aurea</i> L.	Heterosphaea	2016		Jerusalem, 2014		Salvia africana-lutea L.; seeds	

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 -2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/ and comment
<i>Salvia aurita</i> L.f.	<i>Salvia aurita</i> L.f.	Salvia	2022			Pisa, 2021	seeds	
			2016		Klagenfurt, 2012		seeds	
<i>Salvia austriaca</i> Jacq.	<i>Salvia austriaca</i> Jacq.	Sclarea	1904	1904				
<i>Salvia azurea</i> Michx. ex Vahl	<i>Salvia azurea</i> Lam. ex Vahl	Celosphace	2022		Denver, 2012		seeds	
			1984		Blanes, 1982			
			1984		Besancon, 1983		seeds	
			1983		Essen, 1969		<i>Salvia azurea</i> var. <i>grandiflora</i> Benth.; seeds	
			1987		Suhumi, 1967		<i>Salvia azurea</i> var. <i>grandiflora</i> Benth.;	
			1978		1973		<i>Salvia azurea</i> var. <i>grandiflora</i> Benth.;	
			1984		Essen, 1981		<i>Salvia azurea</i> var. <i>grandiflora</i> Benth.;	
			1987		Essen, 1982		<i>Salvia azurea</i> var. <i>grandiflora</i> Benth.;	
			1969	Trana, 1969			<i>Salvia azurea</i> var. <i>grandiflora</i> Benth.;	
<i>Salvia barrelieri</i> Etl.	<i>Salvia barrelieri</i> Etl.	Sclarea	2018		Barcelona, 2012		seeds	
<i>Salvia brachyodon</i> Vandas	<i>Salvia brachyodon</i> Vandas	Salvia	1989		Peļešac (Croatia), 1971		cutting	
			1938	1938			seeds	seeds arrived from unknown location or botanical garden
<i>Salvia broussonetii</i> Benth.	<i>Salvia broussonetii</i> Benth.	Sclarea	2022			Montpellier, 2021	seeds	
<i>Salvia cadmica</i> Boiss.	<i>Salvia cadmica</i> Boiss.	Salvia	2022			Trieste, 2021	seeds	
<i>Salvia canariensis</i> L.	<i>Salvia canariensis</i> L.	Sclarea	2022			Trieste, 2020	seeds	
			1988		Leiden, 1979		seeds	
			1984		Nica, 1982		seeds	

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
<i>Salvia candelabrum</i> Boiss.	<i>Salvia candelabrum</i> Boiss.	Salvia	2022			Volgograd, 2021	seeds	
<i>Salvia candidissima</i> Vahl	<i>Salvia candidissima</i> Vahl	Sclarea	2022			Montpellier, 2021	seeds	
<i>Salvia canescens</i> var. <i>daghestanica</i> (Sosn.) Mentitsky	<i>Salvia canescens</i> var. <i>daghestanica</i> (Sosn.) Mentitsky	Sclarea	2018		Tubingen, 2017	Prague, 2021	seeds	
<i>Salvia ceratophylla</i> L.	<i>Salvia ceratophylla</i> L.	Sclarea	1989		Ashgabad, 1982			
<i>Salvia chamaedryoides</i> Cav.	<i>Salvia chamaedryoides</i> Cav.	Celosphace	1984		Valencia, 1982		seeds	
<i>Salvia circinnata</i> Cav.	<i>Salvia circinnata</i> Cav.	Celosphace	1904	1904			<i>Salvia amarissima</i> Ortega	
<i>Salvia coccinea</i> Buc'hoz ex Etl.	<i>Salvia coccinea</i> Buc'hoz ex Etl.	Celosphace	1974		Berlin-Dahlem, 1973			annual plant
			1984		Rotterdam, 1983		seeds	
			2017		Tartu, 2017			
			1967	Porto, 1967			seeds	
			1967	Besancon, 1967			seeds	
			1953	1938 1953		seeds		
<i>Salvia coccinea</i> Buc'hoz ex Etl. 'Cherry Blossom'	<i>Salvia coccinea</i> Buc'hoz ex Etl. 'Cherry Blossom'	Celosphace	2009		2009		seeds	no data on card just photo documentation
<i>Salvia coccinea</i> Buc'hoz ex Etl. 'Coral Nymph'	<i>Salvia coccinea</i> Buc'hoz ex Etl. 'Coral Nymph'	Celosphace	2010		Bratislava, 2001		seeds	
<i>Salvia coccinea</i> Buc'hoz ex Etl. 'Lady in Red'	<i>Salvia coccinea</i> Buc'hoz ex Etl. 'Lady in Red'	Celosphace	1998		Stockholm, 1994			
			2016		Stockholm, 1997		seeds	
			2016		Iasi, 2016		seeds	
<i>Salvia columbariae</i> Benth.		Audibertia	1955	Ljubljana, 1955				

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/ and comment
<i>Salvia digitaloides</i> Diels	<i>Salvia digitaloides</i> Diels	Glutinaria	2022		Vienna (University), 2021		seeds	
<i>Salvia dolomitica</i> Codd	<i>Salvia dolomitica</i> Codd	Salvia	2022			Jerusalem, 2021	seeds	
<i>Salvia dominica</i> L.	<i>Salvia dominica</i> L.	Scleara	1904	1904				
<i>Salvia dumetorum</i> Andrzej. ex Besser	<i>Salvia dumetorum</i> Andrzej. ex Besser	Scleara	2010		Nantes, 2004		Salvia stepposa Des.-Shost., seeds	
			2022		Klagenfurt, 2012		Salvia stepposa Des.-Shost., seeds	
<i>Salvia elegans</i> Vahl	<i>Salvia elegans</i> Vahl	Celosphace	2022		Nica, 2011		seeds	
<i>Salvia farinacea</i> Benth.	<i>Salvia farinacea</i> Benth.	Celosphace	2022		Wroclaw, 2012		seeds	
<i>Salvia farinacea</i> Benth.	<i>Salvia farinacea</i> Benth.	Celosphace	2018		Bratislava, 2002		seeds	
'Blue Bedder'	'Blue Bedder'							
<i>Salvia farinacea</i> Benth.	<i>Salvia farinacea</i> Benth.	Celosphace	2022		Stuttgart, 2017		seeds	
'Evolution'	'Evolution'							
<i>Salvia farinacea</i> Benth.	<i>Salvia farinacea</i> Benth.	Celosphace	2004		Trieste, 2002		seeds	
'Veronica Blue'	'Veronica Blue'							
<i>Salvia farinacea</i> Benth.	<i>Salvia farinacea</i> Benth.	Celosphace	2018		Nursery Zrnjevac?, 2007		seeds	
'Victoria Blue'	'Victoria Blue'							
<i>Salvia farinacea</i> Benth.	<i>Salvia farinacea</i> Benth.	Celosphace	2018		Duisburg, 2009		seeds	
'Victoria Silber'	'Victoria Silber'							
<i>Salvia forskahlei</i> L.	<i>Salvia forskahlei</i> L.	Heterosphace	2022			Trieste, 2021	Salvia tachiei; seeds	
			1971		Wageningen, 1970			
			2016		Cambridge, 1982			
<i>Salvia fruticosa</i> Mill.	<i>Salvia fruticosa</i> Mill.	Salvia	2022			Montpellier, 2021	seeds	
<i>Salvia fruticosa</i> Mill. f. alba	<i>Salvia fruticosa</i> Mill. f. alba	Salvia	2018		Trieste, 2007		seeds	
<i>Salvia gesneriiflora</i> Lindl. & Paxton	<i>Salvia gesneriiflora</i> Lindl. & Paxton	Celosphace	2022			Pisa, 2021	seeds	
<i>Salvia glutinosa</i> L.	<i>Salvia glutinosa</i> L.	Glutinaria	2022		Strahinjšćica (Croatia), 1970		Planta Viva	
			1965		Šitrovac (Croatia), 1964		Planta Viva	
			1979	1958	Sofija, 1958			
			2001		1969			

