

Libyan Collections in Foreign Herbaria

Farag El-Mokasabi¹ , Naser Omar^{2*} , Ebtessam El-Garary¹ 

¹Department of Horticulture, Faculty of Agriculture, University of Benghazi, Libya.

²Department of Botany, Faculty of Arts and Sciences, University of Benghazi- Alabyar Branch, Libya.

Corresponding E-mail. naser.omar@uob.edu.ly

Abstract

The objectives of the study were to confine specimens that were deposited in foreign herbaria. The study showed there are thousands of specimens collected from all over Libya by researchers and herbalists who studied the Libyan flora in the past centuries. The largest number of specimens was found in Italian herbaria, and in some European herbaria such as Herbarium Centrale Italicum and Webb Herbarium, Italy (FI), Padua Herbarium, Italy (PAD), British Museum (BM), Herbarium specimens of Université de Montpellier (MPU), Kew, Herbarium Porticense, Italy (PORUN), The Orazio Comes Botanical Museum at the Facoltà di Agraria dell'Università Federico II di Napoli (NAP), University of Jena, Herbarium Haussknecht, Germany (JE), Zurich herbarium (Z), and the Natural History Museum, Vienna – Herbarium, Austria (W), which was represented by one specimen for each. The study found that 56 typification specimens and around 50 plant specimens that are considered endemic in Libya were deposited in foreign herbaria. An annotated checklist of typification specimens, including accepted names, place of collection, collector, and herbarium where they were deposited, was included in this study. As such, it is proposed that further taxonomic revisions be conducted for each taxon.

Keywords: Nomenclature, Taxonomy, Typification, Endemic, Libyan Flora.

Introduction

Pioneer explorers of the flora of Libya were mostly Europeans and a few Libyans who kept their collections in foreign herbaria, unfortunately much of the collections of Libyan plants are outside Libya, in the herbaria of Europe [1], most important being in the Herbarium of the University of Florence, Italy (FI). The history of exploration of the flora and vegetation of Cyrenaica dates back to 1703 when Lemaire made some observation about Sylphium plant [2]. Sylphium was one of the most important extinct plant species in Cyrenaica. The first taxonomic study of the Flora of Libya was conducted by [3], which collected approximately 260 species from the coastal region. In 1824, Viviani wrote a book entitled *Flora Libycae Specimen*, which included 1200 plant specimens [4,5] provided the most comprehensive information on the vegetation of Tripolitania, Fezzan, Ghadames, Kufra, Aoujila, and Cyrenaica as well as a list of vernacular names of plants.

At the beginning of the nineteenth century, [6] published *Florae Libycae Prodrromus*. It was the first attempt to write about the flora of the whole country and included 1026 species and 20 plates. Before Italy's occupation of Libya in 1911, which was then an autonomous province of the Turkish Empire, the Italian scholars initiated their first comprehensive scientific studies regarding the flora and vegetation, a pursuit that intensified particularly during the early years of the occupation. Beguinot, Borzi, Andreucci, Grande, Corti, Pichi Sermolli and Trotter were among many Italian botanists who contributed a considerable amount to our knowledge of the flora and vegetation of Libya through their important works during the period 1910-1942 [7]. Trotter assembled a collection of plants primarily from North Tripolitania. In the subsequent trips (1912-1914), he gathered specimens from other regions of Libya and focused his collections on medicinal plants [8]. Pampanini published two books: one in 1914 was entitled *Plantae Tripolitanae* while the second, *Prodrromo Della Flo-ra Cirenaica*, was published in 1931 [9]. A previous study published a preliminary Checklist of the Flora of Libya and made many remarks about the uses of plants and their vernacular names [10]. A bibliography was compiled, including literature up to 1971, on the flora and vegetation of Libya. The author conducted a thorough collection from various regions of Libya and played a role in the establishment of the Herbarium at Tripoli University (ULT), as published earlier [1]. Tripoli University (1976), with the financial support of the Arab Development Institute, took up the Flora of Libya project, and the results were published between 1976 and 1989 [11]. A study was conducted on the Flora of Aljabal Al Akhdar, and the specimens were submitted to the Alexandria Herbarium and Boulos Herbarium [12]. The purpose of this study was to inventory plant specimens that have been placed in foreign herbaria.

