

ARTICLE

The past three decades of plant physiology in Hungary

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ABSTRACT This retrospective paper describes the emergence and development of the organizations of plant physiologists and their activities in the last three decades in Hungary. It is concluded that the Federation of European Societies of Plant Physiology (FESPP) initiated the birth of the Hungarian Society for Plant Physiology and exerted great impact on its activities in participating the FESPP congresses, in organizing the congresses of the Hungarian Society and also the 12th FESPP Congress in Budapest. The past 30 years witnessed the transition of the traditional plant physiology into the postgenomic era, which brought more intense co-operation between plant scientists in a modernized form of the organized framework of research and development of integrated plant biology.

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KEY WORDS

Hungarian Society for Plant Physiology
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emergence and development
The birth and development of the Hungarian Society for Plant Physiology

The beginnings of plant physiology in Hungary date back to the middle of the 19th century and are marked with the names of Lajos Jurányi (1837-1897), Sándor Mágocsy-Dietz (1855-1945) and Árpád Paál (1889-1943) (Sarić 1988). Research and teaching was always associated with the main universities (Budapest, Szeged, Debrecen and Pécs) while basic and applied research characterized the institutes of the Hungarian Academy of Sciences (e.g. the Biological Research Centre in Szeged and the Agricultural Research Institute at Martonvásár) and breeding institutions like the Cereal Research Institute in Szeged. Presentation of their scientific achievements and merits is not my purpose in this paper. The aim of this flashback is to focus on the more recent events of plant physiology in Hungary, from the point of view of the Hungarian Society for Plant Physiology.

The three-decade long history of plant physiology in Hungary is strongly connected to the birth and development of the Federation of European Societies of Plant Physiology (FESPP). The foundation of the Interim FESPP dates back to the mid-70's. The meeting of the Interim FESPP Council was held in Vienna in 1977 where Hungary was represented by professor Gábor Farkas, academician. It was agreed that the final ratification of the statutes should be made by members of the FESPP at the First Congress (Lichtenthaler 1986). Indeed, this was done at the Inaugural Congress held in Edinburgh in 1978. The writer of this paper was lucky enough to participate on this first FESPP Congress and consecutively on each FESPP Congresses until the 13th, the last one by this name, held in Hersonnissos, Crete in 2002, when the name of

the Federation was changed from Plant Physiology to Plant Biology (FESPB) (Table 1).

The birth of the first organization of the Hungarian plant physiologists dates back to 1981. A National Committee with eleven members under the aegis of the Hungarian Academy of Sciences (HAS) was organized by professor Gábor Farkas, and it was approved in June 1981. The members of the National Committee were as follows: Edith Cseh, Ferenc Láng (Eötvös Loránd University, Budapest); Márta Dévai (Agricultural Research Institute, HAS, Martonvásár); László Erdei (Institute of Biophysics, Biological Research Center, HAS, Szeged); Gábor Farkas, Pál Maliga, Ágnes Faludi-Dániel (Institute of Plant Physiology, Biological Research Center, HAS, Szeged), Ferenc Sági (Cereal Research Institute, Szeged); Erzsébet Köves, Ferenc Zsoldos (József Attila University, Szeged) and László Pólya (Kossuth Lajos University, Debrecen). Prof. Gábor Farkas served as president, and Pál Maliga as secretary. By the leave for sabbatical of Pál Maliga, László Erdei was appointed as secretary in October 1981.

The Hungarian National Committee became affiliated officially to the Federation of European Societies of Plant Physiology (FESPP) in 1982 with László Erdei as National Delegate.

Very importantly, it was agreed that the Hungarian Academy of Sciences would pay the membership fee of 10 DEM (German Marks) per person, as later it turned out, unparalleled among the so-called "socialist" countries. Since the FESPP statutes made possible to deposit membership fees in national currency, provided it is used for the benefit of FESPP (e.g. organization of local FESPP meetings), we considered the extension of the National Committee.

