

## Assoc. Prof. Dr Stefan Draganov: Ad multo annos!

Maya P. Stoyneva<sup>1</sup> & Plamen S. Pilarski<sup>2</sup>

<sup>1</sup> Department of Botany, Faculty of Biology, St Kliment Ohridski University of Sofia, 8 Dragan Tsankov Blvd., 1164 Sofia, Bulgaria, e-mail: mstoyneva@abv.bg

<sup>2</sup> Department of Experimental Algology, Institute of Plant Physiology, Bulgarian Academy of Sciences, Acad. G. Bonchev St., bl. 21, 1113-Sofia, Bulgaria

*This essay is devoted to the 75<sup>th</sup> Anniversary of Assoc. Prof. Dr Stefan Draganov. The authors shall try to convey in it their personal impressions of him as teacher, colleague and scientist.*

**Stefan Yordanov Draganov** was born on 10 January 1932 in the village of Emen, a wonderland which he never left in spirit, though he made his career in a distant and very different setting: Sofia. The only son of a school-teacher, he grew up wrapped up in the love of his mother, in a small farming community, where people valued the land and the life it supported. During his childhood, as most Bulgarian kids at that time, he had to work and to help in the household to support the family.

Stefan Draganov finished secondary school in the town of Veliko Turnovo – an old Bulgarian capital and the heartland of the Second Bulgarian Kingdom. That town and its atmosphere left their imprint on his future life and carrier in science and teaching. A feeling of the historical roots and a great respect for personalities of inspiration permeated his life. This feeling found later expression in the profound bibliographical works of S. Draganov, who published a world bibliography of soil algae, a complete bibliography of the Bulgarian algae for the period 1898–1971, and a catalogue of fossil algae found in Bulgaria. His other works, such as the world bibliography on cave algae, are still waiting ready for their publication. Bibliographical pre-



Assoc. Prof. Dr Stefan Draganov.

cision and accuracy of the hundreds of references was the demand of this scientist and one of his beloved working places was and still is the calm atmosphere of the reading rooms of the University libraries. When speaking of Draganov, the first statement is that he is a well-known bibliophile. His collection contains almost everything he needs close at hand. Thus, it was not surprising that after graduating in biology in 1956 (see below), Stefan Draganov obtained a second degree in scientific information at the Faculty of Philosophy and History (1968). He was the first at the Faculty of Biology to organize lectures on Branch Bibliography in the Natural, Agricultural and Medical Sciences (1978–1982) and to include (since 1982) a Practicum on Library and Reference Work for students at the Departments of Botany and Hydrobiology of the Faculty of Biology at Sofia University. Many students would never forget the visits to the Cyrillus and Methodius National Library where, thanks to his good connections, he always managed to organize not only a general tour of the Library, but also work in the library depositories. This may sound strange now, when the students' access to this Library is not only allowed but highly appreciated, but in the pre-democratic period when he

organized it only students sitting for their diplomas could work there duly supplied with a relevant letter from the Faculty, and even then their access was restricted to only some of the reading rooms. Thus, the readers must try to understand the deep respect experienced by the beginners when they were guided by their tutor in an elegant grey suit through the silent corridors and depositories of the National Library.

It is really difficult to follow just one bibliographical line, when writing about this extraordinary person, without making loops and connections to the many different aspects of his life and teaching.

Owing to the political situation in the country in the 1940s, after graduating from the elite First Male Secondary School of Veliko Turnovo, Stefan Draganov was not allowed to proceed with university education. Paradoxically, he was permitted to work as a teacher in a small school of the town of Tervel. Only in 1956 he managed to graduate from the State University of Sofia, the Faculty of Biology, Geology and Geography. Once concentrated on botany during the second year of his studies, under supervision of his Assistant Professor (later Assoc. Prof. and Prof.) Dimitar Vodenicharov, he devoted all his life to this branch of science. Although generally known as algologist (or phycologist, but he himself always preferred the first term), he always maintained a wide-ranging interest in general botany, while his erudition on other botanical subjects (fungi, crypto- and phanerogams), their life, evolution and distribution could stir up envy in many mycologists and botanists. Most striking was the ease with which he presented his profound knowledge, usually with a smile, as if telling a joke, especially at the field trips, expeditions, etc. He was fond of saying that he thought of himself mainly as a botanist and that the study of algae was simply a natural vocation for anyone who finds plants interesting. The people and students around him knew the precision with which he collected and prepared the material for his lectures and exercises, as well as his perfect technique for permanent slides. Today, nearly 15 years after his retirement, some of his slides are still in use in our university master courses and inspire the admiration of students.

