

On the 100th anniversary of Professor Jonas Dagys

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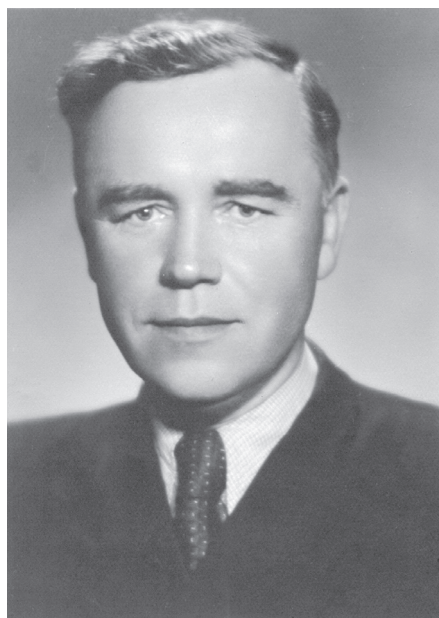
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J. Dagys was an outstanding Lithuanian scientist, Professor, Doctor Habilitatus, Honored Scientist of Lithuania, Correspondent Member of the Lithuanian Academy of Sciences. For a long time he was Editor-in-Chief of the periodical scientific journal of the Lithuanian educational institutions “Biologija” and member of the Editorial Board of the periodical scientific journal of the Lithuanian Academy of Sciences, Series C. These two journals laid the foundations for the present scientific periodical journal “Biologija”. Especially significant is J. Dagys’ contribution to the development of plant physiology in Lithuania. He carried out well-founded research work and studies in plant physiology at different Lithuanian scientific institutions.

The science of plant physiology has deep traditions in Lithuania. From 1781 when Chair of Natural Sciences was founded at Vilnius University, till 1832 when for political reasons the Vilnius University was closed, issues of plant physiology were lectured by the famous scientists of those days such as J. Gilibert, G. Forster, S. Jundził, J. Sniadecki and others. However, after closing the Vilnius University, the development of plant physiology (as well as of different other sciences) was interrupted for ninety years till the University of Lithuania was restored in 1922 in Kaunas, the temporary capital of Lithuania. Favorable circumstances fated that J. Dagys graduated from this university and later was one of the first biologists who after ninety years of intermission restored the science of plant physiology in Lithuania. During his academic life J. Dagys made a notable contribution to the general development of plant growth physiology, Lithuanian education and culture.

J. Dagys was born in 1906, twelve years before Lithuania gained its independence. His childhood was spent in the Kadarai village, Biržai district. During his childhood Lithuania belonged to Russian Empire, and its language and culture were violated. Until the independence was declared there had been no national schools in Lithuania. J. Dagys got primary education by private training. On graduating from secondary school and gymnasium in Biržai, in 1925 he started studies at University of Lithuania and in 1930 got the diploma in the field of biology.

In the 1930s, most gifted graduates of the University were encouraged to continue studies at famous research centres of Europe. In 1933, with the grant from the Ministry of Education, J. Dagys started studies at the Chair of Plant Anatomy and Physiology of the University of Graz. At that time the Head of the Chair was K. Linsbauer, a notable specialist in different fields of experimental botany. He strongly influenced the formation of



J. Dagys in 1966.

Photo provided by A. Merkys

J. Dagys’ personality. In the early thirties K. Linsbauer started investigating plant growth substances. For this reason, the theme proposed to J. Dagys dealt with them. During the doctoral studies J. Dagys performed research in the field of plant growth and morphogenesis. As the foundation for those researches served studies into plant hormones and vitamins. As far back as 1932, the plant biochemists N. Nielsen and V. Hartelius summarized the research in the field of plant growth substances and suggested a scheme for their classification. They divided plant growth substances into two groups: A – auxins, ether soluble, susceptible to oxidation, B – bios, ether insoluble, immune to oxidation. J. Dagys investigated substances of group B. He focused attention on the correlation between ‘bios’ and growth of different plant organs and tissues, especially the meristem. In 1935, the notable plant biochemist F. Kögl stated that ‘bios’ substances are responsible for cell division. Referring to the research of the famous plant physiologists P. Boisen-Jensen, N. Nielsen, N. Cholodny and F. Went, it became accepted that ‘bios’ are responsible for plant cell division and auxins for cell enlargement. Such view didn’t contradict the theory of J. Sachs who proposed that the formation and functions of different plant organs depend on the action of special materials produced by a plant.

