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THE ESTABLISHMENT AND DEVELOPMENT OF THE INSTITUTE OF BOTANY OF THE ACADEMY OF SCIENCES OF UZBEKISTAN (1930-1950)

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Abstract

This article analyzes the establishment and development of the Institute of Botany of the Academy of Sciences of Uzbekistan during the period from 1930 to 1950. The study is based on archival documents, scientific publications, and historical sources. The paper examines the stages of the Institute's formation, its main scientific directions, and its contribution to the study of national flora. In addition, the development of botanical research during the Soviet period and the role of the Institute of Botany as a leading scientific center are explored.

Keywords

Committee, sector, Academy of Sciences, botany, institute, scientists, monograph, research, expedition, flora, invention, discovery, station, laboratory.

I. INTRODUCTION

The Academy of Sciences has played a significant role in the formation and development of science in Uzbekistan. The organizational activity of the Academy of Sciences began on 4 October 1932 with the establishment of the Committee of Sciences. In 1940, this committee was transformed into the Uzbekistan Branch of the Academy of Sciences of the USSR (UzFAN), located in Tashkent. By the resolution of the Council of People's Commissars of the USSR dated 27 September 1943, "On the Reorganization of the Uzbekistan Branch of the Academy of Sciences of the USSR in Tashkent into the Academy of Sciences of the Uzbek SSR," the Academy of Sciences of Uzbekistan was officially established on 4 November of the same year.

The study of the flora of Central Asia, including the territory of present-day Uzbekistan, has been associated with scientific expeditions since the second half of the nineteenth century. One of the first botanical researchers to visit this region was N. A. Severtsov. In 1865, he defined scientific routes along river valleys and

collected specimens of flora and fauna in territories ranging from the Chirchik Valley to the Western Tien Shan Mountains. Later, beginning in September 1877, N. A. Severtsov led the Fergana–Pamir Expedition, organizing a second scientific journey to these regions.

In 1868, botanical research was conducted as part of an expedition led by O. A. Fedchenko. His activities were mainly concentrated around Tashkent, where he studied local plant species. In 1876, he conducted a one-month scientific investigation of vegetation in the Chimgan area. In 1881, the French researcher Capus carried out studies in the Western Tien Shan, including the Chirchik Valley, collecting plant specimens from the vicinity of Tashkent. Early research was primarily expeditionary in nature and was limited to documenting external morphological characteristics of plants and collecting specimens.

In 1908, a special expedition was organized by the Resettlement Administration to assess the economic importance of Siberia and Turkestan. In 1914, an expedition began operating in Tashkent, with the participation of botanist Z. A. Minkvits. In subsequent years, detailed studies of vegetation cover in various areas of the Western Tien Shan were conducted by several researchers.

In the 1950s, scientific and applied research on the natural environment and vegetation cover of Uzbekistan, conducted by P. A. Baranov (1924), M. V. Kultiasov (1927), K. Z. Zakirov (1937), M. G. Popov (1940), G. T. Sidorenko (1949, 1953), I. M. Kultiasov (1955), V. N. Pavlov (1955, 1959), B. A. Bykov (1956), V. P. Drobov (1956), N. V. Pavlov (1956), and S. E. Korovin (1958, 1959), played a crucial role in the scientific identification of the floristic composition of the region.

II. Materials and Methods

This article was prepared using generally accepted scientific research methods, including historicism, chronological sequence, and analysis–synthesis. In the process of writing the article, archival materials of the Academy of Sciences of Uzbekistan, official publications and data of the Academy of Sciences of Uzbekistan and its Institute of Botany, as well as scientific articles by local scholars related to the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan, were utilized.

Through the historical-chronological method, the stages of the Institute's development were examined, and the discoveries and inventions of botanical scientists were highlighted. The study aims to illuminate insufficiently explored scientific and practical aspects of the topic and to provide an in-depth analysis of the processes of formation and development of the Institute of Botany in Uzbekistan.

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III. Results

In 1934, a Plant Resources Sector was established under the Committee of Sciences. During this period, a scientific department (chair) specializing in plant morphology and anatomy was formed within the Institute of Botany. In addition, in 1932, the Department of Lower Plants was separated from this structure as an independent field.

In the early years of the Academy of Sciences, ten research institutes were operating. In January 1940, the Institute of Botany was established within the Uzbekistan Branch of the Academy of Sciences of the USSR. The Institute was formed on the basis of the botanical sector of the former Committee of Sciences under the Council of People's Commissars of the Uzbek SSR. The main scientific task of the sector was the comprehensive study of wild and cultivated plants in Uzbekistan within the fields of geobotany and floristics.