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
			2002		Halle, 2001		seeds	
			1950	1904 1950				
			1908	Corski kotar, Medvedova vrata (Croatia), 1908				dr. Aurel Forenbacher collected plant for Botanical Garden from unknown location
<i>Salvia greggii</i> 'Alba'	<i>Salvia greggii</i> 'Alba'	Celosphace	2022			Ventimiglia, 2021	seeds	
<i>Salvia greggii</i> 'Royal Bumble'	<i>Salvia greggii</i> 'Royal Bumble'	Celosphace	2022			Muenster, 2020	seeds	
<i>Salvia hians</i> Royle ex Benth.	<i>Salvia hians</i> Royle ex Benth.	Glutinaria	2022		London - Chelsea Physic Garden, 2002		seeds	
			1985		Valencia, 1983		seeds	
<i>Salvia hierosolymitana</i> Boiss.	<i>Salvia hierosolymitana</i> Boiss.	Sclarea	2020		Jerusalem, 2014		seeds	
			2022			Nice, 2021		
			2022			Montpellier, 2021	seeds	
<i>Salvia hispanica</i> L.	<i>Salvia hispanica</i> L.	Celosphace	2022			Angers, 2021	seeds	
<i>Salvia indica</i> L.	<i>Salvia indica</i> L.	Sclarea	2022			Montpellier, 2021	seeds	
			2018		Jerusalem, 2014			
<i>Salvia involucrata</i> Cav.	<i>Salvia involucrata</i> Cav.	Celosphace	1966		Strasbourg, 1963			
<i>Salvia jurisicii</i> Košanin	<i>Salvia jurisicii</i> Košanin	Sclarea	2022		Warsaw, 2007		seeds	
			1969	1949 1950 1951 1953 1954/55 1958	1962		seeds	probably the same plant from 1949
			1978	Orlovo brdo (Macedonia), 1973				
			1952	Delit, 1952				

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/ and comment
			1952	Faculty of Pharmacy, 1952				
			1952	Basel, 1952				
			2022			Jerusalem, 2021	seeds	
Salvia lanceolata Lam.	Salvia lanceolata Lam.	Salvia						
Salvia lyrata L. 'Purple Knockout'	Salvia lyrata L. 'Purple Knockout'	Heterosphace	2018		Trieste, 2007		seeds	
Salvia lyrata L. 'Purple Volcano'	Salvia lyrata L. 'Purple Volcano'	Heterosphace	2022			Amsterdam, 2021	seeds	
			2018		Rouen, 2008		seeds	
Salvia macrosiphon Boiss.	Salvia macrosiphon Boiss.	Sclarea	1999		Teheran, 1999		seeds	
Salvia mexicana L.	Salvia mexicana L.	Celosphace	2018		Trieste, 2007		Salvia mexicana L. var. minor Benth.; seeds	
Salvia microphylla 'Hot Lips'	Salvia microphylla 'Hot Lips'	Celosphace	2022		2018			probably from Zrinjevac Nursery, (Zagreb, Croatia)
Salvia microphylla 'Pink Blush'	Salvia microphylla 'Pink Blush'	Celosphace	2022		Nursery Zrinjevac - Croatia, 2016		Planta Viva	
			2018		Paris, 2015		seeds	
Salvia microphylla x greggi hort.	Salvia microphylla x greggi hort.	Celosphace	2022		Trieste, 2008		seeds	
Salvia microstegia Boiss. & Balansa	Salvia microstegia Boiss. & Balansa	Sclarea	1904	1904				
Salvia multiorrhiza Bunge	Salvia multiorrhiza Bunge	Glutinaria	2022		Washington, 2018		seeds	
Salvia moorcroftiana Wall. ex Benth.	Salvia moorcroftiana Wall. ex Benth.	Sclarea ? Illi Salvia	2022			Pisa, 2022	seeds	
Salvia napifolia Jacq.	Salvia napifolia Jacq.	Heterosphace	2018		Trieste, 2008		seeds	
			1904	1904				
Salvia nemorosa L.	Salvia nemorosa L.	Sclarea	1963	1951 1958	Unknown, 1963			probably the same plant from 1951
			1989	1958	Delibatska pješčara (Serbia), 1965		Planta Viva	
			1977		Zlot (Serbia), 1974			

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
			1989		Brestovačka Banja (Serbia), 1974			
			1985		Deliblatska pješčara (Serbia), 1978			
			1955	Basel, 1950 1951 1954/55			seeds	probably the same plant from 1950
<i>Salvia nemorosa</i> L. 'Merleau Blue'	<i>Salvia nemorosa</i> L. 'Merleau Blue'	Sclarea	2021			Riga, 2019	seeds	
<i>Salvia nemorosa</i> L. 'Ostfriesland'	<i>Salvia nemorosa</i> L. 'Ostfriesland'	Sclarea	2001		Wageningen, 1970			eng. syn.: <i>Salvia nemorosa</i> L. 'East Friesland'
<i>Salvia nemorosa</i> L. 'Rose Queen'	<i>Salvia nemorosa</i> L. 'Rose Queen'	Sclarea	2022		Teplice, 2015		seeds	
<i>Salvia nemorosa</i> L. 'Sansation Deep Blue'	<i>Salvia nemorosa</i> L. 'Sansation Deep Blue'	Sclarea	2018		Nursery Zrinjevac - Croatia, 2017		Planta Viva	
<i>Salvia nemorosa</i> subsp. <i>pseudosylvestris</i> (Stapf) Bornm.	<i>Salvia nemorosa</i> subsp. <i>pseudosylvestris</i> (Stapf) Bornm.	Sclarea	2022		Nantes, 2004		<i>Salvia tesquicola</i> Klokov & Pobed.; seeds	
<i>Salvia nubicola</i> Wall. ex Sweet	<i>Salvia nubicola</i> Wall. ex Sweet	Glutinaria	2022		Nica, 2011		seeds	
<i>Salvia nutans</i> L.	<i>Salvia nutans</i> L.	Sclarea	2022		Volgograd, 2021		seeds	
			1938	1938				
<i>Salvia officinalis</i> L.	<i>Salvia officinalis</i> L.	Salvia	2022		(Croatia), 1986			
			2022	1951 1953 1958	(Croatia), 1962			probably the same plant from 1951
			1989		Paklenica (Croatia), 1966			
			1973		Orebić (Croatia), 1969			
			1975		Plomin (Croatia), 1966			
			2010		Lošinj (Croatia), 1973		cutting	
			1989		Srd (Croatia), 1976		cutting	