His meticulous manner of working explains why Stefan Draganov has not described many new species, even when the material in his possession was quite promising. He frequently corrected his students when they claimed a new species with his favourite

catchphrase: “New for the uninformed, not for science”. His wariness was also the reason for the relatively small in recent understanding number of publications by Draganov. Time and again he put back his manuscripts into his drawer, insisting on replication of the observations. As a result, there are only three new species described by him from Bulgarian soils: *Cylindrospermum echinulatum*, *Aulosira valkanovii* and *Calothrix hollerbachii*. Since their description, only one of these species (*C. echinulatum*) has undergone change of name and was corrected by its own author as *Cylindrospermum dobrudjense*. The second species, *Aulacoseira valkanovii*, was later confirmed from another habitat type. *Calothrix* is still accepted as one of the most difficult genera of cyanophytes and nobody has yet made its complete taxonomic revision.

But let us revert to the traditional way of biographical listing. After getting a degree in biology at the University of Sofia in 1956, Stefan Draganov held the post of Assistant Professor in Botany at the Pharmaceutical Faculty and only then he obtained the position of a Regular Assistant Professor at the Department, known today as the Department of Botany. It was known then as the Department of Plant Systematics and Plant Geography and belonged to the Biological-Geological-Geographical Faculty of the Sofia State University. S. Draganov climbed all professional steps from Assistant Professor (1959) to Senior Assistant Professor (1964), Main Assistant Professor (1966) and finally to Associated Professor (1981). He had a year of sabbatical (1965–1966) at the Leningrad State University and at the Botanical Institute of the Academy of Sciences of the USSR in Leningrad. There he had the opportunity to establish contacts with one of the masters of the Soviet Russian cryptogamic school – M.M. Gollerbakh – and subsequently dedicated to him one of the new species (*C. hollerbachii*).

As a lecturer in lower plants, Stefan Draganov not only proceeded with the courses of his supervisor Assoc. Prof. Dr D. Vodenicharov, but developed jointly with Prof. D. Yordanov some courses related to algae, fungi and lichens, which have recently found their continuation in the general Bachelor Programmes of the Faculty of Biology and in the Master Programme on Algology and Mycology of the Department of Botany at Sofia University. Since 1970, with an interruption in 1973–1975, S. Draganov had tutored the ground course on algae, fungi and li-

chens for different specializations at the Faculty of Biology: Botany – Part II (1970), Botany – Lower Plants (1973–1977), Lower Plants (1979–1984) and Plants Systematics – Lower Plants (1985–1992). A great step in phycological education at the University was the Course on Algology organized by Assoc. Prof. Dr D. Vodenicharov. Since 1964 it was first taught by Draganov and since 1973–1975, together with Assoc. Prof. Dr D. Temniskova-Topalova (later Prof. DSc), it was continued as a joint Course in Algology with Diatom Analysis, in the former master form of education known as ‘specialization in Botany’. A special course on lichens systematics and ecology (Introduction to Lichenology – since 1984) was also introduced. These special courses, together with many exercises on microscopic techniques (including microphotos) and algal cultures from the former Integrated Practicum in Botany, are now the milestones in the recent Master Program on Algology and Mycology at the Department of Botany. Furthermore, lower plants were taught by Draganov in the Courses on Bioresources (1976–1981) and Natural Plant Resources (since 1982), with special attention on the methodology, which he taught as part of the Integrated Practicum in Botany for specialization in Botany and Methods of Ecological Studies (1977–1981). Due to the efforts of S. Draganov, phytoplankton, phytoenthos, aquatic macrophytes, and lichens were profoundly studied in the former specialization in hydrobiology at the Department of Hydrobiology, largely as part of the Ecology of Hydrobionts in the practical course then named Integrated Hydrobiological Practicum. International recognition for S. Draganov came with invitations for lectures on lower plants at the Belarus State University of Minsk (1982).