In 1941, the Institute was merged with the Soil Science Sector and began operating officially as the Institute of Botany and Soil Science. The Institute's scientists conducted research aimed at expanding rain-fed agriculture and increasing grain productivity, studying and developing virgin steppe lands, and improving the reclamation condition of Southern Khorezm. In 1943, following the establishment of a separate Institute of Soil Science, the botanical and zoological research institutes were merged. In 1950, the Institutes of Botany and Zoology were reorganized into two separate institutions.

Scientific research focused on the study of the flora of Uzbekistan was carried out during this period. Tashkent was selected as an experimental research site for the Institute of Botany, and as a result of these studies, an experimental direction was formed. Work began on the establishment of laboratories for plant physiology and biochemistry, as well as a cabinet of experimental morphology.

№	Leader's name	Title	Years of leadership
1	P.A. Baranov	Correspondent ber of the FA of the R	1940-1941
2	S.N.Kurdyashev	Professor	1942-1943
3	E.P. Korovin	Academician of the R	1943-1948 and 1950-
4	T.Z. Zakhidov	Academician of the R	1948-1950
5	K.Z.Zokirov	Academician of the R	1952-1955

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5	A.M. Muzaffarov	Academician of the R Academy of Sciences	1955-1959

Table 1: Heads of the Institute of Botany in 1940-1955.

The Institute of Botany of the Academy of Sciences of the Uzbek SSR In 1935-1936, the stationary research of N.V. Koshurnikov in the Akhangaron district of the Tashkent region was of particular importance. In 1953-1955, with the participation of such scientists as A.Ya. Butkov, R.S. Vernik, Z.A. Mailun and M.M. Nabiev, a vegetation and meadow map for the Angeren mining area was compiled. In 1958-1959, employees of the Institute of Botany of the Academy of Sciences of the Uzbek SSR and the Department of Higher Plants of the State Agricultural University (I.I. Granitov, A.Ya. Butkov and others) jointly compiled a vegetation map for the territory of the Bostanlik region.

In 1940, in accordance with the new tasks and scientific directions, the Institute of Botany systematically organized its activities through various departments and laboratories. In the same year, the Institute was divided into the following scientific departments: plant taxonomy and herbarium department, geobotany department, lower plants department, dendrology department, nutrition problems department, experimental morphology department, and plant physiology and biochemistry laboratory. Each of these departments developed the main scientific directions of the Institute - from geobotany and floristics to experimental research.[16]

The Institute of Botany carried out a number of coordination works in cooperation with scientific and industrial institutions. In January 1940, the director of the institute, P.A. Baranov, was sent to Moscow on a business trip to the USSR Academy of Sciences (19.01–11.02). Also in March (27.03–15.05), Professor Kudryashev was on a business trip to Moscow and Leningrad. At a meeting of the group on reviewing the plans of the institutions of the Academy of Sciences for 1940, the thematic plan of the Institute of Botany of the Academy of Sciences of the USSR for 1940 was discussed and tested. In order to work out issues related to the formation of the topic of plant adaptation to soil salinity, junior research fellow Ermoshenko M.A. was sent to Moscow on a business trip to the USSR Academy of Sciences from March 8 to April 13, 1940.[17]

In 1950, the scientific research work carried out by the Institute of Botany of the Uzbek SSR was mainly focused on studying the natural resources of Uzbekistan, developing ways to preserve them and effectively use them. Also, the

[16] UzR FA MA 35 fund, 1 list, 235 volumes (cases) 2 sheets
[17] UzR FA MA 35 funds, 1 list, 235 collective volumes (cases), 21 sheets

issues of creating protective forests, increasing the productivity of desert areas as a natural food source, studying agricultural pests and plant diseases and improving measures to combat them were studied. In addition, the areas of studying the biological productivity of water bodies and their rational use were also an important component of the institute's activities.[18]

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A.I. Vvedenesky identified 9 new families, 20 new sections, and 300 new species in the plant kingdom and introduced them into science. As a result of P.N. Golovin's research, more than 200 new species of fungi were discovered. K.Z. Zokirov discovered two new plant families, which were named after F.R. Beruniy and M. Ulugbek. A scientific hypothetical scheme for the development of the genus Kandim was also developed.

During her scientific career, S.S. Kovalevskaya discovered about 60 new species of higher plants and created 25 new taxonomic combinations of species and genera. E.P. Korovin identified 66 new species of the genus Ferula, popularly known as kovrak. At the same time, the division of the Central Asian flora into northern and southern floras was scientifically substantiated.

