MOBILIZATION AND CONSERVATION OF THE GENETIC DIVERSITY OF CULTIVATED PLANTS AND THEIR WILD RELATIVES

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Enrichment of the VIR herbarium collection with materials from France and its subordinate territories in the 1920–1930s

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Since its establishment, the Herbarium of Cultivated Plants of the World, Their Wild Relatives, and Weeds (the VIR Herbarium, WIR) has fully embodied the Institute's primary mission: to build a comprehensive collection representing the global diversity of cultivated plants. One of the most active periods of collection growth occurred in the 1920s and 1930s, while N. I. Vavilov was at the head of the Institute. It was the time when VIR organized numerous collecting missions worldwide and enthusiastically fostered international collaboration. This article examines the herbarium specimens that arrived between the 1920s and 1930s from France and its dependent territories (Algeria, Morocco, Tunisia, and the French Mandate for Syria and the Lebanon) and their sources. More than half of the specimens (2,765) represent various species and varieties of wheat, barley, goatgrass, vetch, peavine, and flax, with grapevines also well represented (100–400 specimens). The most valuable part of the collection consists of herbarium specimens collected directly from their natural habitats (originals), totaling 246 items. The remaining 3,948 specimens were collected from the experimental fields of VIR's departments where they had been grown from seeds originally obtained in those countries. Vavilov's collecting mission to the Mediterranean region (June 1926 – August 1927) supplied nearly 90% of the specimens to the VIR Herbarium. In addition to the collected samples, specimens were acquired from various scientific institutions, including botanical gardens, seed companies, and research centers, as well as from personal plant holdings of French scientists, such as Louis Blaringhem, Louis Charles Trabut, Léon Octave Ducellier, Émile Miège, and Félicien Boeuf.

Keywords: VIR Herbarium (WIR), N. I. Vavilov, herbarium specimen, France, scientific cooperation

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МОБИЛИЗАЦИЯ И СОХРАНЕНИЕ ГЕНЕТИЧЕСКОГО РАЗНООБРАЗИЯ КУЛЬТУРНЫХ РАСТЕНИЙ И ИХ ДИКИХ РОДИЧЕЙ

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Пополнение гербарной коллекции ВИР из Франции и подконтрольных ей территорий в 20–30-е годы XX века

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С момента своего создания Гербарий культурных растений мира, их диких родичей и сорных растений (Гербарий ВИР, WIR) полностью отражает главную задачу учреждения в целом – создание коллекции образцов мировой культурной флоры во всем ее многообразии. Одним из наиболее активных периодов пополнения коллекции стали 20–30-е годы XX века, когда институтом руководил Н. И. Вавилов. Именно в это время ВИР организует множество экспедиций по всему миру и активно налаживает международное сотрудничество. В статье проанализированы гербарные образцы и источники их поступления в гербарную коллекцию из Франции и подконтрольных ей территорий (Алжир, Марокко, Тунис, Французский мандат в Сирии и Ливане) в 20–30-е годы XX века. Более половины образцов (2765) составляют виды и разновидности пшеницы, также преобладают ячмень, эгилопс, вика, чина, лен, виноград (от 100 до 400 образцов). Самая ценная часть коллекции – гербарные образцы, на которых представлены растения, собранные непосредственно в местах их произрастания (оригиналы): таких образцов в коллекции 246. Остальные образцы (3948) собраны на опытных полях отделений ВИР с растений, выращенных из оригинальных семян. Почти 90% поступили в Гербарий ВИР по результатам средиземноморской экспедиции Н. И. Вавилова (июнь 1926 – август 1927 г.). Помимо экспедиции, образцы поступали из различных научных учреждений (ботанические сады, семенные компании, исследовательские центры), а также из персональных сборов французских ученых (Луи Бларингем, Луи Шарль Трабю, Леон Октав Дюселье, Эмиль Мьеж и Фелисьен Беф).

Ключевые слова: Гербарий ВИР (WIR), Н. И. Вавилов, гербарный образец, Франция, научное сотрудничество

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The Herbarium of Cultivated Plants of the World, Their Wild Relatives, and Weeds (WIR) at the N.I. Vavilov All-Russian Institute of Plant Genetic Resources (VIR) is a unique collection dedicated primarily to the preservation of cultivated plant varieties. Its foundation at the Bureau of Applied Botany[1] was laid by the personal collections of A. I. Maltsev and R. E. Regel in the late 19th and early 20th centuries. Initially, the collection primarily included specimens of species, varieties, and forms of domestically cultivated plant populations, as well as weed species. By 1910, the herbarium contained over 12 000 sheets from more than 6000 locations (Borkovskaya, Voskanyan, 1969). The most significant growth of the collection began after 1920, when N. I. Vavilov became the head of the Department of Applied Botany. He envisioned the herbarium as a comprehensive representation of the global diversity of cultivated plants, systematically and geographically arranged (Vavilov, 1924). Under Vavilov's leadership, VIR became one of the leading institutions within the USSR's network of agricultural research institutes and centers (Vavilov, 1990). The herbarium collection expanded substantially through systematic collection missions, exchanges with Soviet institutes, and collaborations with foreign scientific centers and private organizations. One of the most significant international collaborations was with France.

