A tribute to Dr. Slavcho Petrov on the occasion of his 90th years anniversary

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On 26th September 2018, the outstanding Bulgarian bryologist and palynologist Dr. Slavcho Petrov turned 90 years. Slavcho Petrov (Popiliev) was born in 1928, in Dragovistitsa village, Kyustendil district. He graduated in biology in 1950 at Sofia University “St. Kliment Ochridski”. In 1950–1954, he was a regular PhD student at the Department of Plant Systematics and Phytogeography of Sofia University under the supervision of Academician Daki Yordanov. In 1954, Slavcho Petrov defended his PhD thesis entitled: “Sphagnum-dominated mires in the coniferous forests of Vitosha and Western Rhodopi Mts”. Scientific advancement of Slavcho Petrov and his establishment as one of the leading Bulgarian scientists was related to his contacts with eminent Bulgarian researchers in his early student years. Communication with such renowned scientists like Prof. Nikola Arnaudov, Acad. Nikolay Stoyanov, Acad. Boris Stefanov, and Acad. Daki Yordanov, inspired Slavcho Petrov to become involved in the field of botanical science.

After 1955, Slavcho Petrov went to work at the Institute of Botany with Botanical Garden at the Bulgarian Academy of Sciences. He started as a research fellow (1955–1958) and subsequently became a senior researcher (1961–1963). In 1964–1966, he headed the Department of Plant Systematics at the Institute of Botany with Botanical Garden, Bulgarian Academy of Sciences, and from 1966 until his retirement in 1988 he was head of the Department of Paleobotany. He taught plant systematics at the Department of Plant Systematics and Phytogeography in the Faculty of Biology, Geology and Geography at Sofia University (1958–1961), and botany at the Pharmaceutical Faculty of the Medical University in Sofia (1979–1980). He specialized palynology in Moscow (USSR – 1961, 1967–1968), Warsaw and Krakow (Poland – 1964), and Leningrad (St. Petersburg) (USSR – 1967–1968). In 1952–1953, he was member of the Board of Bulgarian Botanical Society. Slavcho Petrov was scientific supervisor of two PhD students: Lyuba Filipovitch (1976, palynology) and Ofelia Ivanova (1977, pollen morphology), and one MSc student – Anna Ganeva (1986, bryology).

Owing to his broad scientific interests, Slavcho Petrov left a remarkable trace in the Bulgarian natural history science. His scientific career resulted in 48 scientific papers (Supplement 1) in various fields of botany: bryology, palynology, paleobotany, pollen morphology, and vascular plant floristics. He is the author of 13 popular books (Supplement 2), and 12 popular articles (Supplement 3).
Bryological studies

The work of Dr. Slavcho Petrov marks a period of its own in the development of Bulgarian bryology. He is the founder of bryological research at the Institute of Botany, BAS. He began his scientific career as bryologist and this is his greatest contribution to Bulgarian science. In the beginning of the 20th century, Bulgarian bryophyte flora was studied only by foreign researchers. At that time, Prof. Nikola Arnaudov began his bryological work. He published the first papers on Bulgarian bryophytes in 1908–1914 and established the first bryological collection (now part of SOM). Bryology was then an unorthodox scientific field in Bulgaria and could have remained a dead end, but for the interest of Slavcho Petrov in bryophytes and the encouragement and guidance of Prof. Arnaudov, in whose house Petrov lived during some of his student years. Already in the course of his university studies and after finishing his PhD thesis, Slavcho Petrov worked actively with Prof. Arnaudov and made a rapid advance in bryology. Thus, following the steps of Prof. Nikola Arnaudov, Slavcho Petrov resumed bryological research in Bulgaria after a gap of 40 years. He engaged in intensive purposeful inventories of the bryophyte flora in the mountainous regions in Bulgaria. His first bryological papers were published in 1955, and he reported new chorological data for the bryophyte flora of Vitosha and Pirin Mts, as well as three new species for the Bulgarian bryophyte flora. In the years to follow, he conducted a number of systematic studies in various parts of Bulgaria resulting in 11 more papers that provided by far the most comprehensive chorological and ecological information on many floristic regions of Bulgaria.

In co-authorship with Prof. Boris Stefanov, Slavcho Petrov compiled the first detailed checklist of Bulgarian bryophytes. Their work included a comprehensive discussion of the role of bryophytes in nature, their ecology and distribution. The checklist enlisted 550 bryophyte species for the territory of Bulgaria, including data on altitudinal preferences and distribution by floristic region for each species.

During his extremely productive bryological work, Dr. Petrov has discovered 104 bryophyte species new to Bulgaria (12% of the total bryophyte flora). He is the founder of the bryological collection in the Herbarium of the Institute of Botany – SOM (presently, part of the Institute of Biodiversity and Ecosystem Research). The collection contains more than 9800 herbarium specimens collected by Slavcho Petrov, the earliest one dating back to 1949.

The opus magnus of Dr. Petrov’s work is the publication of the first, and so far the only, Bryophyte Flora of Bulgaria – Bryophyta Bulgarica Clavis Diagnostica (1975). It includes 670 bryophyte species. This is the
most important reference book on the Bulgarian bryophyte flora, which has laid the foundations for bryological research of the later – generation bryologists in Bulgaria.

Dr. Petrov summarized the work on bryophytes in Bulgaria in a review paper that includes full bibliography on the bryophytes in the country until 1975 and an attempt for florogeographic analysis of the Bulgarian bryophyte flora.