Methods

This research was conducted to inventory specimens of Libyan plant species deposited in international herbaria; this study is based on the analysis of the flora of Libya by previous studies [13-15]. Also, by intensive fieldwork upon several visits between the periods of 2020 - 2023 to the different locations in Libya especially in Eastern regions of Libya. This study complements those studies concerned with the flora and vegetation of Libya.

Results and Discussion

This study showed that there are 2042 species belonging to 818 genera and 168 families in Libya. Pteridophytes are represented by 10 families, 12 genera and 15 species. Gymnosperms are represented by 6 families including 8 genera and 12 species. Angiosperms are represented by 152 families including 798 genera and 2015 species. Dicotyledons are represented by 123 families, 634 genera and 1600 species. Monocotyledons are represented by 29 families, 164 genera and 415 species (Table 1). The flora of Libya includes 2042 plant species, or 50% of the total plant species of the Libyan flora are confined to the Al-Jabal Al-Akhdar region. Dicotyledons are represented by 1615 species and Monocotyledons by 415 species. The ratio of Dicotyledons to Monocotyledons is roughly 4:1.

Table 1. Plant groups in the flora of Libya.

Plant groups	No. of species	No. of genera	No. of families	No. of endemic species
1. Pteridophytes	15	12	10	-
2. Gymnosperms	12	8	6	2
3. Angiosperms	2015	798	152	83
a. (Dicotyledons)	(1600)	(634)	(123)	(68)
b. (Monocotyledons)	(415)	(164)	(29)	(15)
Total	2042	818	168	85

Since the beginning of floristic studies in Libya, many European herbalists and researchers have collected many specimens of plant species from Libya, which were deposited in herbaria in Europe and Egypt. This study revealed that there are thousands of specimens of Libyan flora deposited in international herbaria (Table 2). Approximately 56 typification specimens were found; these taxa are now acceptable names. In addition, among the specimens kept in the foreign herbaria, about 50 plant specimens considered endemic to Libya were reported.

Table 2. Foreign herbaria containing plant specimens from Libya

Herbarium
Herbarium Centrale Italicum and Webb Herbarium (FI)
Herbarium Porticense (PORUN)
Padua Herbarium (PAD)
Alexandria Herbarium (Alex. H)
Cairo Herbarium (CAI)
Boulos Herbarium (Cairo, Egypt)
Royal Botanic Gardens, Kew (K)
British Museum (BM)
Herbarium specimens of Université de Montpellier (MPU)
Rijksherbarium Leiden (L)
Royal Botanic Garden Edinburgh (E)
Herbarium of the Muséum national d'Histoire Naturelle (MNHN - Paris)
Botanischer Garten Berlin (BD)
Conservatory and Botanical Garden Geneva (G)
Lund University Botanical Museum (Herbarium LD)
University of Jena, Herbarium Haussknecht (JE)
Natural History Museum, Vienna - Herbarium (W)
Zurich herbarium (Z)

Based on the analysis carried out, it was found that Asteraceae was the most highly represented family with 107 species, followed by Fabaceae with 97 species, Poaceae with 84 species Lamiaceae with 60 species, Liliaceae with 41 species, and Brassicaceae with 39 species. The remaining families have less than 25 species (Table 3). A comparison of the families with the greatest number of species found in this study is nearly identical to studies carried out in various parts of Libya such as those conducted by [2,16-18].

According to the number of species in each genus in this survey, *Euphorbia* and *Trifolium* were the only two genera represented by 17 species each. Two other genera, *Allium* and *Teucrium*, had ten species each. *Astragalus* had nine species, while *Lathyrus*, *Sedum*, and *Tamarix* each had eight species. The remaining genera had less than six species (Table 4). In contrast, previous studies by [13, 14, 15] reported that the largest genus in the flora of Libya is *Euphorbia*, with 26 species. Other dominant genera include *Astragalus* (25 species), *Silene* (23 species), *Trifolium* (22 species), *Allium* and *Medicago* (18 species), *Lotus* and *Erodium* (15 species), and *Convolvulus* and *Stipagrostis* (14 and 13 species, respectively) (Table 4). These dominant genera make up more than 9% of the total species, but they are all large and widely spread in arid regions.

It is also worth noting that monotypic genera are common in the Libyan flora, with the highest number recorded in the Poaceae family (17) followed by Brassicaceae (15).