In memoriam Karl Linsbauer

WUCHSSTOFFE DER MIKROORGANISMEN IN EMBRYONALEN GEWEBEN UND IM BLUTUNGSSAFTE

von JONAS DAGYS (Kaunas)

(Aus dem pflanzenphysiologischen Institut der Universität Graz)

Mit 3 Textfiguren

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Inhaltsverzeichnis		Seite
I.	Einleitung	14
II.	Methodik	18
	1. Hefe, als Testobjekt	18
	2. <i>Aspergillus niger</i> , als Testobjekt	19
III.	Wuchsstoffe in Getreidesamen	21
	1. Wuchsstoffgehalt der ruhenden und keimenden Samen (<i>Zea Mays</i>)	21
	2. Wuchsstoffgehalt der Samen und Keimfähigkeit (<i>Triticum vulgare</i>)	27
	3. Über die Natur des Getreidesamen-Wuchsstoffes	31
IV.	Wuchsstoffe in Knospen, Blättern und im Kambium	47
	1. Wuchsstoffgehalt der Knospen und Blätter im Laufe des Jahres	47
	2. Wuchsstoffgehalt im Kambium und die Kambiumstimulationsfrage	53
	3. Die Natur des Knospen- und Blätterwuchsstoffes	55
V.	Wuchsstoffe im Blutungssaft	59
	1. Wuchsstoffe im Frühjahrssaft der Birke	59
	2. Bildung des Birkensaftwuchsstoffes auf chemischen Wege	61
	3. Physikalisch-chemische Eigenschaften des Birkensaft-Wuchsstoffes	67
	4. Theoretische Betrachtungen über den Birkensaft-Wuchsstoff	72
	5. Der Blutungssaft von <i>Cucurbita Pepo</i>	74
VI.	Schlussbetrachtungen	78
VII.	Zusammenfassung	83
VIII.	Literaturverzeichnis	86

The title of J. Dagys' doctoral thesis "Wuchsstoffe der Mikroorganismen in embryonalen Geweben und im Blutungssaft" published in the journal "Protoplasma" in 1935

However, in 1933–1935 J. Dagys made a suggestion that 'bios' influence the embryonic growth as a regulator which attends to the functional processes in plant cells. In 1935, J. Dagys publicized this suggestion in his work "Wuchsstoffe der Mikroorganismen in embryonalen Geweben und Blutungssaft" [1], published in the scientific journal "Protoplasma". In 1936 he defended his doctoral thesis and received PhD. In the same year J. Dagys returned to Lithuania and continued research on 'bios' at the Cabinet of Plant Physiology of the Chair of Botany at Vytautas Magnus University. In 1936–1939 he published articles with results regarding the localization, transport, metabolism and binding forms of 'bios' in "Protoplasma" [2, 3, 4]. In 1938, he defended his habilitation work with a new conclusion that 'bios' substances are present in an immobilized state in seeds, during germination they are released and regulate the growth [5].

In the years 1938–1939, J. Dagys had traineeship at the Universities of Utrecht and Copenhagen. At Copenhagen University, with the notable plant biochemist N. Nielsen he studied the effect of synthetic biotin and birch sap on yeasts and *Aspergillus niger* growth, as well as the effect of amino acids on yeast growth and development. Results obtained at Copenhagen University he published in the "Comptes Rendus des Travaux du Laboratoire Carlsberg" [6, 7], one of the articles together with N. Nielsen. After a short time the chemical structure of 'bios' was explained. It was ascertained to be composed of group B vitamins. At this time vitamins were characterized as procoenzymes, thus, the suggestions of J. Dagys about the influence of 'bios' on the growth of plants was well-grounded. His contribution to plant growth science was positively valued by European eminent plant physiologists F. Kögl and N. Nielsen with whom J. Dagys worked at the laboratories of Utrecht and Copenhagen

Universities, H. Söding who cited his results in the book "Die Wuchsstofflehre" published in 1952 and translated to Russian into 1955 [8], and by others.

After World War II J. Dagys showed interest and performed investigations in other fields of plant physiology, such as utilization of minerals in plant growth and plant mineral nutrition. However, research of the significance of 'bios' and group B vitamins in plant growth and development remained principal for him and his co-workers.

Pedagogical work holds an important place in J. Dagys' academic life. In 1939, after defending Habilitation, he started lecturing courses of plant anatomy and morphology and plant physiology at the Chair of Botany of Vytautas Magnus University. In 1939, he became Head of the Cabinet of Plant Physiology of the Botany Chair of Vytautas Magnus University.

J. Dagys lived during a very changeable time. In 1939, World War II started causing political changes in Lithuania. Historical and political changes confused the scientific life of Vytautas Magnus University. In 1940 some faculties, including the Faculty of Mathematics and Natural Sciences, were moved from Vytautas Magnus University to Vilnius University. At the Faculty of Mathematics and Natural Sciences of Vilnius University, a separate Chair of Plant Anatomy and Physiology was founded in 1940. J. Dagys became Professor and Head of the Chair. However, in 1940 Lithuania was occupied by the Soviet army. Sovietization troubled the academic work. In 1941, Lithuania was occupied by German Nazi army. Nazi administration interfered with the academic work of Vilnius University and ultimately closed it in 1943.