Our study focuses on identifying herbarium specimens from France and its controlled territories that were received by the VIR Herbarium in the 1920s and 1930s. Given that the main fund of the VIR Herbarium contains over 132 000 specimens, our analysis concentrated on the plant families most relevant to the agricultural regions of interest.

Scientific cooperation between Russia and France dates back to the 18th century (Khablova, 2024). Despite communication challenges in the early 20th century, the USSR and France enabled the continuation of scientific exchange (Fando, 2023). Institutional ties were further reinforced through personal connections among scientists, many of which had been maintained since the prerevolutionary period. This was particularly relevant for such Soviet professors who had trained in Europe (Aleksandrov, 1996), as K. A. Flaxberger, E. V. Wulff, L. I. Govorov, and others. In 1914, N. I. Vavilov completed an internship in France at the seed company Vilmorin-Andrieux et Cie, which played a key role in establishing scientific collaboration between VIR and French botanical and agronomic institutions. Vavilov maintained close relationships with many leading French agronomists of that time, engaged in regular correspondence with them, and exchanged plant materials, thereby significantly enriching the Institute's collections (Vavilov, 1994).

The Mediterranean region had long been of great interest to N. I. Vavilov. At the intersection of the Mediterranean and West Asian centers of cultivated plant diversity he saw a vast opportunity to further test the theoretical conclusions of his theory on the centers of origin of cultivated plants. One of Vavilov's largest collection missions began in France and extended across several its subordinate territories, including Algeria, Tunisia, Morocco, and the French Mandate for Syria and the Lebanon (Goncharov, 2012). Between June 1926 and August 1927, Vavilov undertook an extensive journey across Mediterranean countries with the aim of collecting the most comprehensive material possible on local crop varieties, studying the history of agriculture, and analyzing the conditions of farming practices. This region particularly attracted him due to its remarkable concentration of species diversity and its deep-rooted agronomic traditions (Vavilov, 1987). Vavilov's scientific and personal connections played a crucial role in both the preparation and execution of the collection mission. To carry out his research plan, obtaining visas was essential. However, this process was complicated by the diplomatic relations between the Soviet Union and France. Numerous documents related to Vavilov's Mediterranean collection mission were found in the Diplomatic Archives at La Courneuve (Centre des Archives diplomatiques de La Courneuve). Among them was a letter by Lucien Saint, the French General Resident in Tunisia at that time, dated September 21, 1925, addressed to the Minister of Foreign Affairs (FRMAE 53CPCOM…, 1918–1940). In this letter, L. Saint affirmed that all accommodations needed for the mission in Tunisia were arranged and ready to be provided. However, French authorities deemed it necessary to clarify Vavilov's political stance. Furthermore, the French representative in Petrograd was asked whether the Soviet scientist confined his activities to research or engaged himself in propaganda, which was considered particularly inappropriate in North Africa and Middle East at the time. During this period, Vavilov also conducted research in the southeastern regions of France, ultimately concluding that the Mediterranean coast had historically provided ideal conditions for the development of major agricultural crops (Vavilov, 1987).

The issue of securing travel permits was resolved largely due to the assistance of Madame Philippe de Vilmorin[2], head of the Vilmorin-Andrieux & Cie seed company. She personally met the French Minister of Foreign Affairs Aristide Briand and Prime Minister Raymond Poincaré to advocate for Vavilov's journey (Vishnyakova, Loskutov, 2018). Additional support came from French botanical institutions, notably from the renowned professor Auguste Chevalier, director of the Institute of Applied Botany. Vavilov had developed a strong collaboration with Chevalier on desert reclamation efforts. As a result, permission to visit French colonial territories was granted.

Between July and August 1926, Vavilov's collection mission conducted extensive research across North African countries, including Algeria, Morocco, and Tunisia.

The route through Algeria was planned in collaboration with L. C. Trabut, L. O. Ducellier, and the Ministry of Agriculture. Major Saharan oases, as well as the regions of Sétif, Timgad, Tiaret, and the mountainous areas of Algeria – key centers for the cultivation of cereal crops, particularly durum wheat – were surveyed. Trabut and Ducellier's expertise played a crucial role in selecting valuable varietal material and deepening the understanding of evolutionary processes shaping North Africa's cultivated flora (Vavilov, 1987). In Algeria, fieldwork was conducted in the vicinity of Biskra, Blida, Khirane, Lambaesis, Mechtet er-Radj, Michelet, Oran, Orléansville (now Chlef), Sétif, Philippeville (now Skikda), Tlemcen, Frenda, Fort National (now Larbaâ Nath Irathen), and Maison-Carrée (now El Harrach). The expedition collected specimens of wheat, goatgrass, and barley (both herbarium samples and seeds), along with seeds of oats, flax, cotton, peavine, vetch, cowpea, broad bean, beet, tobacco, groundcherry, and melon.