Table 3. The number of species in each family deposited in foreign herbaria

Family	No. of species	Family	No. of species
Asteraceae	107	Boraginaceae	12
Fabaceae	97	Convolvulaceae	10
Poaceae	84	Iridaceae	10
Lamiaceae	60	Solanaceae	10
Liliaceae	41	Tamaricaceae	10
Brassicaceae	39	Crassulaceae	9
Cyperaceae	22	Malvaceae	8
Euphorbiaceae	19	Orobanchaceae	8
Rubiaceae	16	Apocynaceae	8
Apiaceae	15	Rosaceae	7
Chenopodiaceae	14	Caryophyllaceae	7
Amaryllidaceae	13	Geraniaceae	6

Note: Families that have less than six species are omitted here.

About 85 endemic taxa are recorded in the Libyan flora belonging to 65 genera and 35 families were the largest genus are *Anthemis* and *Teucrium* with 5 species. More than 55% of endemic are found in the Al-Jabal Al-Akhdar region. The concentration of the endemic species in Al-Jabal Al-Akhdar could be due to its peculiar physiographic and climate compared with most of the country. It is bordered by the Mediterranean Sea on the north and west sides, and by the desert in the south. These physiographic and climatic barriers have provided excellent ecological refuge and contributed to the restriction of many endemic taxa [19, 20, 21]. Our near-endemics are species known only in Libya and Egypt, or in Libya and Crete such as *Stachys tournefortii*. Endemism is fairly low in Libya, since only about 4% of the taxa are endemic. Endemism occurs in 4 main centers.

Table 4. The largest genera deposited in foreign herbaria

Genus	No. of species	Genus	No. of species
<i>Euphorbia</i>	17	<i>Trifolium</i>	17
<i>Allium</i>	10	<i>Teucrium</i>	10
<i>Astragalus</i>	9	<i>Tamarix</i>	8
<i>Lathyrus</i>	8	<i>Cyperus</i>	7
<i>Sedum</i>	8	<i>Vicia</i>	7
<i>Convolvulus</i>	6	<i>Ononis</i>	6
Orobanche	6	<i>Lotus</i>	5
<i>Carex</i>	5	<i>Galium</i>	5
<i>Poa</i>	5	<i>Erodium</i>	5

Note: Genera that have less than five species are omitted here.

In this study, and through the investigation of the typification specimens, about 56 specimens were monitored, which have accepted names deposited in European herbaria, most of them in the Herbarium Centrale Italicum and Webb Herbarium (FI) (Table 5). [5, 22] referred to all the typification specimens, whether they were accepted names or had become synonyms, and focused in their study on the specimens deposited in the Herbarium Centrale Italicum and Webb Herbarium only, which were collected by Italian scientific missions to Libya or by many soldiers stationed in Libya who also made their contributions following the war, as well as civil servants, especially those linked to the Agricultural Offices in Cyrenaica, under the new administration. Among the soldiers there was Vaccari, who served along the entire Libyan coast from 1911 to 1914.

Table 5: List of typification specimens in foreign herbaria.

Species	Type	Location	Collector	Herbarium	Accepted Name
Pteridaceae					
<i>Cheilanthes fragrans</i> var. <i>paleacea</i> Pamp	Lectotype	Tripolitania: Tarhuna, Kasr Daun	R. Pampanini	FI	<i>Cheilanthes acrostica</i> (Balb.) Tod.
Amaryllidaceae					
<i>Allium ruhmerianum</i> Asch. ex E. A. Durand & Barratte	Holotype & Isotype	Cirenaica: Bengasi	G. Ruhmer	G, FI	<i>Allium ruhmerianum</i> Asch. ex E. A. Durand & Barratte