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/ and comment
			2001		Baška (Island Krk, Croatia), 2000		Planta Viva	
			2022		Vrulja (Biokovo, Croatia), 2011		Planta Viva	
			1938	1896 1904 1917 1922 1938				probably the same plant that we have today in the Garden
<i>Salvia officinalis</i> cv. alba	<i>Salvia officinalis</i> cv. alba	Salvia	2022		2018			
<i>Salvia officinalis</i> L. 'Icterna'	<i>Salvia officinalis</i> L. 'Icterna'	Salvia	2021		Nursery Mihaljevac (Croatia), 2004		Planta Viva	
<i>Salvia officinalis</i> L. 'Purpurascens'	<i>Salvia officinalis</i> L. 'Purpurascens'	Salvia	2022		Nursery Mihaljevac (Croatia), 2004		Planta Viva	
<i>Salvia officinalis</i> L. 'Tricolor'	<i>Salvia officinalis</i> L. 'Tricolor'	Salvia	2022		Nursery Mihaljevac (Croatia), 2004		Planta Viva	
<i>Salvia pachyphylla</i> Epling ex Munz	<i>Salvia pachyphylla</i> Epling ex Munz	Celosphace	2018		Denver, 2012		seeds	
<i>Salvia patens</i> Cav.	<i>Salvia patens</i> Cav.	Celosphace	1971		Vienna, 1967			
			1980		1973			
			1969	Amsterdam, 1969			seeds	
			1904	1904				
<i>Salvia patens</i> Cav. <i>Salvia gesneriflora</i> Lindl. & Paxton <i>Salvia fulgens</i> Cav. <i>Salvia tomentosa</i> Mill. <i>Salvia officinalis</i> subsp. <i>officinalis</i>	<i>Salvia patens</i> Cav. <i>Salvia gesneriflora</i> Lindl. & Paxton <i>Salvia fulgens</i> Cav. <i>Salvia tomentosa</i> Mill. <i>Salvia officinalis</i> subsp. <i>officinalis</i>		1904	1904			Salvia grandiflora	without an author, this could be five different taxa of <i>Salvia</i> today
<i>Salvia patens</i> Cav. 'Blue Angel'	<i>Salvia patens</i> Cav. 'Blue Angel'	Celosphace	2018		Nursery Poljovrt (Croatia), 2007		seeds	

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
<i>Salvia patens</i> Cav. 'Cambridge Blue'	<i>Salvia patens</i> Cav. 'Cambridge Blue'	Celosphace	1966		Badenweiler, 1964		<i>Salvia pratensis</i> L. 'Cambridge Blue'; seeds	unknown cultivar or possibly incorrect, not <i>pratensis</i> but <i>patens</i>
<i>Salvia pratensis</i> L.	<i>Salvia pratensis</i> L.	Sclarea	1986		Pomikve (Croatia), 1985		Planta Viva	
			1963		Oštrc (Croatia), 1962			
			1962	1954/55 1958				
			1989		Obrovac (Croatia), 1962		<i>Salvia pratensis</i> L. f. <i>parviflora</i>	
			2010		Krapina (Croatia), 1977		<i>Salvia pratensis</i> L. subsp. <i>vulgaris</i> (Rchb.) Briq. Var. <i>vulgaris</i> Rchb. f. <i>rubricunda</i> (Wender.) Voss-Vilm.; <i>Planta Viva</i>	unknown, probably just <i>S. pratensis</i> L.
			1984		Krapina (Croatia), 1980		<i>Salvia pratensis</i> L. subsp. <i>vulgaris</i> (Rchb.) Briq. Var. <i>vulgaris</i> Rchb. f. <i>rubricunda</i> (Wender.) Voss-Vilm.; seeds	unknown, probably just <i>S. pratensis</i> L.
			1994		Krapina (Croatia), 1984		<i>Salvia pratensis</i> L. subsp. <i>vulgaris</i> (Rchb.) Briq. Var. <i>vulgaris</i> Rchb. f. <i>rubricunda</i> (Wender.) Voss-Vilm.; seeds	unknown, probably just <i>S. pratensis</i> L.
			1960	Galičica, 1960				
<i>Salvia pratensis</i> subsp. <i>pratensis</i>	<i>Salvia pratensis</i> subsp. <i>pratensis</i>	Sclarea	1962	1958	1962		<i>Salvia bertolonii</i> Vis.	on karst rock garden

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/ and comment
			2022		Orebić (Croatia), 1969		Salvia bertolonii Vis., Planta Viva	
			1955	1904 1922 1938 1951 1954/55			Salvia bertolonii Vis.	
			no data		unknown		Salvia bertolonii Vis.	probably the same plant recorded in notebooks database
Salvia pratensis 'Alba'	Salvia pratensis 'Alba'	Sclarea	2010		Trieste, 1997		Salvia pratensis 'Albiflora'	
			1904	1904				
Salvia pratensis Cav. 'Blue Beard'	Salvia pratensis Cav. 'Blue Beard'	Sclarea	1979		Zagreb (seeds collected in Botanical Garden), 1964			unknown cultivar or possibly incorrectly written, blubeard is english name for species <i>S. viridis</i>
Salvia pratensis L. cult.	Salvia pratensis cult.	Sclarea	2022		Klagenfurt, 2012		seeds	
Salvia przewalskii Maxim.	Salvia przewalskii Maxim.	Glutinaria	2018		Klagenfurt, 2012		seeds	
			1904	1904				
Salvia recognita Fisch. & C.A.Mey.	Salvia recognita Fisch. & C.A.Mey.	Salvia	2015		Jerusalem, 2014		seeds	
Salvia ringens Sm.	Salvia ringens Sm.	Salvia	1966	1958	Ljubljana, 1962			
			1966		1963			
			2010		Iasi, 2001		seeds	
			1975		Skopje (Macedonia), 1963		Salvia ringens Sm. var. macedonica Briqu.	
			1968		Zagreb (seeds collected in Botanical Garden), 1966		Salvia ringens Sm. var. macedonica Briqu.	
			1968	Zagreb (seeds collected in Botanical Garden), 1968			Salvia ringens Sm. var. macedonica Briqu.;	