In Morocco, Vavilov visited the Agricultural Research Department in Rabat, where he met its director, Dr. Émile Miège. Miège shared his expertise on the country's cultivated flora and provided collection samples. The collection mission identified a remarkable diversity of cultivated plants, predominantly cereals and legumes, in the Atlas Mountains region.

[1] VIR has been renamed several times since its foundation: Bureau of Applied Botany (1894); Department of Applied Botany and Breeding (1917); All-Union Institute of Applied Botany and New Crops (1924); All-Union Institute of Plant Industry (1930); currently the N.I. Vavilov All-Russian Institute of Plant Genetic Resources (VIR).

[2] Her maiden name was Berthe Marie Mélanie de Gaufridy de Dortan.

Surveys were conducted near Kasba Tadla, Marrakech, Rabat, Taza, Fez, and Oujda. Near Taza, N. I. Vavilov gathered seeds of a small-fruited, semi-cultivated melon known for its resistance to pests and diseases. A herbarium specimen was later grown at the Turkestan Breeding Station from these original seeds (Fig. 1). Additionally, the collection mission collected samples of wheat, goatgrass, oats, barley (both original and reproduced specimens), sorghum, flax, vetch, cowpea, broad bean, hemp, melon, cotton, and onion (reproduced specimens).

Upon arriving in Tunisia, Vavilov met with Professor Félicien Boeuf, director of the Colonial School of Agriculture in Tunisia and a researcher specializing in cultivated plants. Boeuf had prepared the Tunisian segment of the expedition's route in advance. Together, they traveled into the interior of the country to survey its major agricultural regions, including Ariana, Béja, El Kef, Siliana, and El Ksour. Vavilov particularly noted the exceptional composition of Tunisia's ancient durum wheat varieties, which were characterized by diverse mixtures of multiple forms. The expedition collected herbarium

Fig. 1. Herbarium specimen of small-fruited melon from Morocco (WIR-53006)
Рис. 1. Гербарный образец мелкоплодной дыни из Марокко (WIR-53006)

of oat, as well as original and reproduced samples of wheat, goatgrass, and barley. Additionally, specimens of cotton, flax, vetch, cowpea, broad bean, peavine, hemp, and beet (reproduced samples) were brought back from Tunisia.

Between July 1925 and June 1927, insurgent Druze[3] mountain tribes were engaged in a guerrilla war against French forces in Syria, launching successful offensives. The entire highland region south and southeast of Beirut was under military rule. Despite these challenges, it was crucial for N. I. Vavilov to reach the southern part of the country, particularly the highlands of Houran, where wild wheat was known to grow. While the collection mission did confirm the presence of wild wheat, Vavilov was even more intrigued by a unique subspecies of cultivated wheat found in the region. This wheat, later named "Hourani wheat" (*Triticum durum* Desf. subsp. *horanica* (Vav.) Vav. var. *horanoleucurum* Vav. et Jakubz.), displayed exceptional drought resistance, large grains, a sturdy, non-lodging stalk, and a compact spike (Vavilov, 1987). The flora of Syria and Lebanon demonstrated an extraordinary wealth of wild relatives of cultivated plants. Surveys were conducted in the vicinities of Hama, Homs, Hauran, Suwayda, Aleppo, Behi, Mount Hermon, Damascus, Idlib, Daraa, Lattakia, Maras, Salamiyah, Baalbek, Beirut, Bsharri, and Brummana. Samples from the arid steppe regions of northern Syria were of particular interest for the dry southern regions of the USSR. Collected samples from this region included herbarium specimens of rye, as well as of wheat, oats, cotton, goatgrass, barley (original and reproduced samples), and reproductions of vetch, hemp, peavine, flax, cowpea, broad bean, cucumber, beet, sorghum, onion, melon, and sesame.

The collection mission was originally planned to last six to eight months but ultimately extended to over a year, making it the longest of all N. I. Vavilov's expeditions (Goncharov, 2012). A transcript of an evening radio broadcast from Kharkiv, found in the Central Archives of Scientific and Technical Documentation of St. Petersburg, indicates that the collection mission received media coverage. The broadcast stated that its main objectives were to study agricultural production and collect seed samples of cultivated plants, many of which were largely unknown in the Soviet Union, for potential introduction into various regions of the USSR. It also noted that Vavilov was the first Soviet citizen to visit several of the countries on the collection mission route and that he received substantial support from agronomic and botanical institutions (TsGANTD of SPb, F. R-318, Op. 11, D. 114, p. 88). Within the VIR Herbarium, we identified 3,743 specimens associated with the Mediterranean collection mission.

Based on data from herbarium labels, we reconstructed the coordinates and created a map of collection sites for both herbarium and seed accessions along N. I. Vavilov's collection mission route (Fig. 2).

As mentioned above, during the collection mission, Nikolai Vavilov cooperated with French colleagues who not only helped with their knowledge but also provided herbarium and seeds for VIR (Louis Blaringhem, Louis Charles Trabut, Léon Octave Ducellier, and Félicien Boeuf) (Fig. 3).