An important part of the teaching activities of this vigorous man was not only the lectures he read at the Pharmaceutical Faculty of the High Medical Institute in Sofia (Botany – 1981), but the time and efforts he dedicated to travelling twice a month to the town of Shoumen in North Bulgaria, where he was an invited lecturer in botany at the newly created High Pedagogical School (recently, Konstantin Preslavski University of Shoumen). There he carried out the first lectures, exercises and summer practical courses in Botany (1973–1983), Actual Problems in Botany (since 1982), Anatomy and Morphology of Plants (1984–1985), and Plant Systematics (1968–1969 and subsequently since 1982). Similar to the summer practical

courses organized by him at Sofia University, these summer practical courses are still well remembered by most of the students and Assistant Professors. An important part of his teaching and research activities was the work at the Youth Expedition Club of Sofia University (under Nesho Chipev as Chairman), where Stefan Draganov organized scientific student expeditions and field trips along the Danube, in the regions of the thermal springs at Roupite and near the old volcano of Mt Kozhoukh (Southwest Bulgaria), Ograzhden and Strandzha Mts. Together with his students, he took part in the Pontic expeditions along the Black Sea coast, under the leadership of his colleagues Assoc. Prof. Dr Stefan Stoykov and Acad. Dr Todor Nikolov from the Faculty of Geology at Sofia University. These research student activities encouraged by him proved a starting point in science for many beginners, who continued their work in different fields of biology and nature conservation (Antoaneta Petrova, Dimitur Ivanov, Dobri Ivanov, Ivan Pandourski, Ivan Stefanov, Lyubomir Profirov, Trayan Nedev, Valentina Baeva, Ventsislav Karamfilov, etc.).

The teaching activities of Stefan Draganov reached deep to the core of Bulgarian education and he was invited to teach biology classes at the closely related with the Faculty of Biology, Acad. Luybomir Chakalov National Secondary Mathematical School (presently known as the National Secondary School in Natural Sciences and Mathematics). His understanding of the importance of properly compiled handbooks and manuals as a good educational basis lead to his participation in compiling the Practical Handbook in Botany (published in 1979 in co-authorship with B. Kitanov, G. Georgiev, E. Bozhilova, D. Temniskova, E. Chakalova, J. Koeva, and L. Drazheva) and the recent Handbook in Biology, with a notebook for the 6<sup>th</sup> grade (in co-authorship with G. Kimenov and A. Boyadzhieva). Special mention deserves his work on the comprehensive *Flora of Bulgarian Algae*, together with D. Vodenicharov and D. Temniskova-Topalova and in co-authorship with S. Dimitrova and G. Ilkov. The first volume of this *Flora* appeared in 1971, and besides its importance as a research manual in Bulgarian language, it concentrated on the distribution of species in the country, provides more general data on algae, their habitats, ways of collecting, culturing and keeping in scientific collections. Special mention also deserves the participation of S. Draganov, in co-authorship with his colleague Dr Vera Petrova

from the University Scientific Station and Aquarium in Varna, in the work on the *Encyclopedia of the Black Sea* (1978) under the outstanding Bulgarian hydrobiologist Prof. Alexander Vulkanov. Besides the notes on the species composition and distribution of algae and their resources not only in the Black Sea, it provided data on the algal flora and resources of the coastal wetlands. Love of teaching and experience in scientific knowledge prompted Stefan Draganov to devote many years of his life to a nomenclature system for the algae, fungi and lichens (1994) in the Bulgarian language. With the solid linguistic background provided by one of his friends and prominent Bulgarian experts in the field, Prof. Dr Zhivko Boyadzhiev, this system still supports application in teaching in the Bulgarian language, in spite of the enormous recent changes in the knowledge of phylogeny and evolution of the organisms after the introduction of new molecular and genetic methods, and following the reasonable modifications in the classification of the Latin system itself.

Stefan Draganov supervised several graduate and two post-graduate students. Most of them embarked on careers in phycology, or in other academic fields (Ba Ibrakhima Samba, Boyko Georgiev, Elena Dimitrova-Burin, Elena Genova, Evgeniya Slavomirova, Evtimiya Dimitrova, Irina Puneva, Izida Lilova, Maya Stoyneva, Phan Dahn, Plamen Pilarski, Snezhana Moncheva, Tenyo Meshinev, Zheni Dimitrova, and Zlatka Georgieva). Instead of a factory for graduate diplomas or PhD degrees, his office and laboratory, were rather a meeting place of persons who were interested in algae and science in its different aspects. Occasionally, more natural history, evolutionary topics, or historical trends were discussed there than the more narrow phycological problems. However, phycological and particularly taxonomical and ecological discussions on algae were always under way and something his students greatly enjoyed were discussions under the microscope. Now and then, his explanations of the microscopic slides were long and detailed and probably this gave rise to the envious myth that he rather identifies the algae instead of his students. The truth was that Stefan Draganov embarked on discussion of the microscopic slides only after a sufficiently long period for his students to form an opinion of their own. Such type of tutorship not only encouraged the students to seek deeper knowledge, but provoked helpful, profound and long discussions between freshmen

and elder colleagues that had marked some long-lasting friendships further in time.