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
<i>Salvia roemeriana</i> Scheele	<i>Salvia roemeriana</i> Scheele	Celosphace	1938	1938	Wisley, 2001		seeds	
<i>Salvia roemeriana</i> Scheele 'Hot Trumpets'	<i>Salvia roemeriana</i> Scheele 'Hot Trumpets'	Celosphace	2018		Klagenfurt, 2012		seeds	
<i>Salvia rosmarinus</i> Spenn.	<i>Rosmarinus officinalis</i> L.	Rosmarinus	1963	1951 1953 1954/55 1958	Unknown, 1962		Rosmarinus officinalis L.	note in card (1963): 49 plants left
			2022		Unknown, 1986			
			1963		Novi Vinodolski (Croatia), 1962			note in card (1963); 3 plants left
			1996		1965			
			1969		1969			probably the same plant recorded in notebooks database
			1982		Mijet (Croatia), 1978		cutting	plant kept in greenhouse
			1983		Lošinj (Croatia), 1977			first kept in greenhouse then in 2007 moved outside in the Garden
			2022		Vodice (Croatia), 1985		cutting	
			2022		Nursery, 2018		Rosmarinus officinalis L. 'Prostratus'; Planta Viva	
			1977		Lokrum (Croatia), 1976		Rosmarinus officinalis L. 'Prostratus'	
			1983		Lokrum (Croatia), 1977		Rosmarinus officinalis L. 'Prostratus'	

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 -2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/ and comment
			1929	1912 1929				
<i>Salvia scabiosifolia</i> Lam.	<i>Salvia scabiosifolia</i> Lam.	Salvia	2022			Kiel, 2021	seeds	
<i>Salvia sclarea</i> L.	<i>Salvia sclarea</i> L.	Sclarea	2022			Montpellier, 2021	seeds	
			2022			La Gacilly, 2020	seeds	
			1982		Babino Polje (Croatia), 1982		Planta Viva	
			1989		Skopje (Macedonia), 1967			
			1979		Hvar (Croatia), 1967			
			1984		Prague, 1980			
			1989		Zaton (Šibenik, Croatia), 1980			
			1958	1904 1953 1954/55 1958				
<i>Salvia sclarea</i> L. 'Turkestanica'	<i>Salvia sclarea</i> L. 'Turkestanica'	Sclarea	2020		Stuttgart, 2017		seeds	
<i>Salvia sclarea</i> 'Vatican White'	<i>Salvia sclarea</i> 'Vatican White'	Sclarea	2022			Nursery in Portugal, 2022	seeds	
<i>Salvia splendens</i> Sellow ex Nees	<i>Salvia splendens</i> Sellow ex Nees	Celosphace	1938	1904 1938				
<i>Salvia splendens</i> Sellow ex Nees cult.	<i>Salvia splendens</i> Sellow ex Nees cult.	Celosphace	1970	Holandija, 1970			seeds	
<i>Salvia splendens</i> Sellow ex Nees 'Luna'	<i>Salvia splendens</i> Sellow ex Nees 'Luna'	Celosphace	2012		Nursery (Zagreb), 2011		seeds	annual, unknown origin: probably bought seeds or plant around 2010.
<i>Salvia splendens</i> Sellow ex Nees 'Pink Bicolor'	<i>Salvia splendens</i> Sellow ex Nees 'Pink Bicolor'	Celosphace	2009		no data on card		seeds	annual, unknown origin, no data on card just photo documentation

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
<i>Salvia splendens</i> Sellow ex Nees 'Rakette'	<i>Salvia splendens</i> Sellow ex Nees 'Rakette'	Celosphace	1966	1922 1938 1958				
<i>Salvia splendens</i> Sellow ex Nees 'Scarlet Piccolo'	<i>Salvia splendens</i> Sellow ex Nees 'Scarlet Piccolo'	Celosphace	2010	Zagreb (seed collected in Bot. Garden), 1969	Lublin, 2001		seeds	
<i>Salvia splendens</i> Sellow ex Nees 'St. Jansvuur'	<i>Salvia splendens</i> Sellow ex Nees 'St. Jansvuur'	Celosphace	2011		Nursery Zrinjevac, 2011		Planta Viva	eng. syn.: <i>Salvia splendens</i> 'St. John's Fire'
<i>Salvia splendens</i> Sellow ex Nees 'Tetrarot'?	<i>Salvia splendens</i> Sellow ex Nees 'Tetrarot'?	Celosphace	1968	Badenweiler, 1968			seeds	illegible handwriting: possibly <i>S. splendens</i> 'Tetra Rood'; found in one annual report: Testing station for floristry in Netherlands in 1969
<i>Salvia splendens</i> Sellow ex Nees 'Violet'	<i>Salvia splendens</i> Sellow ex Nees 'Violet'	Celosphace	2009		2003			annual, no data on card just from photo documentation
<i>Salvia staminea</i> Montbret & Aucher	<i>Salvia staminea</i> Montbret & Aucher	Sclarea	2022			Iasi, 2021	seeds	
<i>Salvia tilifolia</i> Vahl	<i>Salvia tilifolia</i> Vahl	Celosphace	2022			Trieste, 2020	seeds	
<i>Salvia tingitana</i> Etl.	<i>Salvia tingitana</i> Etl.	Sclarea	2022			Montpellier, 2021	seeds	
<i>Salvia tomentosa</i> Mill.	<i>Salvia tomentosa</i> Mill.	Salvia	2022			Leipzig, 2021	seeds	
<i>Salvia transsylvanica</i> (Schur ex Griseb. & Schenk) Schur	<i>Salvia transsylvanica</i> Schur	Sclarea	2022			Cluj-Napoca, 2021	seeds	
			1904	1904				<i>Salvia pratensis</i> (var.) <i>transsylvanica</i>

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
			1904	1904			Salvia pratensis Baumgartenii	incorrect; possibly <i>S. baumgartenii</i> Heuffel ex Grisebach & Schenk, which was invalid name for <i>S. pratensis</i> var. <i>transsylvanica</i>
Salvia verbascofolia M. Bieb.	Salvia verbascofolia M. Bieb.	Sclarea	1904	1904			Salvia verbenaca L. subsp. claudestina (L.) Briq.	
Salvia verbenaca L.	Salvia verbenaca L.	Sclarea	1972		Orebić (Croatia), 1969		Salvia verbenaca L. subsp. claudestina (L.) Briq.	
			1979		Pula (Croatia), 1964		Salvia verbenaca L. subsp. claudestina (L.) Briq.	
			1966		Pula (Croatia), 1964		Salvia claudestina L.	
			1962	1958	1962		Salvia claudestina L.	probably the same plant recorded in notebooks database
			1989		Vis (Croatia), 1967		Salvia verbenaca L. subsp. verbenaca Briq.	
			2010		Komiža (Croatia), 1967		Salvia verbenaca L. subsp. verbenaca Briq.; seeds	
			1989		Nerezisće (Croatia), 1979		Salvia verbenaca L. subsp. verbenaca Briq.	
			1989		Polučno Polje (Croatia), 1979		Salvia verbenaca L. subsp. verbenaca Briq.	
			1986		Cordoba, 1983		Salvia verbenaca L. subsp. verbenaca Briq.; seeds	
Salvia verticillata L.	Salvia verticillata L.	Heterosphaea	1904	1904			seeds	
			2022		Trieste, 2008			