Louis Blaringhem (1878–1958) was a botanist, agronomist, geneticist, doctor of natural sciences, head of a department at the Pasteur Institute, President of the French Botanical Society and member of the French Academy of Sciences, and author of more than 300 publications. Blaringhem was one of the first French scientists to combine classical genetics and agronomic science in his work (https://cths.fr/an/savant.php?id=111835#). Louis Blaringhem made a practical contribution to the improvement of French agriculture by applying the method of individual selection of pure barley lines from the main barley-growing regions (Bonneuil, Thomas, 2009). Blaringhem provided samples of Rivet wheat and einkorn wheat, as well as their hybrids (herbarium specimens).

Louis Charles Trabut (1853–1929) was a botanist, physician, director of the Algerian Botanical Garden and the Botanical Service of Algeria, and one of the main authors of the multivolume *Flora of Algeria*. He was also the founder of the Algerian Society of Horticulture (Société d'horticulture d'Algérie). The focus of his scientific work was applied botany. He published studies on the cultivation of olive trees, soybean, cotton, cereals, and fruits, including the first description of clementines (https://www.alyasmina.org/archives/battandier-trabut.html). N. I. Vavilov called Trabut a widely educated florist and botanical geographer, an evolutionist, and a great French expert in plant introduction, and pointed out the value of his work on citruses for the subtropical regions of the Soviet Union (Vavilov, 1987). Trabut provided specimens of wheat, goatgrass and oat (original herbarium specimens).

Léon Octave Ducellier (1878–1937) was a botanist, plant breeder, head of an agricultural institute, and director of the Centre for the Study of Cereals at the National Institute of Agriculture in Maison-Carrée. He worked on crop breeding in Algeria, including cereals, flax, and tobacco. He coauthored the *Catalogue of Plants of Morocco* and studied North African wheat while promoting forage crop production in the region (https://data.bnf.fr/fr/documents-by-rdt/12193984/te/page1?type=work). Ducellier provided samples of goatgrass (originals and reproductions), oats, and vetch (reproductions).

Émile Miège (1880–1969) was a plant breeder, agronomist, head of agricultural research in Morocco, director of a genetic station, and founder of the Moroccan Agricultural Society (Société des agriculteurs du Maroc). His work focused on wheat, barley, cotton, flax, maize, rice, sugarcane, drought-tolerant fodder plants, and agronomic practice improvement. He authored over 250 scientific papers, with major contributions on Moroccan durum wheat and barley and Moroccan fodder plants (https://cths.fr/an/savant.php?id=104426). Miège provided specimens of einkorn, goatgrass, barley (originals), and vetch (reproductions).

Félicien Boeuf (1875–1961) was an agronomist, founder and director of the Agronomic Experiment Station, and professor of botany at the Colonial School of Agriculture in Tunis (École coloniale d'agriculture de Tunis). He authored works on plant breeding and Tunisian wheat (https://cths.fr/an/savant.php?id=121373). One of his most significant achievements was establishing the first French chair of genetics and breeding at the Colonial School of Agronomy in Tunisia (Bonneuil, 2006). In 1936, he founded a genetics chair at the National Institute of Agronomy (Institut National Agronomique) in Paris (Bonneuil, Thomas, 2009). Vavilov admired Boeuf's large-scale efforts in Tunisia, particularly his establishment of an agronomic station, which functioned as a full-fledged applied botany institute with substantial staff, laboratories, an advanced meteorological service, and herbarium. Boeuf provided samples of flax and vetch (reproductions).

A significant part of the specimens came from botanical and seed-breeding institutions in France, with one of the most notable contributors being Vilmorin-Andrieux et Cie. Founded in the 18th century, this private seed-breeding firm remains active today (https://www.vilmorinmikado.com/en/vilmorin-mikado). By the early 20th century, it was