Besides on the Bulgarian bryophyte flora, he published two papers on the Albanian bryophyte flora describing the bryophyte habitats and reporting 134 species for this bryologically poorly known country. It was Slavcho Petrov who reported for the first time Neckera cephalonica for mainland Europe and provided a detailed morphological description and illustrations of this taxon and the related N. pennata.

Studies of Sphagnum-dominated mires

The work of Slavcho Petrov on Bulgarian Sphagnum-dominated mires merits special attention. These important habitats have been, and to a large extent, still are neglected by the Bulgarian scientists due to their small size and scattered distribution. Dr. Petrov was the first to study in depth their origin, history and structure, and to highlight their importance for biodiversity and conservation, pointing out that they are situated far away from the optimal range of their development and thus are extremely vulnerable to climatic and human influences. Sphagnum-dominated mires were the topic of Petrov’s doctoral thesis, which resulted in two voluminous papers on the mires in Mt Vitosha and the Western Rhodopi Mts. In these papers, he analyzed in detail the climatic, edaphic and hydrological conditions for the origin and development of Sphagnum-dominated mires supported by palynological analyses. He offered a comprehensive floristic and phytosociological analysis of the studied habitat and commented on its relationship with the surrounding forests. Information on the history of development and floristic composition of the mires in Western and Central Stara Planina and Sredna Gora mountains was included in the paleobotanical studies of Slavcho Petrov discussed below.

Studies of the Bulgarian higher flora

Besides his bryofloristic work, Slavcho Petrov published several papers on the vascular plants distribution, with florogeographic analyses of the studied regions. He reported in co-authorship two new species of vascular plants for the Bulgarian flora: Avena compacta and Tu-
Palynological research and Paleobotanical studies

Along with his bryological research, Slavcho Petrov worked on the history of vegetation changes by using spore-pollen analysis of *Sphagnum*-dominated mires. The target areas were Western and Central Stara Planina and Sredna Gora Mts. These works provided valuable insights into the development of forest vegetation during the Holocene. These pioneer studies used pollen analyses for the first time for reconstruction of vegetation and discussion of the influence of climatic and anthropogenic factors during the Holocene in Bulgaria. The work on Western Stara Planina mires provided further evidence on the autochthonous origin of *Castanea sativa* and *Juglans regia* in Bulgaria. The palynological studies of Slavcho Petrov triggered a large amount of research in this field in the subsequent years and until now. The palynological studies of Dr. Petrov supported the assumption of the lack of glaciations during the Quaternary.

The paleobotanical research of Slavcho Petrov is related also to studies of the Neogene flora on the basis of spore and pollen analysis. He and his co-workers were the first to report and describe in detail fossil pollen from some taxa, e.g. *Cyclocarya cyclocarpa*, Reevesia sp., and *Itea* sp. from the Mio-cene, as well as *Thalictrum*, *Eucommia*, *Apocynum*, *Periploca*, and *Plantago* from the Miocene-Pliocene. These studies are both of paleobotanical and of stratigraphic interest. The paleobotanical studies in Bulgaria until 1965 were summarized by Petrov and Palamarev.

Studies of pollen morphology

The studies of Slavcho Petrov (1973–1988) were focused on pollen morphology of many recent species from Bulgarian flora. In a series of papers, he and his PhD student studied 94 taxa from family *Ranunculaceae*, most species of family *Caryophyllaceae*, and 14 species from family *Iridaceae* of Bulgarian origin by means of light microscope, and partially by SEM. On the basis of the exine structure, Slavcho Petrov and co-workers distinguished and illustrated seven types of pollen within *Ranunculaceae*, 14 pollen types within *Caryophyllaceae*.
and 10 for *Iridaceae*. They pointed out the distinguishing features of pollen morphology and pollen morphometrics for each studied species. Dichotomous keys for genera identification were compiled on the basis of their pollen. Whenever possible, keys for species identification were elaborated. The position of some genera within the established systems of the families was discussed from palynomorphological point of view.

**Popular works**

Besides being a scholar of broad scientific interests, Dr. Petrov proved an excellent promoter of botanical knowledge to broader audience. His popular papers and books are written skillfully so as to communicate new knowledge and engage the readers’ interest until the very last sentence. Both the scientific and popular work of Slavcho Petrov shows his wide scientific erudition, excellent knowledge of contemporary literature and latest novelties in botany, his ability for precise and clear formulations, and communication of the interesting facts about the world of plants.

We, the followers of Dr. Slavcho Petrov, admire his impressive scientific activity and are deeply grateful that he paved the way for future generations of bryologists in Bulgaria.

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**Supplement 1. Scientific publications of Dr. Slavcho Petrov.**


Supplement 2. Popular books of Dr. Slavcho Petrov


Петров, Сл. 1962. Сънище на нашата транса /Овощните растения/ [Sun on Our Table /Fruit Plants/]. Народна младеж, София [Narodna Mladezh, Sofia] (in Bulgarian).

Петров, Сл. 1964. Растения, които ни хранят и обличат (II издание) [Plants that Feed and Dress Us, II ed.]. Народна младеж. София [Narodna Mladezh, Sofia] (in Bulgarian).


Supplement 3. Popular articles of Dr. Slavcho Petrov


Петров, Сл. & Паламарев, Е. 1961. Редки и интересни растения в нашата природа [Rare and interesting plants in our nature]. – Природа, 3: 52-59 (in Bulgarian).


Петров, Сл. & Паламарев, Е. 1972. Пети Международен конгрес по проблемите на неогена в зоната на древното Средиземноморие /Тетиса/ [The Fifth International Congress on the problems of Neogene in the ancient Mediterranean (the Tethys)]. Сп. БАН, 5: 58-63 (in Bulgarian).