M.G. Popov discovered and introduced into science about 100 new species and families of the Eurasian plant world. I. D. Romanov identified two new species of the tulip family. As a result of scientific research by U.A. Usmanov, new varieties of fast-growing poplars and hybrids were discovered and their possibilities for use in agriculture were scientifically substantiated.[19]

In the 1950s, 4 laboratories and 1 research station were established within the Institute of Botany, and their activities were directed as follows:

Laboratory of Systematics of Higher Plants with a Herbarium. The laboratory was founded in 1950 and was headed by A.I. Vvedensky. The main direction of the laboratory was the critical study of Central Asian plants, and work was carried out

[18] UzR FA MA 35 funds, 1 list, 84 collective volumes (work), 1 sheet
[19] Pratov O'. P., Markova L. E., Kholmukhamedova R. A. Botanical scientists of Uzbekistan. - Tashkent: Teacher, 1997. - P.16-66

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on the creation of a manual on the flora of Central Asia. He continued work on the "Flora of Uzbekistan" and published several volumes.

Geobotany Laboratory with the Bostanlyk Mountain Station. The laboratory was founded in 1950 and was headed by V.P. Drobo and A.Ya. Butkov. The main direction of the laboratory is "Identification of new raw materials, study of natural vegetation cover, inventory of fodder and pasture lands in various regions, compilation of geobotanical and pasture maps". During the laboratory's activities in 1953-1955, work was carried out on the compilation of a map of the vegetation of the Chirchik and Angren river basins and a map of the vegetation of Uzbekistan based on the generalization of the cartographic material of the republic.[20]

Laboratory of Plant Physiology and Biochemistry. The laboratory was established in 1950. The main direction of the laboratory is to determine and study the functional resistance of wild plants to extreme environmental conditions. Since 1950, O.N. Granitov, I.L. Zakharyants and E.I. Milagrodov's "Biochemistry of plants rich in tau-gum and dublin substances", L.Kh. Nabeer, A.S. Ionesova and M.Z. Zakirov's "Physiological-biochemical changes occurring in cotton leaves under the influence of defoliation" and I.V. Esipov "Effect of temperature on gas exchange of cotton" and I.N. Karavaev researched and studied the "Dynamics of amino acids during the germination process of cotton seeds".[14]

Plant Ecology Laboratory. The laboratory was established in 1953 on the initiative of academician, professor E.P. Korovin on the basis of the Department of Experimental Botany, and V.A. Burgin headed the laboratory. The main direction of the laboratory was the study of the biology and ecology of valuable fodder plants, as well as their adaptive characteristics, with the aim of selecting the most promising species and forms for phytoremediation of degraded steppe plants in the republic. Practical work on plant ecology was studied in the research of botanists D.P. Kashkarov and E.P. Korovin.

Kyzylkom desert station. The laboratory was founded in 1959. Its main direction is the study of the structure and productivity of plants, as well as the chemical and hydrophysical properties of soils in the South-Western Kyzylkum region. Within the framework of the activities of the Kyzylkum Desert Station laboratory, in 1956 the Institute of Botany of the Academy of Sciences of the Uzbek SSR carried out scientific research on the study of fossil wood and wood materials. Also, research was carried out aimed at a comprehensive study of wood species distributed in Central Asia. As a result of these studies, scientific information related to historical

[20] Институт ботаники АН УзССР 30 лет. Ташкент, "Фан". 1982. С.10-16

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and natural monuments was systematized, and work was carried out on the scientific restoration and reassessment of materials stored in the funds of the Museum of the History of the Peoples of Uzbekistan (established in 1943). Later, these materials served as an important source for enriching the expositions of the current State Museum of the History of Uzbekistan (1992).[21]

The work carried out as a result of these laboratories was supported by the leading scientists and scientific workers of the time and was successfully implemented. In this process, the focus is on the theoretical and practical aspects of botanical research.