[3] an ethno-religious group

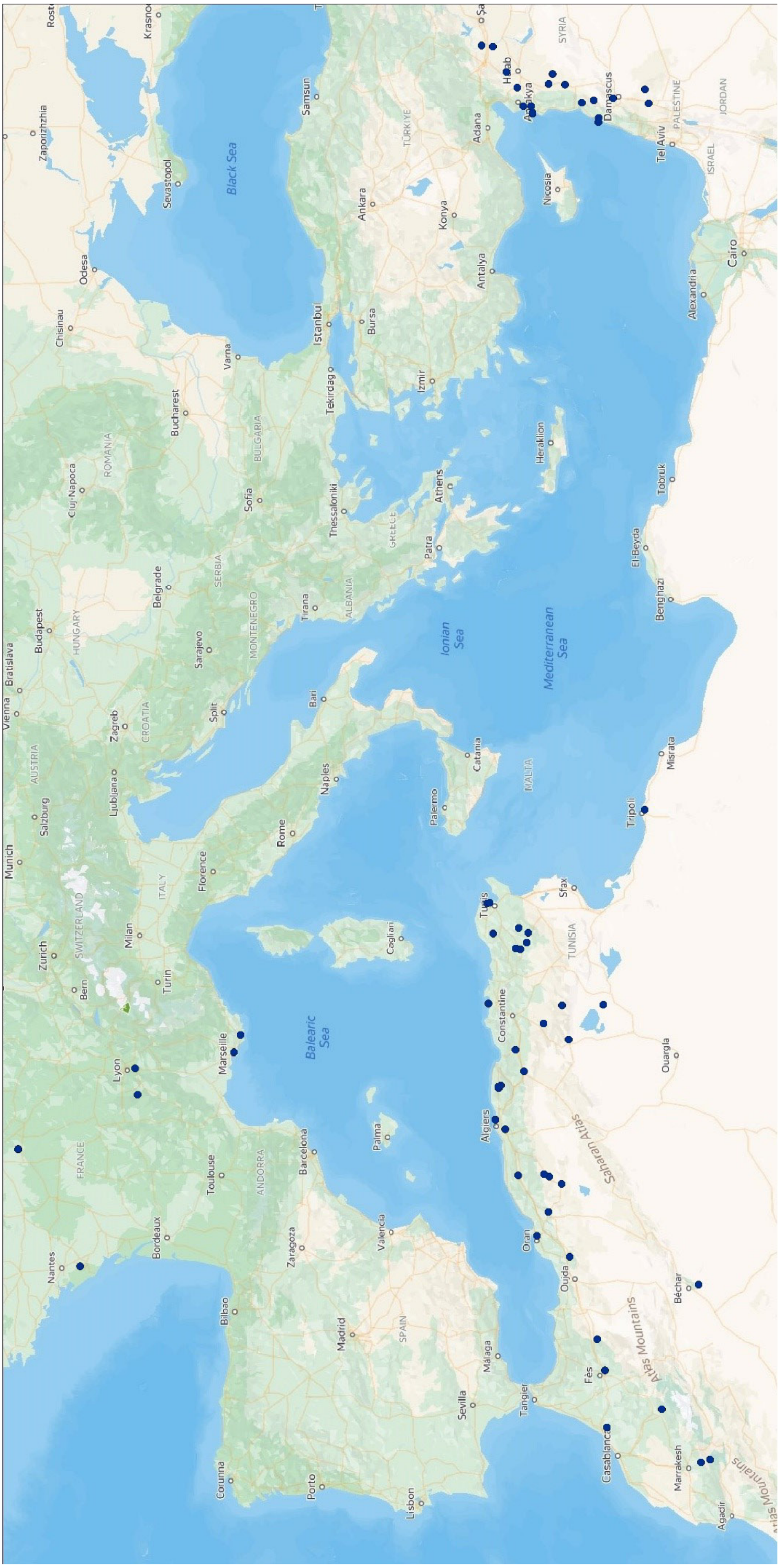

Fig. 2. Map of sample collection sites along the route of N. I. Vavilov's Mediterranean collection mission

Рис. 2. Точки сбора образцов по маршруту средиземноморской экспедиции Н. И. Вавилова

Fig. 3. French collectors: (top line, from left to right) Louis Blaringhem, Félicien Boeuf, and Léon Octave Ducellier; (bottom line) Louis Charles Trabut, and Émile Miège

Рис. 3. Французские коллекторы: (вверху, слева направо) Луи Бларингем, Фелисьен Беф, Леон-Октав Дюсселье; (внизу) Луи Шарль Трабю, Эмиль Мьеж

already one of France's largest seed companies, known not only for producing and distributing high-quality agricultural seeds worldwide but also for its contributions to genetics and plant breeding. The company developed France's first hybrid wheat cultivars, such as 'Aurore', 'Prince Albert', 'Blé de Noël', and 'Bon Fermier' (Laurent, 2015).

The private library of Vilmorin-Mikado, the enterprise's modern successor, preserves works by N. I. Vavilov (Vavilov, 1925, 1929; 1951) and other VIR's scientists (Barulina, 1930; Bukasov, 1930; Tchingo-Tchingas, 1931). It also holds multiple volumes of *Proceedings on Applied Botany, Genetics, and Breeding* (Fig. 4), reflecting the firm's longstanding scientific collaboration with VIR.

Ninety specimens were received from Vilmorin-Andrieux et Cie. These are original herbarium specimens (honeysuckle, goatgrass, wheat, and barley) and reproductions (eggplant, broad bean, cowpea, vetch, flax, melon, rice, mountain ash, beet, tobacco, tomato, and peavine).

The VIR Herbarium also holds specimens from other institutions in France and its controlled territories. The botanical gardens of Rouen, Lyon, Toulon, and Bordeaux, the Botanical Station in Brignon, and Maison Denaiffe et Fils seed company provided goatgrass (originals), West Indian gherkin, eggplant, vetch, Indian mallow, flax, oats, rice, foxtail, and groundcherry, which were reproduced in the Transcaucasia, North Caucasus, Central Asian, Sukhumi and Ukrainian Branches of VIR, and experimental fields in Detskoye Selo, and Butyrsky Khutor. Several samples came from the National Institute of Agriculture (Algeria). These are original samples of oats and barley, as well as flax reproduced at the North Caucasus Branch of VIR, and beet reproduced at the Ukrainian Branch of VIR.