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
			2022		Trieste, 2021		seeds	
			1966		1962			
			1979		Sofia, 1963			
			1963		Wageningen, 1962			
			2010		Boračko jezero (Bosnia & Herz.), 1970			
			1972		Gorski koljar (Croatia), 1972			
			1975		Lim-Sučeska (Bosnia & Herz.), 1973			
			2006		Učka (Croatia), 2005		Planta Viva	
			1904	1904				
<i>Salvia verticillata</i> subsp. <i>verticillata</i>	<i>Salvia verticillata</i> subsp. <i>verticillata</i>	Heterosphaea	1979		Kneže-polje (Croatia), 1979		<i>Salvia peloponnesiaca</i> Boiss. & Heldr.	
			1980		Polračno Polje (Croatia), 1979		<i>Salvia peloponnesiaca</i> Boiss. & Heldr.	
			1989		Mijet (Croatia), 1978		<i>Salvia peloponnesiaca</i> Boiss. & Heldr.; seeds	
			2018		Klagenfurt, 2012		<i>Salvia regaliana</i> Trautv.; seeds	
<i>Salvia verticillata</i> 'Purple Rain'	<i>Salvia verticillata</i> 'Purple Rain'	Heterosphaea	2022		Trieste, 2001		seeds	
<i>Salvia virgata</i> Jacq.	<i>Salvia virgata</i> Jacq.	Sclarea	1904	1904			<i>Salvia gigantea</i> Desf.	without an author, this could be two different taxa of <i>Salvia</i> today
<i>Salvia virgata</i> Jacq. <i>Salvia verbenaca</i> L.	<i>Salvia virgata</i> Jacq. <i>Salvia verbenaca</i> L.	Sclarea	1904	1904			<i>Salvia sibthorpiana</i>	
<i>Salvia viridis</i> L.	<i>Salvia viridis</i> L.	Sclarea	2022			Montpellier, 2021	seeds	
			1966	1954/55 1958	Zagreb (seeds collected in Botanical Garden), 1964		<i>Salvia horminum</i> L.; seeds	

Tab. 1. Continued

POWO (Kew):	WFO:	Subgenera	Last recorded	Notebooks database: 1895 - 1970 (origin and year of obtaining if known)	Paper-card database: 1952 - 2019 (origin and year of obtaining if known)	On line garden database: 2020 - 2022 (origin and year of obtaining)	Arrived as	Notes in the original inventory-card or/and comment
			1973		Skopje (Macedonia), 1965		<i>Salvia horminum</i> L.; seeds	
<i>Salvia viridis</i> L.	<i>Salvia viridis</i> var. <i>comata</i> Heldr.	Sclarea	2022			Darmstadt, 2021	seeds	
<i>Salvia viridis</i> L. 'Pink Sunday'	<i>Salvia viridis</i> L. 'Pink Sunday'	Sclarea	2008		Trieste, 2007		seeds	annual
<i>Salvia viscosa</i> Jacq. <i>Salvia occidentalis</i> Sw.	<i>Salvia viscosa</i> Jacq. <i>Salvia misella</i> Kunth	Celosphace	1904	1904			<i>Salvia viscosa</i>	without an author, this could be two different taxa of <i>Salvia</i> today
<i>Salvia xanthocheila</i> Boiss. ex Benth.	<i>Salvia xanthocheila</i> Boiss. ex Benth.	Sclarea	2022			München, 2021	seeds	
<i>Salvia yangii</i> B. T. Drew	<i>Perovskia atriplicifolia</i> Benth.	Perovskia	2022		Wrocław, 2017		seeds; <i>Perovskia atriplicifolia</i> Benth.	
<i>Salvia x digenea</i> Borbás (S. <i>amplexicaulis</i> x S. <i>nemorosa</i>)	<i>Salvia x sylvestris</i> L.	Sclarea	2005		Graz, 2004		<i>Salvia nemorosa</i> L. 'Superba'	
<i>Salvia x digenea</i> Borbás 'Compacta'	<i>Salvia x sylvestris</i> L. 'Compacta'	Sclarea	1969	Lada (nursery), 1955 and 1958	Nursery Lada (Slovenia), 1963		<i>Salvia x superba</i>	
<i>Salvia x lavandulacea</i> (de Noë) Roma-Marzio & Galasso (S. <i>jordanii</i> x S. <i>rosmarinus</i>)	<i>Rosmarinus x lavandulaceus</i> Noë	Rosmarinus	1990		Rotterdam, 1983 Barcelona, 1984		<i>Salvia x superba</i> 'Compacta' <i>Rosmarinus lavandulaceus</i> de Noë ex Balansa, seeds	incorrect
			1981		Lošinj, 1979		<i>Rosmarinus nanus</i>	incorrect: possibly R. x <i>noeanus</i> Maire; collected by former director of Bot. garden dr. Ungar
<i>Salvia x sylvestris</i> L. (S. <i>nemorosa</i> x S. <i>pratensis</i>) 'Blue Queen'	<i>Salvia x sylvestris</i> L. 'Blue Queen'	Sclarea	2022		Nursery Kalčić (Croatia), 2018		Planta Viva	
<i>Salvia x sylvestris</i> L. 'Rose Queen'	<i>Salvia x sylvestris</i> L. 'Rose Queen'	Sclarea	2022		Trieste, 2007		seeds	

Subgen. *Calosphace*

The subgenus *Calosphace* is a sister genus of the subgenus *Audibertia* with about 550 species distributed from Mexico to south-central South America. EPLING (1938) immediately decided to treat *Calosphace* as a subgenus. Since all members of *Salvia* subgen. *Calosphace* (as well as subgen. *Audibertia*) are native to the New World and their successive sister groups are Asian, the clade comprising subgen. *Calosphace* and *Audibertia* is probably the product of a single dispersal event from Asia to the New World. Three lines of evidence indicate that this dispersal probably occurred along the west coast of North America or Mexico (WALKER *et al.*, 2004; WALKER & SYTSMAN, 2007). Biogeographic area reconstruction for subgen. *Audibertia* suggests an origin for the group in the late Miocene, and the separation of subgen. *Audibertia* from subgen. *Calosphace* is dated to about 15.2 Ma. The typical morphology of the stamens for subgen. *Calosphace* consists of an elongation of the posterior connective branch, a fusion of the two adjacent connective arms, and no differentiation of the tissue at the distal end of the connective branch (stamen type E). This uniformity applies to the entire subgen. *Calosphace* except for four of Epling's sections: *Hastatae*, *Blakea*, *Standleyana* and *Axillares*. Sections *Hastatae* (seven specimens), *Blakea* (four specimens), and *Standleyana* (one specimen) all have a complete termination of the posterior thecae; however, the connective arms do not fuse completely. These three sections are all included in the clade represented by stamen type F and form a monophyletic group. *Salvia axillaris* Moc. & Sessé ex Benth., forms the monotypic section *Axillares*, and is the only member of *Salvia* subgen. *Calosphace* that has posterior thecae and type G stamens (WALKER & SYTSMAN, 2007).