A number of monographs and books were published during the study of flora by botanists in the 30s-60s of the 20th century. In 1934 E.P. Korovin "Rastitelnost Sredney Azii i Yuzhnogo Kazakhstan" and E.P. Korovin and D.N. Kashkarov's works "Jizn pustyn: vvedenie v ekaloniyu i osvoenie pustyn" were published. The books "Botanecheskie materialy herbaria Instituta botaniki AN UzSSR" started to be published by botanists in 1940, and in 1941 E.P. Korovin and M.M. "Vvedenie v izuchenie pastbishch i senokosov Uzbekistana" published in co-authorship with Sovetkin. In 1947 E.P. Korovin "Illustrirovannaya monografiya roda Ferula", 1949 by F.N. Rusanov's "Sredneaziatskie tamariksy", in 1950 V.P. Drobov's works "Tugaynaya i kustarnikovaya rastitelnost Kara-Kalpakskoy ASSR" and "Lesa Uzbekistana", in 1951-1952 "Rastitelnye resursy Hissarskogo hrebta (Basseyn reki Tupalang)" and "Rastitelnost peschanyx pustyn" in 1953 by I.F. Momotov's "Rastitelnye kompleksy Ust-Urta", in 1955 K.Z. Zakirov's book "Flora i rastitelnost basseyna reki Zeravshan" was published.

Within the framework of fundamental research, the initial efforts to create the 6-volume "Flora of Uzbekistan" under the editorship of R.R. Schroeder, E.P. Korovin, S.N. Kurdyashev and A.I. Vvedensky began in 1936, and 4 volumes were published between 1941 and 1959. By the time the last 5-6 volumes were published, the book contained 4148 species of higher plants, 3663 of local species, and 485 of imported species. A.Ya. Bukov, V.P. Bochantsev, V.K. Paziy, O.N. Bondarenko, A.Ya. Butkov, K.Z. Zokirov, S.S. Kovalevskaya, M.M. Nabiev and O.V. Cherneva participated in the expeditions to enrich this information.

IV. Discussion.

The results of this study show that the formation and development of the Institute of Botany of the Academy of Sciences of Uzbekistan in the 1930s-1950s was closely linked to the science policy of the Soviet era. The initial organization of

[21] UzR FA MA, 35 funds, 1 list, 419 collective volumes (cases), 2 sheets

the institute, initially in the form of sectors and departments, and later elevated to the level of an independent scientific institution, reflects the institutional development of botany.

The establishment of laboratories and stations within the Institute of Botany in the 1940s and 1950s indicates that botanical research was conducted in both theoretical and practical directions. In particular, research in the fields of geobotany, floristics, plant physiology and biochemistry was closely linked to issues of agriculture, land reclamation, and the efficient use of natural resources.

The establishment of laboratories in the institute system and the presence of the Kyzylkum stations under it made it possible to study in depth the regional characteristics of botanical research. The compilation of maps of pastures and vegetation cover based on the data obtained through these laboratories and stations served as an important scientific basis for assessing the natural resources of the republic. It is precisely this work that has turned the Institute of Botany into a scientific center that is not limited to theoretical research, but is also adapted to the needs of production.

In the 1940s and 1950s, scientific publications were published as a result of practical expeditions by botanists. These publications were scientific conclusions on the identification of the characteristics of plants, their types, and their biochemical, physiological, and ecological aspects typical of the period. The creation of the 4-volume work “Flora of Uzbekistan”, published at that time, was one of the most important scientific results of the institute's activities, which served as a fundamental source for studying the flora of not only the republic, but also the entire Central Asia. This fact confirms that the Institute of Botany became one of the leading scientific centers in the Soviet period. Also, the formation of a school of leading scientists in the activities of the Institute of Botany, expeditionary research, and the compilation of maps ensured institutional stability and the organic continuity of scientific heritage.

IV. Conclusion.

In general, the establishment of the Institute of Botany created the basis for the formation of an important scientific center in the system of the Academy of Sciences of Uzbekistan and made it possible to effectively develop the directions of systematic study of the flora of the republic, comprehensive analysis of plant resources, paleobotanical and physiological-biochemical research. Within the framework of the Institute's activities, scientific foundations for phytomelioration of deserts, steppes and mountain pastures were developed, as well as practical research aimed at the cultivation of promising raw plant species was launched.

The scientific work carried out as a result of the formation and development of the institute in the 1930s-1950s played an important role in popularizing botany, studying and identifying natural resources, and applying scientific results in accordance with the needs of society. This fact serves as a basis for assessing the Institute of Botany not only as a scientific research institution, but also as a scientific center of cultural and educational significance.

Also, the fundamental and experimental research carried out at the institute serves as an important scientific source in the study of the flora not only of the republic, but also of the entire Central Asia. The scientific heritage formed as a result of scientific and practical activities carried out in the 1930s-1950s serves as a theoretical and practical program for the next generation of scientists. The scientific directions and research methods created during this period are continued in the current activities of the institute and occupy a leading place in the development of botany.

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