The analysis of the origin of specimens showed that about 90% of the collected material represent plant samples delivered by Vavilov's collecting mission (Fig. 5, a). We have found 3,746 specimens attributed to the Mediterranean collection mission in the VIR Herbarium. Due to the difficulty of drying and shipping, it was seldom to collect original herbarium specimens; the collection contains only 246 such specimens, including 191 from the collection mission (Fig. 6). Most herbarium specimens are reproductions, i.e., plants grown afterwards from the collected seeds in the fields of the Institute and other experiment stations. The network of geographically arranged plantings that existed at that time made it possible to cultivate plant accessions under diverse climate conditions to study their agronomic features. The complete list of experimental fields where the plant samples involved in the study were reproduced is presented in Table 1.

There were 54 specimens from French scientists, including 49 specimens from personal collections. Botanical gardens and seed companies provided 242 specimens, of which 11 were originals. For 155 specimens, only the country of origin is indicated (France – 143, Algeria – 12); more detailed information is not specified (see Fig. 5, a). They are pear sam-

Fig. 4. **Volumes of *Proceedings on Applied Botany, Genetics and Breeding* in the private library of Vilmorin-Andrieux et Cie in La Ménitré** (Feb. 08, 2022, photo by E. Khablova)

Рис. 4. **Тома «Трудов по прикладной ботанике, генетике и селекции» в частной библиотеке фирмы Vilmorin-Andrieux et Cie в Ла-Менитре** (8.02.2022, фото Е. Хабловой)

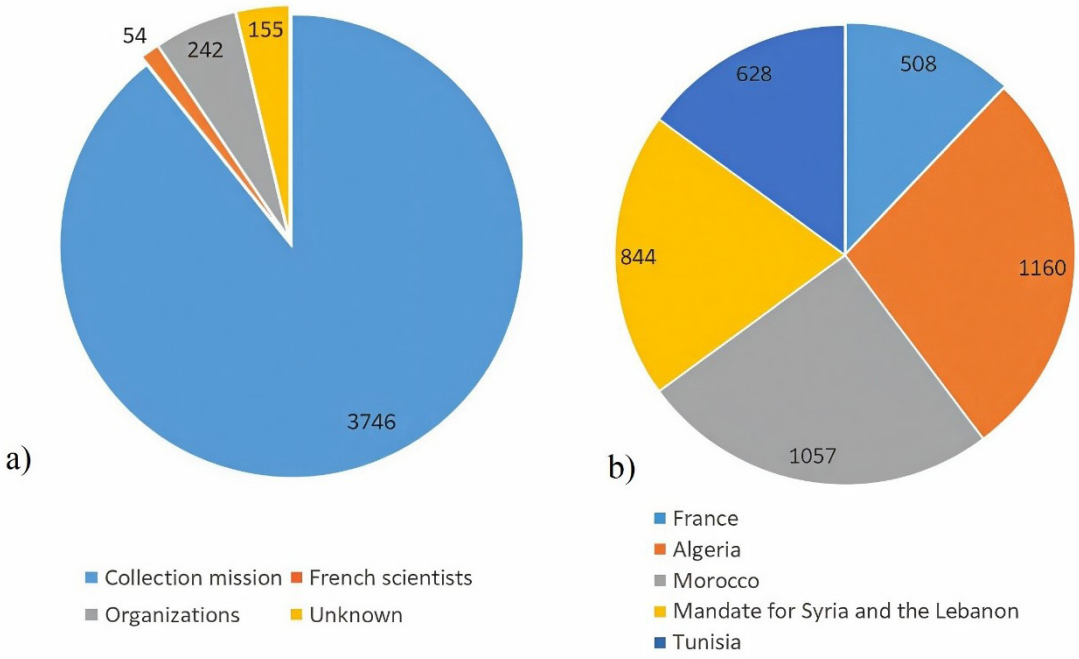

Fig. 5. **Distribution of herbarium specimens according to their sources (a) and countries of origin (b)**

Рис. 5. **Распределение гербарных образцов по источникам поступления (a) и странам происхождения (b)**

Fig. 6. **Herbarium specimen of rye collected by N. I. Vavilov in Syria (WIR-81903)**

Рис. 6. **Гербарный образец ржи, собранный Н. И. Вавиловым в Сирии (WIR-81903)**

ples collected by V. V. Pashkevich at the Volyn Horticultural School; vetch by E. I. Barulina at the Steppe Branch of VIR and in Saguramo; flax by V. S. Muratova at the North Caucasus Branch of VIR; tomatoes by V. I. Matskevich at the Ukrainian and Steppe Branches of VIR; grapes at the Nikita Botanical Garden, etc. The seeds of these samples were collected in the following countries of origin.