The first three species of the subgen. *Calosphace* was registered in the Garden in 1904: *Salvia patens* Cav., *S. splendens* Sellow ex Nees and *S. viscosa* (it is written in notebook database without an author, so according to POWO (2023) this could be two different taxa of *Salvia* today, Table 1). In all, 40 different taxa were grown in Garden collections, while today 12 taxa belong to the subgen. *Calosphace*. Most members came into the Garden collection when the paper-card database existed, and to date seven taxa are in the collection. Four new taxa were recently registered in the Garden collection and they are only listed in the on-line database (Table 1). In addition, *Salvia coccinea* Buc'hoz ex Etl. 'Lady in Red' cultivar, belonging to subgen. *Calosphace*, remained in the Garden collection for a long time, even though it is an annual plant. Seeds appear to have been harvested and sown annually for 19 years.

Subgen. *Glutinaria*

With about 100 species of *Salvia*, East Asia (EA) is one of the three main *Salvia* biodiversity hotspots (WALKER & SYTSMAN, 2007). The EA radiation of genus *Salvia* has 82 species native to China, 72 of which are endemic, 12 species unique to Japan, nine of which are endemic, and three species native to the Korean Peninsula, one of which is endemic (LI & HEDGE, 1994; LEE, 2004; HU *et al.*, 2013, 2014, 2017; HU & PENG, 2015; XIANG *et al.*, 2016). The EA *Salvia* are highly diverse in terms of root, leaf, calyx, corolla and staminal morphology, and habitat. However, relationships within this lineage have long been unclear, and the staminal lever mechanism, which may represent a key innovation within the genus, has been understudied for a long time. Three subgenera of EA *Salvia* have been identified based on staminal morphology: subgen. *Salvia*, from a "short-lever type," subgen. *Sclarea*, from a "long-lever type," and subgen. *Allagospadonopsis*, from a "degraded-lever type" (WU, 1977; MURATA & YAMAZAKI, 1993). Drawing on the phylogenetic results,

WILL & CLASSEN-BOCKHOFF (2017) proposed EA *Salvia* should be considered as either three separate genera, or as three sections of a new genus. Later, referring to the expanded phylogenetic sampling of Mediterranean *Salvia*, the same authors suggested splitting *Salvia* into six genera: *Salvia sensu stricto*, *Lasemia*, *Ramona*, *Glutinaria*, *Pleudia*, and *Polakia*, retaining the generic status of the five embedded genera. Following the philosophy of WILL & CLASSEN-BOCKHOFF (2017), HU *et al.* (2018) identified eight separate lineages of EA *Salvia* in their analysis that should each have equal taxonomic weight. They proposed that EA *Salvia* should be classified as either eight genera or eight sections of a single genus. Treating EA *Salvia* as eight separate genera would be at least confusing; furthermore, it seems untenable to treat EA *Salvia* as a single genus because they were unable to find any single morphological character that distinguishes EA *Salvia* from *Salvia* in the other centers of diversity, particularly in south-western Asia and the Mediterranean region. Therefore, following the suggestion of DREW *et al.* (2017), and drawing on their molecular analysis and morphological investigation, they formally define the EA *Salvia* clade as a subgenus *Glutinaria*, including eight sections (HU *et al.*, 2018). Morphologically, in contrast to the other two major centers of diversity where shrubs are common, all EA *Salvia* are herbaceous and have the same basic chromosome number, $x = 8$. These two characters set this group apart and may serve as diagnostic indicators for the EA *Salvia* clade (GILL, 1971; YANG *et al.*, 2004; ZHAO *et al.*, 2006; WANG *et al.*, 2009; HU *et al.*, 2016). In the 133-year history of the Botanical Garden, there was only a short period without the subgen. *Glutinaria* (Table 1). The first samples in subgen. *Glutinaria* came to the Garden back in 1904 and the second one was introduced in 1908 by Dr. Aurel Forenbacher, collected from the wild in Gorski kotar (Croatia). Both samples belonged to the same species - *S. glutinosa* L. Moreover, the same species was also one of the oldest sages of the Garden. The now 53 year-old plant was collected from Strahinjščica mountain (Croatia) in 1970 and is still growing in our Karstic rock garden.

Subgen. "*Heterosphace*"

BENTHAM (1848) was the first to identify the close kinship between a group of southern African species and a southwestern group of *Salvia* species from North America, which he classified as belonging to the section *Heterosphace*. Thus, the only section that has members among both, the New and the Old World, sages is *Heterospace*. Sect. *Heterosphace* members in the New World, along with sect. *Salviastrum* Scheele and *Salvia pentstemonoides* Kunth & C.D.Bouché, form a weak monophyletic group that suggests a single spread from the Old World to the New World (WALKER *et al.*, 2004).

Further, KRIEBEL *et al.* (2019) provide for the first time strong support based on molecular data, for the monophyly of the subgen. "*Heterosphace*", which comprises three distinct lineages in *Salvia*. The first lineage includes all eastern and southwestern North American species previously placed in sects. *Salviastrum* and *Heterosphace* (WALKER & ELISENS, 2001); the second includes species derived from the major diversification in South (and East) Africa and Madagascar previously placed in sects. *Eusphace*, *Heterosphace*, and *Hymenosphace* (WILL & CLASSEN-BOCKHOFF, 2017); and the third is sect. *Hemisphace* from Europe, North Africa, and Southwest Asia ("*S. verticillata* group"). Interestingly, this clade was supported at 100% in the molecular analysis tree presented in WILL & CLASSEN-BOCKHOFF (2017) without further discussion.

The sages of this informal subgenus belong to the first clade, which includes the subgenera *Salvia*, *Sclarea*, and "*Heterosphace*", including mainly southwestern Asian and

Mediterranean species, but also species from southern and eastern Africa, Madagascar, and eastern to southwestern United States and adjacent Mexico. Within this first clade, several shifts to Europe and Mediterranean Africa occurred in the middle Miocene to Pliocene, and one spread included the Mediterranean to eastern North America, within subgen. "*Heterosphace*" (KRIEBEL *et al.*, 2019). The same authors also concluded that there was a consistent switch from bee to bird pollination (hummingbirds) across forest, grassland and desert biomes in the New World in the subgenus "*Heterosphace*". Similarly, an increase in passerine bird pollination occurred in southern African subgen. "*Heterosphace*" in a mix of forest, grassland, and Mediterranean biomes (KRIEBEL *et al.*, 2019). Today the informal name subgen. "*Heterosphace*" is provided for the New World sect. *Salviastrum*, the "*Salvia verticillata* group" of the Old World and its close relatives (WILL & CLASSEN-BOCKHOFF, 2017).