Araceae					
<i>Arum cyrenaicum</i> Hruby	Lost !	Cirenaica: Bengasi	G. Rhumer	Possible in G.	<i>Arum cyrenaicum</i> Hruby
Asparagaceae					
<i>Bellevalia cyrenaica</i> Maire & Weiller	Type !	Cirenaica: Au- dessus de Barce	Maire & Weiller	MPU	<i>Bellevalia cyrenaica</i> Maire & Weiller
Asteraceae					
<i>Atractylis phazaniae</i> Corti	Lectotype	Fezzan: Brak	R. Corti	FI	<i>Atractylis phazaniae</i> Corti.
<i>Onopordum confusum</i> Pamp.	Lectotype	Tripolitania: Mesellata, surroundings of Gherrim	R. Pampanini	FI	<i>Onopordum nervosum</i> Boiss. subsp. <i>platylepis</i> (Cosson) Murb.
<i>Onopordum</i> <i>cyrenaicum</i> Maire & Weiller	- Lectotyp e - Isolectot ypus	Cyrenaica: Uadi Derna	R. Maire & M. Weiller.	FI MPU	<i>Onopordum</i> <i>cyrenaicum</i> Maire & Weiller (Figure 1)
<i>Picris</i> (Helminthia) <i>mauginiana</i> Pamp.	Lectotype	Cyrenaica: Benghazi, between Regima and Benina	Maugini	FI	<i>Picris mauginiana</i> Pamp.
<i>Tripleurospermum</i> <i>philaenorum</i> (Maire & Weiller) Alavi	Type!	Syrte: between Casa Ristoro and Triumphal Arch Philenes.	Maire & Weiller	BM	<i>Tripleurospermum</i> <i>philaenorum</i> (Maire & Weiller) Alavi
Caryophyllaceae					
<i>Herniaria glabra</i> var. <i>cyrenaica</i> Pamp.	Holotype BD. destroyed	Cirenaica: Bengasi, Giok Kebir	G. Rhumer	- (Isotype): G, JE, LD, W, Z. - (Neotype): LD. K, G, FI, E	<i>Herniaria cyrenaica</i> Hermann
<i>Herniaria</i> <i>hemistemon</i> var. <i>glabrescens</i> Pamp.	Holotype	Tripolitania: Mesellata, from Gherrim and Sindara	R. Pampanini	FI	<i>Herniaria fontanesii</i> J. Gay var. <i>fontanesii</i> subv. <i>glabrescens</i> (Pamp.) Chaudri, comb. et stat. nov
<i>Paronychia</i> <i>chlorothyrsa</i> var. <i>tarhunensis</i> Pamp.	Holotype	Tripolitania, Tarhuna: Hills east of Kasr Tarhuna	R. Pampanini	FI	<i>Paronychia capitata</i> (L.) Lam. var. <i>tarhunensis</i> (Pamp.) Chaudri
<i>Silene marmarica</i> Beg. & Vaccari	Lectotype	Cirenaica: Marmarica, Tobruk, costa sud	A. Vaccari	FI	<i>Silene marmarica</i> Beg. & Vaccari
<i>Silene setacea</i> var. <i>glabrescens</i> Pamp.	Lectotype	Cirenaica: Bir Achim-Arcoma	R. Pampanini	FI	<i>Silene viviani</i> Steud.
Crassulaceae					
<i>Sedum mirum</i> Pamp.	Lectotype	Cirenaica: El Beda, Uadi Msuria	R Pampanini & R.E.G. Pichi Sermolli	FI	<i>Umbilicus mirus</i> (Pamp.) Greuter (Figure 2)
<i>Scabiosa oberti-</i> <i>manettii</i> Pamp.	Lectotype	Tripolitania: Garian, Kasr Garian in Slilia	R. Pampanini	FI	<i>Lomelosia oberti-</i> <i>manettii</i> (Pamp.) Greuter & Burdet
Ephedraceae					
<i>Ephedra altissima</i> var. <i>tripolitana</i> Pamp.	Lectotype	Tripolitania: Tarhuna, Uadi Sart	R. Pampanini	FI	<i>Ephedra altissima</i> Desf. var. <i>tripolitana</i> Pamp.
Ericaceae					