In 1944 Vilnius University was restored. However, after World war II Lithuania was occupied by the Soviets again. J. Dagys con-

tinued to head the Chair of Plant Anatomy and Physiology at the Faculty of Natural Sciences of Vilnius University. In 1944–1946 he was Dean of the Faculty. However, the political changes in Lithuania sorely touched J. Dagys' social and scientific life.

In July–August 1948, in Moscow the VASKhNIL session was held, which accepted the principles of Soviet ideology for the development of biology in the Soviet Union. The Soviet Government sought that biology and other fields of science would be developed in accordance with the political objectives of Soviet administration. Analogous sessions were held in all the Soviet Republics. Such session in Lithuania was held at the end of September 1948. It was attended by high officers of Soviet authorities. J. Dagys and other famous Lithuanian scientists were criticized for having been educated at European universities and agreeing with the generally accepted theories of science, especially in the field of genetics; besides, J. Dagys was severely criticized as the author of the handbook "Augalų anatomija ir morfologija" [Plant Anatomy and Morphology] [9]. The handbook disagreed with Soviet ideology and the positively evaluated botanists of the Republic of Lithuania. For those reasons, J. Dagys was removed from the post of the Head of the Chair of Plant Anatomy and Physiology for five years. In 1953 his post was restored and he headed the Chair till 1977.

During the period of his pedagogical activities J. Dagys lectured courses of plant physiology, plant anatomy and morphology, plant ecology, different special courses, wrote the manuals "Augalų anatomija ir morfologija" [Plant Anatomy and Morphology] [9], "Augalų ekologija" [Plant Ecology] [10], with co-authors "Augalų fiziologija" [Plant Physiology] [11], more than 100 scientific articles in the fields of plant physiology, ecology, history of botany. Noteworthy are his works in the terminology of botany. He was the Editor-in-Chief of two dictionaries of botany terms: "Lietuviškas botanikos žodynas" [Lithuanian Dictionary of Botany] [12] and "Botanikos terminų žodynas" [Dictionary of Botany Terms] [13].

J. Dagys was active in establishing scientific institutions in Lithuania. He was one of the initiators of founding the Institute of Biology of the Lithuanian Academy of Sciences. In 1957, by J. Dagys' endeavours, the Laboratory of Plant Physiology was founded at the Institute of Biology. He was the first Head of the Laboratory. Under his guidance, the field of plant growth physiology was started therein.

J. Dagys was also active in scientific social life. For many years he headed the Society of Botany and the Biology Section of the society "Žinija" (Knowledge). In 1956, he was elected a Corresponding Member of the Lithuanian Academy of Sciences and in 1960 was given the name of Honored Scientist of Lithuania.

J. Dagys died in 1993.

The scientific and pedagogical activity of J. Dagys deserves a higher international evaluation. With respect to his remembrance we, his disciples, wish the future generations of plant physiologists to follow his way – to work for science and Lithuanian culture.

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100-OSIOS PROFESORIAUS JONO DAGIO METINĖS

Santrauka

Profesorius Jonas Dagys buvo įžymus augalų fiziologas, profesorius, habilituotas mokslų daktaras, Lietuvos mokslų akademijos narys korespondentas, nusipelnęs Lietuvos mokslo veikėjas. Ilgą laiką jis buvo periodinio mokslinio leidinio „Lietuvos TSR aukštųjų mokyklų mokslo darbai. Biologija“ atsakingasis redaktorius ir tęstinio leidinio „Lietuvos TSR mokslų akademijos darbai. Serija C“ redakcinės kolegijos narys. Šių dviejų žurnalų pagrindu šiuo metu leidžiamas mokslinis periodinis leidinys „Biologija“.

Dideli J. Dagio nuopelnai augalų fiziologijai. Jis buvo vienas iš augalų fiziologijos mokslo, kurio raida nutrūko 1832 m. po Vilniaus universiteto uždarymo, atkūrėjų Lietuvoje XX amžiuje. J. Dagys tyrinėjo 'bios' grupės medžiagas ir praplėtė bendrąsias augalų augimo ir vystymosi fiziologijos žinias. Jo mokslinius darbus teigiamai vertino kitų šalių mokslininkai.

J. Dagys parašė vadovėlių, botanikos terminijos veikalų, daugiau nei 100 mokslinių straipsnių, buvo aktyvus visuomeniniame darbe. Kartu su kitais botanikais įkūrė Lietuvos mokslų akademijos Biologijos institutą, o jame – Augalų fiziologijos laboratoriją. Vadovavo Botanikų draugijai, draugijos „Žinija“ Biologijos skyriui.

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