Since 1904, it was possible to trace most taxa entries in the subgen. "*Heterosphace*" in the Garden via records concerning the collecting of plants and/or seeds in the former Yugoslavia, or by the ordering of seeds through the *Index Seminum*-network. As can be seen in Table 1, during this long period only five species and three cultivars belonging to the subgen. "*Heterosphace*" were obtained. Today, there are even fewer: only two species and two cultivars, but it is certainly important that the University Garden collection includes representatives of as many different subgenera as possible.

Subgen. *Perovskia* and subgen. *Rosmarinus*

The taxonomy of the *Perovskia* and *Rosmarinus* subgenera is subject to a great deal of debate. According to the primary classification based on flower morphology, the species belonging to *Perovskia* and *Rosmarinus* (along with three other genera: *Dorystaechas*, *Meriandra* and *Zhumeria*) were previously considered separate genera closely related to *Salvia* and treated as part of the subtribe Salviinae (WALKER *et al.*, 2004).

WILL & CLASSEN-BOCKHOFF (2017) reconstructed the evolution and biogeography of *Salvia* and discovered that the sister taxa of *Salvia* Clade I, *Perovskia* and *Rosmarinus*, which diverged most likely in the early to middle Miocene, shared a very recent common ancestor. They advocate dividing the formerly huge genus *Salvia* into six genera, each supported by morphology, karyology, and geographic distribution, and they indicate that, with revision, these genera might be promoted to generic status.

According to earlier phylogenetic studies as well as taxonomic, morphological, and practical considerations (WALKER *et al.*, 2004, 2015; GONZÁLEZ-GALLEGOS, 2015) as well as the phylogenetic findings presented by DREW *et al.* (2017), there are two different approaches to the classification of *Salvia* and relatives that preserve generic monophyly. The first is to group five small genera (*Dorystaechas*, *Meriandra*, *Perovskia*, *Rosmarinus*, and *Zhumeria*) into *Salvia* and the second, already mentioned, is to divide *Salvia* into several genera. One argument for accepting the first approach is the different staminal morphology between genera in the tribe Mentheae. In contrast to the majority of Mentheae, which have four fertile stamens (HARLEY *et al.*, 2004; DREW & SYTSMAN, 2012), *Salvia* only has two anterior fertile stamens, with the two thecae of each stamen separated by elongated connective tissue (BENTHAM, 1876; CLASSEN-BOCKHOFF *et al.*, 2003; WALKER *et al.*, 2004, 2015). The five Salviinae genera: *Dorystaechas*, *Meriandra*, *Perovskia*, *Rosmarinus*, and *Zhumeria* embedded within *Salvia* also have only the two anterior fertile stamens. *Rosmarinus* has significantly elongated connective tissue, just one fertile theca per anther, and a stamen morphology remarkably similar to some

species of *Salvia* subgen. *Audibertia* and *Perovskia* and three other subgenera have a less elongated connective tissue between the thecae (WALKER *et al.*, 2015). Finally, DREW *et al.* (2017) reviewed all the facts and discoveries and suggested that the most practical approach would be to retain *Salvia* as the generic name for the nearly 1000 species already described, and expanding it by 15 species: 8 species of *Perovskia* (there were two in the Botanic Garden collection; today only one is present, Tab. 1), 3 species of *Rosmarinus* (one species and one hybrid present in the Garden, Tab. 1), 2 species of *Meriandra*, 1 species of *Dorystaechas* and 1 species of *Zhumeria* (these last three subgenera have never been in the collection). The five embedded genera were simply modified to subgeneric ranks but retaining all previously used genus names (subgen. *Dorystaechas*, subgen. *Meriandra*, subgen. *Perovskia*, subgen. *Rosmarinus*, and subgen. *Zhumeria*). The authors explain that: "...if *Salvia* is to be defined in a narrow sense and only encompasses *Salvia officinalis* and about 250 species of its clade, about three times that number would have to undergo name changes".

Subgen. *Salvia*

There are four diversification shifts visible in the *Salvia* tree at the time of calibration, and divergence time estimates for major subclades within *Salvia* are largely overlapping (KRIEBEL *et al.*, 2019). The first exchange shift occurred in Southwest Asia 10.4 Ma ago, giving rise to the subgenus *Salvia* and a large number of species endemic to Southwest Asia. As mentioned before, genus *Salvia* is divided into three major clades that represent radiations from Asia, the Mediterranean/Southwest Asian/African region, and Central and South America.

The first clade, which includes the subgenera *Salvia*, *Sclarea*, and "*Heterosphace*", consists primarily of species from southwestern Asia and the Mediterranean, but also includes species from south and eastern Africa, Madagascar, eastern to southwestern United States, and adjacent Mexico. Subgenera *Perovskia* and *Rosmarinus* were included by KRIEBEL *et al.* (2019) as early diverging lineages of this first clade. Multiple shifts to Europe and Mediterranean Africa occurred within this first clade from the mid Miocene to the Pliocene, and one range expansion (combined area) included the Mediterranean to eastern North America (within subgen. "*Heterosphace*") (KRIEBEL *et al.*, 2019).

Southwest Asia remained the primary biogeographic home for many radiations in subgen. *Salvia* and subgen. *Sclarea*. Two of the four *Salvia* diversification shifts occurred almost simultaneously in these Southwest Asian clades. These two radiations appear to be linked to transitions to arid biomes, subgenus *Sclarea*, or grassland biomes, subgen. *Salvia* (KRIEBEL *et al.*, 2019).

EA *Salvia* was previously classified into three subgenera based on staminal morphology: subgen. *Salvia*, subgen. *Sclarea*, and subgen. *Allagospadonopsis* (WU, 1977; MURATA & YAMAZAKI, 1993). WU (1977) proposed an evolutionary trend of stamen types for subgen. *Salvia* as a 'short-lever type' based on floral morphology, but this definition of stamen types was too general to describe stamen morphology within the genus *Salvia* accurately. Furthermore, WALKER & SYTSM (2007) named 14 stamen types within *Salvia* using Latin capital letters ranging from A to N, with only two stamen types (A and B) described from *Salvia* clade I, to which subgen. *Salvia* belongs. In contrast, WILL & CLASSEN-BOCKHOFF (2014) represented stamen types different to those of WALKER & SYTSM (2007). According to them, EA *Salvia* should be treated as eight genera or eight sections of a single genus. Treating EA *Salvia* as eight separate genera would be

confusing to say the least; furthermore, treating EA *Salvia* as a single genus appears untenable because they were unable to find any single morphological character that distinguishes EA *Salvia* from *Salvia* in other centers of diversity, particularly in southwestern Asia and the Mediterranean region. As a result of their molecular and morphological research, they formally classify the EA *Salvia* clade as a subgenus with eight sections. Finally, they included 70 species in subgen. *Salvia*, mostly in sect. *Eusphace* Benth (WILL & CLASSEN-BOCKHOFF, 2017).