<i>Arbutus pavari</i> Pamp.	Lectotype	Cyrenaica: between El- Garib and Tolmeta, U. El Fahaga	R. Pampanini	FI	<i>Arbutus pavari</i> Pamp.
Fabaceae					
<i>Lathyrus pseudocicera</i> Pamp.	Lectotype	Cirenaica: Bengasi: Rahba	A. Maugini	FI	<i>Lathyrus pseudo- cicera</i> Pamp.
<i>Medicago cyrenaica</i> Maire & Weill.	Holotype!	Cirenaica: Pasturages pierreux calcaires	Maire & Weiller	MPU	<i>Medicago cyrenaica</i> Maire & Weill.
<i>Onobrychis armata</i> Pamp.	Lectotype	Cyrenaica: Marmarica, Wadi Hasi El Hamar near Bomba	R. Pampanini	FI	<i>Onobrychis crista- galli</i> Lam. var. <i>armata</i> (Pamp.) Le Houer.,
Geraniaceae					
<i>Erodium hirtum</i> var. <i>cyrenaicum</i> Pamp.	Lectotype	Cyrenaica: Derna, first step of the plateau and at the top	Longa,	FI	<i>Erodium cyrenaicum</i> (Pamp.) Guitt.
<i>Erodium hirtum</i> var. <i>glabriusculum</i> f. <i>intercedens</i> Pamp.	Lectotype	Cirenaica: Marmarica, Tobruk	F. Cassinera	FI	<i>Erodium cyrenaicum</i> (Pamp.) Guitt.
<i>Erodium keithii</i> Guitt. Et Le Houér.	Holotype!	Cirenaica: Susa, Nummulitic limestone rocks of Appolonia	Le Houerou	P	<i>Erodium keithii</i> Guitt. Et Le Houér.
<i>Erodium laciniatum</i> var. <i>pseudomalachoides</i> Pamp.	Holotype	Tripolitania: Tarhuna, Kasr Daun	R. Pampanini	FI	<i>Erodium pulverulentum</i> (Cav.) Willd. subsp. <i>tunetanum</i> (DC.) Guitt.
<i>Erodium tocranum</i> Guitt. Et Le Houerou	Holotype!	Cirenaica: Tocra, Agubaet Bakkor	Le Houerou	P	<i>Erodium salzmannii</i> subsp. <i>tocranum</i> (Guitt. & Le Houér.) Guitt
Hypericaceae					
<i>Hypericum decaisneanum</i> Coss. & Daveau	Syntypes	Derna: Wadi Derna	- Daveau - Taubert	- P - P, G, BM, PMU, K	<i>Hypericum decaisneanum</i> Coss. & Daveau
Lamiaceae					
<i>Amaracus pampaninii</i> Brullo & Furnari	Isotypus	Cirenaica: Wadi Gattara	S. Brullo & F. Furnari	FI	<i>Origanum pampaninii</i> (Brullo & Furnari) Ietsw. (Figure 3)
<i>Ballota andreuzziana</i> Pamp.	Lectotype	Cirenaica: Cirene, Uadi Uardama	A. Maugini	FI	<i>Ballota andreuzziana</i> Pamp.
<i>Nepeta cyrenaica</i> Quezel & Zaffran	(Type)	Cirenaica: Barce plain	K. M. Guichard	BM	<i>Nepeta Cyrenaica</i> Quezel & Zaffran
<i>Origanum cyrenaicum</i> Beg. & Vaccari	Lectotype Syntypes	Cyrenaica: Derna-Shahat, wadi Uardama	A. Vaccari Mangini	FI P	<i>Origanum cyrenaicum</i> Beg. & Vaccari
<i>Satureja fortii</i> Pamp.	Holotype	Cirenaica: Barce, near Zorda	A. Maugini	FI	<i>Satureja fortii</i> Pamp.