The specimens were grouped according to their countries of origin as follows. The largest number of specimens came from Algeria (1160) and Morocco (1057); these were mostly wheat from Vavilov's collection mission. Then, there were 844 specimens from Syria and the Lebanon, and 628 from Tunisia (see Fig. 5, b). The smallest number of specimens came from France (508), which is quite logical, since the collecting mission's route covered only part of southern France, and there were very few samples collected.

Among the herbarium specimens, cereals (wheat, oats, goatgrass, and barley), forages (vetch, peavine, and broad bean), industrial crops (hemp, flax, cotton, and tobacco), vegetables (beet, and tomato), and fruit plants (grapevine, and pear) prevail. Other crops are represented by a few samples. All species and varieties of specimens from France and its subordinate territories stored in the VIR Herbarium are shown in Table 2.

Table 1. **Reproduction sites of the studied specimens in the regions of the Soviet Union**
Таблица 1. **Места репродукции исследуемых образцов в регионах Советского Союза**

Name	Location
Magarach Ampelographic Collection	Yalta, Crimea
Belarusian Branch of VIR	Minsk, Belarus
Bratsevskaya Experiment Station	Moscow
Bykovskaya Melon Experiment Station	Lower Volga Region (now Volgograd Province)
Volyn Horticultural School	Volyn (now Zhytomyr Province) Ukrainian SSR (now Ukraine),
East Transcaucasia Branch of VIR	Mardakan, Azerbaijan,
Detskoye Selo	Leningrad Province
Transcaucasia Research Institute of Cotton	Ganja, Azerbaijan
Institute of Botany of Azerbaijan	Baku, Azerbaijan
Krasny Pakhar Experiment Station”	Leningrad Province
North Caucasus Branch of VIR	North Caucasus (now Krasnodar Territory)
Steppe Branch of VIR	Voronezh Province
Maikop Experiment Station of VIR	Adyghe Autonomous Region (now Republic of Adygea)
Mliiv Horticultural Experiment Station	Cherkasy Province, Ukrainian SSR (now Ukraine)
Nemchinovka Research Institute of Agriculture	Moscow Province
Nikita Botanical Gardens	Yalta, Crimea
Experimental field in Saguramo	Saguramo, Georgia
Sochi Agricultural and Horticultural Experiment Station	Sochi, North Caucasus (now Krasnodar Territory)
Central Asian Research Institute of Cotton	Tashkent Region, Uzbek SSR (now Uzbekistan)
Central Asian Branch of VIR	Tashkent Region, Uzbek SSR (now Uzbekistan)
Sukhumi Branch of VIR	Sukhumi, Abkhaz ASSR (now Abkhazia)
Turkestan Breeding Station	Tashkent Region, Turkestan (now in Uzbekistan)
Ukrainian Branch of VIR	Kharkiv District (now Kharkiv Province, Ukrainian SSR (now Ukraine)
Butyrsky Khutor Educational and Experimental Base	Moscow

Table 2. **List of taxa obtained by the VIR Herbarium from France and its subordinate territories in the 1920s and 1930s**

Таблица 2. **Список таксонов с территории Франции и подконтрольных ей территорий, поступивших в Гербарий ВИР в 20–30-е годы XX века**

Modern scientific name	Crop
Abutilon theophrasti Medik.	Indian mallow
Aegilops biuncialis Vis.	Goatgrass
A. cylindrica Host	– // –
A. kotschyi Boiss.	– // –
A. neglecta Req. ex Bertol.	– // –
A. peregrina (Hack.) Maire & Weiller	– // –
A. speltoides Tausch.	– // –
A. squarrosa Cav.	– // –
A. triticoides Link	– // –
A. triuncialis L.	– // –
A. umbellulata Zhuk.	– // –
A. ventricosa Tausch.	– // –
Allium cepa L.	Onion
A. porrum L.	– // –
A. schoenoprasum L.	– // –
Avena barbata Pott ex Link	Oat
A. byzantina K.Koch	– // –
A. eriantha Durieu	– // –
A. eriantha Durieu	– // –
A. fatua L.	– // –
A. longiglumis Durieu subvar. *pubifolia* Malz.	– // –
A. ludoviciana Dur.	– // –
A. sativa L.	– // –
A. sterilis L.	– // –
A. strigosa Schreb.	– // –
A. ventricosa Balansa	– // –
Beta maritima L.	Beet
B. vulgaris L.	– // –
Brassica capitata DC. ex H. Lév.	Cabbage
B. juncea (L.) Czern.	Brown mustard
B. napus L.	Rapeseed
Cannabis sativa L.	Hemp
Capsicum annuum L.	Pepper
Cerasus vulgaris Mill.	Cherry
Citrullus colocynthis (L.) Schrad.	Watermelon