The most popular and well-known species of sage is *Salvia officinalis* L. or 'true salvia' (Photo-table 1) and it is the only sage species mentioned in the publication of the founder of the Botanical Garden, Professor Antun Heinz (HEINZ, 1895-96). It could be assumed that this plant is still growing in the Garden since this species has been found in every entry of the notebook and paper-card database since the beginning (Tab. 1). According to available data, most of taxa from subgen. *Salvia* were ordered as seeds via *Index Seminum* publications, collected from the wild (mainly in Croatia) as cuttings and all cultivars were purchased from nurseries in Croatia (Tab. 1).

Subgen. *Sclarea*

As mention before, subgen. *Sclarea* is sister to subgen. "Heterosphace" and subgen. *Salvia*, which encompasses ca 120 species (WILL & CLASSEN-BOCKHOFF, 2017). The shift that occurred between 9.9–7.8 Ma in Southwest Asia and/or the Mediterranean region gave rise to a large number of species in subgen. *Sclarea* in the Mediterranean region, Southwest Asian regions, and a small lineage in eastern and southern Africa. Subgenus *Sclarea*, unlike subgenus *Salvia*, has a 'long-lever type' stamen (WU, 1977). According to WALKER & SYTSM (2007), subgen. *Sclarea* has stamen type B. Furthermore, HU *et al.* (2018) found that the majority of subgen. *Sclarea* species have four different stamen types but some of them have total abortion of posterior thecae and do not produce pollen.

The subgen. *Sclarea* has been well represented in the Garden since the very beginning of sage cultivation. In 1904 came the first major entry of *Salvia* specimens into the collection and 58% of this collection was from subgen. *Sclarea*. The second oldest species in the Garden, 53 years old *Salvia bertolonii* Vis. (currently valid *S. pratensis* subsp. *pratensis*) was collected in Croatia, on the Pelješac peninsula (Tab. 1).

CONCLUSIONS

According to the sources in all three databases since the establishment of Botanical Garden in 1889 (Tab. 1), at least **256 records of 126 taxa from *Salvia* genus** have been grown (2 from subgen. *Audiberia*, 62 records of 40 taxa from subgen. *Calosphace*, 14 records of 6 taxa from subgen. *Glutinaria*, 23 records of 8 taxa from subgen. "Heterosphace", 2 from subgen. *Perovskia*, 14 records of 2 taxa from subgen. *Rosmarinus*, 34 records of 18 taxa from subgen. *Salvia* and 105 records of 48 taxa subgen. *Sclarea*). Today **61 taxa from 8 subgenera of *Salvia* genus** are present: 1 from subgen. *Audiberia*, 12 from subgen. *Calosphace*, 4 from subgen. *Glutinaria*, 4 from subgen. "Heterosphace", 1 from subgen. *Perovskia*, 1 from subgen. *Rosmarinus*, 13 from subgen. *Salvia* and 25 from subgen. *Sclarea* (Tab. 1). Furthermore, as can be seen from analyses of our three different database data sets, and despite the fact that we have lost some taxa (and data) over the years, in the last decade we have grown more *Salvia* taxa than ever before (Fig. 1).

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Photo-tab. 1. Representatives of eight *Salvia* subgenera grown in Botanical Garden collection. Details in text and Tab. 1. Authors: Mirna Kirin (MK) and Dubravka Sandev (DS).



Subgen. *Heterosphace*; *Salvia forskahlei* L. (DS)



Subgen. *Heterosphace*; *Salvia lyrata* L. 'Purple Volcano' (DS)



Subgen. *Celosphace*; *Salvia microphylla* 'Hot Lips' (MK)



Subgen. *Celosphace*; *Salvia microphylla* 'Pink Blush' (DS)



Subgen. *Celosphace*; *Salvia farinacea* Benth. 'Victoria Blue' (MK)



Subgen. *Celosphace*; *Salvia splendens* Sellow ex Nees 'Violet' (MK)



Subgen. *Celospace*; *Salvia gesneriiflora* Lindl. & Paxton (above and right; DS)



Subgen. *Celospace*; *Salvia elegans* Vahl (above; DS)



Subgen. *Celospace*; *Salvia coccinea* Buc'hoz ex Etl. 'Cherry Blossom' (above; MK)



Subgen. *Celosphace*; *Salvia farinacea* Benth.
'Victoria Silber' (above; MK)



Subgen. *Celosphace*; *Salvia coccinea* Buc'hoz ex Etl.
'Coral Nymph' (MK)



Subgen. *Celosphace*; *Salvia farinacea* Benth (DS)



Subgen. *Celosphace*; *Salvia azurea* Lam. ex Vahl (DS)



Subgen. *Celospace*; *Salvia farinacea* 'Evolution'
(DS)



Subgen. *Celospace*; *Salvia farinacea* 'Blue Bedder'
(MK)



Subgen. *Sclarea*; *Salvia viridis* var. *comata* Heldr.
(DS)



Subgen. *Sclarea*; *Salvia transsylvanica* Schur (DS)



Subgen. *Sclarea*; *Salvia tingitana* Etl. (DS)



Subgen. *Sclarea*; *Salvia staminea* Montbret & Aucher (DS)



Subgen. *Sclarea*; *Salvia argentea* L. (DS)



Subgen. *Sclarea*; *Salvia hierosolymitana* Boiss.
(MK)



Subgen. *Sclarea*; *Salvia indica* L. (MK)



Subgen. *Sclarea*; *Salvia viridis* L. 'Pink Sunday'
(MK)



Subgen. *Sclarea*; *Salvia jurisicii* Košanin (MK)



Subgen. *Sclarea*; *Salvia sclarea* L. (DS)



Subgen. *Sclarea*; *Salvia canariensis* L. (DS)



Subgen. *Glutinaria*; *Salvia nubicola* Wall. ex Sweet (MK)



Subgen. *Glutinaria*; *Salvia multiorrhiza* Bunge (MK)



Subgen. *Perovskia*; *Salvia abrotanoides* (Kar.) Sytsma (MK)



Subgen. *Rosmarinus*; *Salvia rosmarinus* Spenn. (MK)



Subgen. *Salvia*; *Salvia officinalis* L. 'Purpurascens' (MK)



Subgen. *Salvia*; *Salvia officinalis* L. (above and below; MK)



Subgen. *Audibertia*; *Salvia apiana* Jeps. (DS)



Subgen. *Salvia*; *Salvia officinalis* L. 'Tricolor' (MK)



Subgen. *Salvia*; *Salvia officinalis* L. 'Icterina' (MK) Subgen. *Salvia*; *Salvia candelabrum* Boiss. (above, DS)