<i>Satureja thymbra</i> f. <i>albiflora</i> Pamp.	Holotype	Cirenaica: Apollonia, l.d. Rgua	R. Pampanini	FI	<i>Satureja thymbra</i> L. f. <i>albiflora</i> Pamp.
<i>Teucrium apollinis</i> Maire & Weiller	Holotype!	Susa:	Maire & Weiller	MPU	<i>Teucrium apollinis</i> Maire & Weiller
<i>Teucrium davaeanum</i> Coss.		Cirenaica: between Beniena and el Labiar	Davaeau		<i>Teucrium davaeanum</i> Coss.
<i>Teucrium lini-vaccarii</i> Pamp.	Lectotype	Tarhuna: Kasr Daun	R. Pampanini	FI	<i>Teucrium lini-vaccarii</i> Pamp.
<i>Teucrium zanonii</i> Pamp	Lectotype	Cirenaica: Bengasi	V. Zanon	FI	<i>Teucrium zanonii</i> Pamp
Liliaceae					
<i>Gagea × pampaninii</i> A.Terracc. (hybrid)	Lectotype	Tarhuna, Uadi Milgah	R. Pampanini	FI	<i>Gagea pampaninii</i> A. Terracc.
<i>Gagea trinervia</i> (Viv.) Greuter.	Lost !	Cirenaica: El Beda Sidi Rafa	Maire & Weiller	MPU, K, FI, P, Univ. of Lyon	<i>Gagea trinervia</i> (Viv.) Greuter.
<i>Scilla autumnalis</i> var. <i>cyrenaica</i> Pamp.	Lectotype	Cirenaica: Aua Zarda	V. Zanon	FI	<i>Prospero cyrenaicum</i> (Pamp.) Speta
Orobanchaceae					
<i>Orobanche cyrenaica</i> Beck ex E.A.Durand & Barratte	Type!	Wadi Monslega-Koubba	Taubert	K, P	<i>Orobanche cyrenaica</i> Beck ex E.A.Durand & Barratte
Papaveraceae					
<i>Hypocoum aequilobum</i> Viv.	Lectotype	Cyrenaica: Between Agedabia and Antelat	R. Pampanini	FI	<i>Hypocoum aequilobum</i> Viv.
Plantaginaceae					
<i>Linaria tarhunensis</i> Pamp.	Lectotype	Tarhuna: Wadi Tersiva, pianura a S. W. del Ras Maader	R. Pampanini	FI	<i>Linaria tarhunensis</i> Pamp.
Plumbaginaceae					
<i>Limonium teuchirae</i> Brullo	Holotype	Cyrenaica: Sebchet el Cuz (Bengasi)	S. Brullo & F. Furnari.	FI	<i>Limonium teuchirae</i> Brullo
<i>Limonium vaccarii</i> Pignatti ex Brullo	Holotype	Cyrenaica: Tobruk	A. Vaccari	PAD	<i>Limonium vaccarii</i> Pignatti ex Brullo.
<i>Statice delicatula</i> var. <i>subrotundifolia</i> Beg. & Vaccari	Lectotype	Cirenaica: Derna	A. Vaccari	PAD	<i>Limonium subrotundifolium</i> (Beg. & Vaccari) Brullo
<i>Statice tubiflora</i> var. <i>zanonii</i> Pamp.	Lectotype	Cirenaica: Bengasi, Giok	V. Zanon	FI	<i>Limonium zanonii</i> (Pamp.) Domina
Poaceae					
<i>Avena barbata</i> Pott ex Link	Lectotype	Cyrenaica: Marmarica, Sidi Resig	Cavara	NAP	<i>Avena barbata</i> Pott ex Link

<i>Bromus chrysopogon</i> Viviani	Neotype	Cirenaica: Merg, Sidi Gibrin	Maugini	FI	<i>Bromus chrysopogon</i> Viviani
<i>Libyella cyrenaica</i> (Durand & Barratte) Pamp.	Type !	Cirenaica: Benghazi	G. Ruhmer	BD, K	<i>Libyella cyrenaica</i> (Durand & Barratte) Pamp
<i>Poa vaginata</i> Pamp.	Holotype	Cyrenaica: Umm Er Rzem south east of Barce, Wadi Suenia	R Pampanini & R.E.G. Pichi Sermolli	FI	<i>Poa vaginata</i> Pamp.
<i>Stipagrostis shawii</i> (H. Scholz) H. Scholz	Holotype	Fezzan: Uwainat	Scholz	K	<i>Stipagrostis shawii</i> (H. Scholz) H. Scholz
<i>Stipagrostis libyca</i> (H. Scholz) H. Scholz	Type !	Cyrenaica and Fezzan	Scholz	?	<i>Stipagrostis libyca</i> (H. Scholz) H. Scholz
<i>Trisetaria vaccariana</i> (Maire et Weiller) Maire	Lost!	Cyrenaica: Agedabia to El-Agheila	R. Pampanini	It probable in FI	<i>Trisetaria vaccariana</i> (Maire et Weiller) Maire
Iridaceae					
<i>Crocus boulosii</i> Greuter	Isotype	Cyrenaica: Gebel Akhdar, Marauah	Loutfy Boulos	K	<i>Crocus boulosii</i> Greuter (Figure 4)
Ranunculaceae					
<i>Ranunculus</i> <i>cyclocarpus</i> Pamp.	Lectotype	Cirenaica, Apollonia: l.d. Rgua	R. Pampanini	FI	<i>Ranunculus</i> <i>cyclocarpus</i> Pamp.