Modern scientific name	Crop
C. lanatus (Thunb.) Matsum. & Nakai	– // –
Corylus avellana L.	Hazel
Cucumis anguria L.	West Indian gherkin
C. melo L.	Melon
C. sativus L.	Cucumber
Glycine max (L.) Merr.	Soybean
Gossypium barbadense L.	Cotton
G. herbaceum L.	– // –
G. hirsutum L.	– // –
G. jumelianum (Tod.) Prokh.	– // –
Hibiscus esculentus L.	Okra
H. roseus Thore	– // –
Hordeum bulbosum L.	Barley
H. distichon L.	– // –
H. murinum L.	– // –
H. spontaneum K. Koch	– // –
H. vulgare L.	– // –
H. vulgare L.	– // –
Lathyrus annuus L.	Peavine
L. articulatus L.	– // –
L. cicera L.	– // –
L. clymenum L.	– // –
L. gorgoni Parl.	– // –
L. hierosolymitanus Boiss.	– // –
L. sativus L.	– // –
Linum bienne L.	Flax
L. maritimum L.	– // –
L. tenuifolium L.	– // –
L. trigynum L.	– // –
L. usitatissimum L.	– // –
Lonicera acuminata Wall.	Honeysuckle
Lycium chinense Mill.	Wolfberry
Lycopersicum esculentum Mill.	Tomato
Malus domestica (Suckow) Borkh.	Apple
M. floribunda Siebold ex Van Houtte	– // –

Table 2. The end

Таблица 2. Окончание

Modern scientific name	Crop
M. purpurea (A. Barbier) Rehder	– // –
Medicago intertexta (L.) Mill.	Alfalfa
M. sativa L.	– // –
M. turbinata (L.) All.	– // –
Melilotus indicus (L.) All.	Sweetclover
Momordica charantia L.	Bitter melon
Nekemias megalophylla (Diels & Gilg) J. Wen & Z.L. Nie	Peppervine
Nicotiana acuminata (Graham) Hook.	Tobacco
N. alata Link & Otto	– // –
N. glauca Graham	– // –
N. langsdorffii Schrank	– // –
N. paniculata L.	– // –
N. plumbaginifolia Viv.	– // –
N. rustica L.	– // –
Oryza sativa L.	Rice
Papaver somniferum L.	Poppy
Physalis peruviana L.	Groundcherry
Ph. philadelphica Lam.	– // –
Pyrus communis L.	Pear
Raphanus sativus L.	Radish
Secale montanum Guss.	Rye
Sesamum indicum L.	Sesame
Setaria pumila (Poir.) Roem. & Schult.	Foxtail
S. verticillata (L.) P. Beauv.	– // –
Solanum melongena L.	Eggplant
Sorbus aria (L.) Crantz	Mountain ash
Sorghum bicolor (L.) Moench	Sorghum
Triticum aestivum L. subsp. *aestivum* var. *aestivum*	Wheat
T. aestivum L. subsp. *aestivum* var. *ferrugineum* (Alef.) Mansf.	– // –
T. aestivum L. subsp. *hadropyrum* (Flaksb.) Tzvel. var. *erythroleucon* (Körn.) Mansf.	– // –
T. aestivum L. subsp. *hadropyrum* (Flaksb.) Tzvel. var. *graecum* (Körn.) Mansf.	– // –
T. compactum Host var. *icterinum* (Alef.) Körn.	– // –

Modern scientific name	Crop
T. dicoccoides (Körn. ex Asch. & Graebn.) Aarons.	Wild emmer
T. durum Desf. subsp. *durum* var. *affine* Körn.	Wheat
T. durum Desf. subsp. *durum* var. *apulicum* Körn.	– // –
T. durum Desf. subsp. *durum* var. *durum*	– // –
T. durum Desf. subsp. *durum* var. *leucomelan* (Alef.) Körn.	– // –
T. durum Desf. subsp. *durum* var. *leucurum* (Alef.) Körn.	– // –
T. durum Desf. subsp. *durum* var. *melanopus* (Alef.) Körn.	– // –
T. durum Desf. subsp. *durum* var. *murciense* Körn.	– // –
T. durum Desf. subsp. *durum* var. *niloticum* Körn.	– // –
T. durum Desf. subsp. *durum* var. *reichenbachii* Körn.	– // –
T. durum Desf. subsp. *durum* var. *valenciae* Körn.	– // –
T. durum Desf. subsp. *horanica* (Vav.) Vav. var. *horanoleucurum* Vav. et Jakubz.	– // –
T. monococcum L. var. *flavescens* Körn.	– // –
T. monococcum L. var. *monococcum*	– // –
T. monococcum L. var. *vulgare* Körn.	– // –
T. turgidum L.	– // –
Vicia benghalensis L.	Vetch
V. ervilia (L.) Willd.	– // –
V. faba L.	Broad bean
V. fulgens Batt.	Vetch
V. narbonensis L.	– // –
V. pannonica Crantz	– // –
V. sativa L.	– // –
V. villosa Roth	– // –
Vigna unguiculata (L.) Walp. subsp. *sesquipedalis* (L.) Verdc.	Cowpea
V. unguiculata (L.) Walp. subsp. *unguiculata*	– // –
Vitis thunbergii Siebold & Zucc.	Grapevine
V. vinifera L.	– // –
Ziziphus lotus (L.) Lam.	Jujube

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