The hospitality and generosity of Stefan Draganov were legendary and there was hardly a student, or friend, who were unfamiliar with it. It was simply impossible to take a cup of tea or coffee at the Faculty and pay for it, if he was around. Often sandwiches or chocolates appeared from 'nowhere', together with the coffee... And this was not because he was the richest man at the University; it ensued from his profound understanding of the gentlemanly tutor's behaviour. He thought and felt it a great honour to be a University professor and he believed that one should do it with pride.

Stefan Draganov's routine provided stability, his marriage gave him all the support he needed. His wife, Lidiya Draganova, not only managed to keep a discreet eye on his health and work, not only always found time to greet his alumni's newborns with gifts and flowers, but did for all his students much more than was expected from a professor's wife. Credit for much of the success and pleasant moments during the scientific expeditions and field trips organized by Stefan Draganov goes to her. As a well-known Associated Professor and holder of PhD in pharmaceuticals, she supplied the participants in these trips with personally made cocoa-flavoured sun creams and insect repellent lotions, with wonderful chocolate liquor (which at the time was available only for dollars in special shops) and a host of other unforgettable culinary delights. In August 1981, just before the start of an expedition on the Danube, she took in three of the girls from the student group at the small family flat in Krasno Selo residential district of Sofia, and helped them on her own sewing machine all night long to sew the sheaths for the sleeping bags of all 13 participants in the expedition... Strong family support came even from Stefan Draganov's young son, Ivaylo, almost always the youngest participant in his fathers expeditions and excursions, who lightened up the mood with his peculiar sense of humour, promptly inherited from his family. Not surprisingly, after Ivaylo Draganov grew up and married, he named his daughter after his father, according to an old Bulgarian tradition of paying tribute to the family patriarch.

In his scientific studies, Stefan Draganov always showed a special interest in the blue-green algae. He doubted that it was justified to unite them with the bacteria and always drew special attention to their abil-

ity to photosynthesize and produce oxygen. For those who still insist on the bacterial name for these organisms (cyanobacteria), one should point out only that despite the fact that *Archaea*, *Bacteria* and *Eukarya* were fully accepted for uniting the living organisms into one tree of life, the new code name for them in the Bacteriological Nomenclature is Prokaryotes. Probably, the new name for this peculiar group of organisms, known as cyanobacteria or blue-green algae – *Cyanoprokaryota* – given by Komárek & Anagnostidis (1995, 2002) in the volumes of *Süsswasserflora for Mitteleuropa*, in spite of being a compromise with the International Code for Botanical Nomenclature, will be appreciated by him. A recognition of the scientific activities of S. Draganov was his chairmanship of the Session on Biology of Blue-Green algae within the Phycology Section at the 12<sup>th</sup> International Botanical Congress.

One of the topics that fascinated Stefan Draganov was the cave algae with their enormous living capacity in extreme habitats. Most probably, not only the algae themselves, but the beauties of Bulgarian caves and the interesting personalities in our first speleological club (e.g. Petur Tranteev – one of the pioneers in Bulgarian speleology, Yassen Antov, etc.) contributed to a unique combination of good feelings always experienced by the students at Stefan Draganov's lectures on the speleophyton. This gave rise to some interesting publications by S. Draganov, separately or in co-authorship with his student Elena Dimitrova-Burin, on the active cave phycoflora, and it is only a matter of regret that this line of research was not continued by him and a lot of material remained unprocessed.

We have mentioned the work on the speleophyton so that it would not be overshadowed by, perhaps, best known field of research of Stefan Draganov – the soil algae – to which he devoted many years, studies and papers, besides his PhD thesis. He defended a Doctor's degree in 1979 (as a self-tutored graduate student) with a thesis on the soil blue-green algae from the forest-steppe zone in North Bulgaria. Thus, the broad scientific public knows him as a specialist in soil blue-green algae, although it would be much more correct to say that he has knowledge on all soil algae (including green, yellow-green, etc.), and only his modesty prevented him from publishing all the results of his profound culture studies. An important part of his work on the edaphophyton was to clarify and improve the methods for culturing and counting the soil



Dr Draganov in the field trip with students, 1981.

algal flora, especially in long-stored samples in air-dry conditions. These works were published separately or in co-authorship with his student Evtimiya Dimitrova. His works on the species composition and distribution of the soil blue-greens and their communities in different parts of Bulgaria, including the Danube islands and nature reserves, as well as in the industrial regions, were published partly separately and partly in a co-authorship with his students and graduates Tenyo Meshinev, Phan Dahn and Maya Stoyneva. Some of his studies on the soil algae from industrial regions, such as the 3<sup>rd</sup> Metallurgical Centre in SE Bulgaria, owing to the peculiar political times we all lived in, remained only as unpublished 'secret' scientific reports in the pre-democratic University Scientific Research Fund. Stefan Draganov was particularly interested in the effect of herbicides on the growth and morphology of soil algae and this interest was based on his belief that mankind cannot develop without using herbicides in agriculture, but should reach a reasonable compromise in this usage. Studies on herbicide effects were published partially by him and in co-authorship with his student Izida Lilova.