Abbreviation: **FI**= Herbarium Centrale Italicum and Webb Herbarium, Italy; **K**= Royal Botanic Gardens, Kew, Britain; **NAP**= Museum O. Comes at the University Federico II in Naples, Italy; **BM**= British Museum; **BD** =Botanischer Garten Berlin, Germany; **PAD**= Padua Herbarium, Italy; **P**= Herbarium of the Muséum national d'Histoire Naturelle (MNHN-Paris), France; **MPU**=Herbarium specimens of Université de Montpellier, France; **G**= Conservatory and Botanical garden Geneva, Switzerland; **E**= Royal Botanic Garden Edinburgh, Britain; **LD**=Lund University Botanical Museum, Sweden; **Z**= Zurich herbarium, Switzerland; **W**= Natural History Museum, Vienna–Herbarium, Austria; **JE**=University of Jena, Herbarium Haussknecht, Germany.



Figure 1. Synnype of *Onopordum cyrenaicum* (Maire & Weiller., s. n., MPU).



Figure 2. Iso-type of *Umbilicus mirus* (Pampanini & Pichi Sermolli, 3312 (789), Kew).



Figure 3. Iso-type of *Origanum pampaninii* (Brullo & Furnari, s. n., Kew).

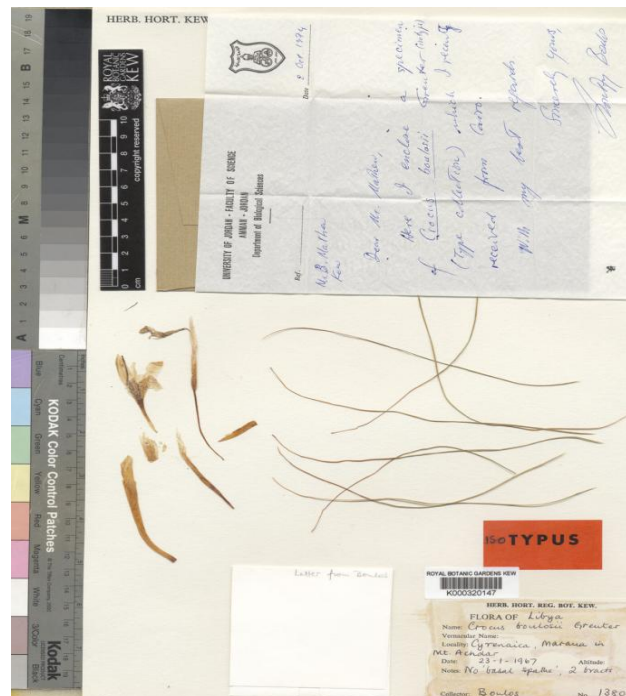


Figure 4. Iso-type of *Crocus boulosii* (Boulos 1930, Kew).

Conclusion

The contributions of foreign collectors to the understanding of Libyan flora over the past century have been significant. These collectors have played a great role in documenting and classifying the diverse plant species found in Libya, which is home to a variety of ecosystems extending from coastal areas to desert regions.

Conflicts of interests

The authors declare that there are no conflicts of interests.

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المستخلص

هدفت الدراسة إلى حصر العينات التي تم إيداعها في معشبات خارج القطر الليبي. وقد أظهرت الدراسة أن آلاف العينات تم جمعها من جميع أنحاء ليبيا من قبل الباحثين والعشابين الذين درسوا النباتات الليبية في القرون الماضية. وقد تم العثور على أكبر عدد من العينات في المعشبات الإيطالية، وكذلك في بعض المعشبات الأوروبية مثل معشبة بادوا، إيطاليا، والمتحف البريطاني، وعينات معشبة جامعة مونبلييه، فرنسا، معشبة المتحف الوطني للتاريخ الطبيعي – باريس، فرنسا و الحدائق النباتية الملكية في كيو، بريطانيا، ومعشبة بورتيسنس، إيطاليا و متحف أورازيو كوميس النباتي في كلية الزراعة بجامعة فيديريكو الثاني في نابولي، إيطاليا وجامعة بينا، ومعشبة هاوسكنخت، ألمانيا، ومعشبة زيورخ، سويسرا، و متحف التاريخ الطبيعي، فيينا – المعشبة، النمسا، والتي تم تمثيلها بعينة واحدة لكل منها. ووجدت الدراسة أن 56 عينة طرازية وحوالي 50 عينة نباتية تعتبر متوطنة في ليبيا تم إيداعها في معشبات أجنبية. وقد تم تضمين قائمة مرجعية موضحة لعينات التصنيف، بما في ذلك الأسماء المقبولة، ومكان الجمع، والجامع، والمعشبة التي تم إيداعها فيها، في هذه الدراسة. وبناء على ذلك، يقترح إجراء المزيد من المراجعات التصنيفية لكل تصنيف.