Stefan Draganov considered the evolutionary trends in algae and the evolutionary history of the Earth among the most attractive topics in science. Together with his colleagues and good friends Assoc. Prof. Dr Nikolina Kovacheva and Assoc. Prof. Dr Stefan Stoykov, he started work on fossil algal pigments and, regretfully, only one paper on this subject came out.

The interests of Stefan Draganov in the field of hydrobiology and particularly in floristic and community studies of the hydrophyton were best expressed in his studies on the benthic blue-green algae along the Black Sea coast and in the studies of the qualitative and quantitative composition of the phytoplankton and phytobenthos of the River Danube and its adjacent water bodies, combined with saprobiological assessment of the water quality. Besides the annual reports presented to the Danube Commission, most of these studies were published in co-authorship with his diploma and postgraduate students Boyko Georgiev, Irena Georgieva and Maya Stoyneva.

In addition to this, Stefan Draganov was profoundly interested in the groups of slime moulds and lichens. The first found expression in his paper on the Bulgarian Myxomycetes in co-authorship with Tsvetana Hinkova; the second, besides teaching on the topic, accompanied him throughout his scientific career and we can only regret that he never published his bibliography and catalogue on Bulgarian lichens. His profound understanding of the biological processes and deep love and respect for Bulgarian history prompted Stefan Draganov to cooperate with the National Institute for Historical Monuments, where he suggested many ideas but due to poor health managed to organize only one project on studying the destructive agents of the prominent rock phenomenon Madara Horseman (1992–1993) listed as a World Natural and Cultural Heritage Monument.

The deep imprint left by the beautiful nature of his native Emen on the whole life of Stefan Draganov explains his idea to protect legislatively some of the so-called 'lower plants': algae, fungi and lichens. After years-long unsuccessful attempts to professionally convince the biologists in the administration of the Ministry of Environment that it is necessary to protect these organisms, together with his Assistant Professor Dr M. Stoyneva he sent an official written proposal to the Ministry for protection of

six algae, fungi and lichens. After no reply came, they published it for discussion in a Journal on Biology, Ecology and Biotechnology and, finally, in 1994, it appeared before the broad public. In the meantime, this 'fight' was indirectly supported by nearly all phycologists and mycologists in Bulgaria, who in a series of scientific publications suggested further species for protection. The Red List of Bulgarian Fungi prepared by Bulgarian mycologists is now a fact, and some algae and fungi are included in the new *Red Data Book of Bulgaria* (in prep.), but lichens are still waiting for acknowledgement. Fortunately, at least their mass collection for export was stopped legislatively.

A man of boundless energy, Stefan Draganov always took the opportunity to go out in Nature, not necessarily with students. Since his own student years and subsequently, he had travelled or participated alone or with his wife in many scientific expeditions, together with Prof. Dr Alexandar Vulkanov, Prof. Dr Dimitar Vodenicharov, Prof. Dr Boris Roussev, etc. In these expeditions he showed his uncanny skill for finding superb collecting sites. One should underline here that the brief reconstruction of the lifework of Stefan Draganov above is important for reminding us that even in our era of modern biology, organisms in nature are still its main focus and that first-hand knowledge of organisms and their environment should not be excluded from the experience of our young scientists.

Stefan Draganov was a member and then Secretary of the Editorial Board of the Botanical Series of the Annual of Sofia University and worked there until the time of his retirement. He is member of the Bulgarian Botanical Society (1959–1999), Bulgarian Society for Soil Studies (since 1964), Bulgarian Naturalist Society (since 1968), Society of Scientists of Bulgaria (former Union of Scientific Workers; since 1969), and of the International Association of Soil Studies (since 1964). Although known abroad among his colleague-algologists with his publications, he made few profound friendships. Such an outstanding friendship through the long years of professional life was his friendship with the prominent Slovakian and world phycologist, Frantisek Hindák.

Stefan Draganov has not received many awards, but the Honourable Sign of Sofia University conferred on him is the best starting point for his recognition.

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