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Table 1. Congresses of the Federation of European Societies of Plant Physiology (FESPP, 1-13) and those of after changing the name to Federation of European Societies of Plant Biology (FESPB, 14-17).

No.	Place	Time	President
1 st	Edinburgh	10 - 13 July, 1978	Prof. Charles P. Whittingham
2 nd	Santiago de Compostela	27 July - 1 August, 1980	Prof. Ernesto Vieitez
3 rd	Warsaw	Cancelled (due to martial law)	Prof. Roman Antoszewski
4 th	Strasbourg	29 July - 3 August, 1984	Prof. Henri Duranton
5 th	Hamburg	31 August - 4 September, 1986	Prof. Hartmut K. Lichtenthaler
6 th	Split, Yugoslavia	4 - 10 September, 1988	Prof. Miloje R. Saric
7 th	Umeå	5 - 10 August, 1990	Prof. Ola Heide / Prof. Dr. Gunar Öquist
8 th	Antwerpen	23 - 28 August, 1992	Prof. Jean-Pierre Verbelen
9 th	Brno	3 - 8 July, 1994	Prof. Stanislav Procházka
10 th	Florence	9 - 13 September, 1996	Prof. Amedeo Alpi
11 th	Varna	7 - 11 September, 1998	Prof. Emanuil N. Karanov
12 th	Budapest	21 - 25 August, 2000	Prof. László Erdei
13 th	Hersonissos, Crete	2 - 6 September, 2002	Prof. Kalliopi A. Roubelakis-Angelakis
14 th	Krakow, Poland	23-25 August 2004	Prof. Franciszek Dubert
15 th	Lyon	17 - 21 July 2006	Prof. Christian Dumas
16 th	Tampere, Finland	22-28 August 2008	Prof. Jan Schjoerring
17 th	Valencia, Spain	4-9 July 2010	Prof. Jose Pio Beltran

The year of 1986 brought heavy losses as our esteemed colleagues, Prof. Gábor Farkas and Prof. Ágnes Faludi-Dániel died much too early at the age of 61 and 56, respectively. This year, however, also provided a good occasion for the extension of the National Committee to more than 60 members with Ferenc Zsoldos as president and László Erdei as secretary and National Representative at FESPP. This opened the opportunity to participate in the FESPP Congresses organized every second year in different countries in Europe.

On February 7, 1991, as soon as the political changes in 1989-90 made it possible, the independent *Society for Plant Physiology* was established by 17 founding members (Beáta Barnabás, Alajos Bérczi, György Borbély, Edit Cseh, László Erdei, Zoltán Gombos, Gábor Horváth, Géza Kovács, Ferenc Láng, Endre Lehoczki, László Mustárty, Emil Páldi, Ferenc Sági, Ferenc Solymosi, Zoltán Szigeti, Zoltán Tuba, Ferenc Zsoldos), with László Erdei as president and Zoltán Szigeti as secretary. In a short time the number of members increased from 60 to 80. In the first few years we worked in sections (photosynthesis, ecophysiology, stress biochemistry and physiology, weed physiology and herbicides, membrane transport and mineral nutrition, molecular biology, cell- and developmental physiology). The leaders of sections composed the “*Board*” with Edith Cseh as Chair. However, this structure was not viable since only a few sections were active in organizing short scientific meetings. This organization structure was discontinued after the year of 2000 (Szigeti 2000).

The Society continued its work with renewed energy. In 1993 we paid tribute to the great Hungarian plant physiologist, Árpád Paál, by the establishment of a memorial tablet in the Department of Plant Physiology, Eötvös University, Budapest. We founded the “*Farkas Gábor*” Award and Pla-

quette, which recognizes excellence in research and education of plant physiology. In 1995 we also founded the “*Scientia Amabilis Foundation for the Hungarian Plant Physiology*” for the support of young researchers in plant biology and we support the biannual Scientific Student Competitions. During this decade we organized or participated in the organization of different conferences, thus, the XXVth Membrane-Transport Conference in Sümeg, in 1997 the International Congress on *Stress of Life*, in 1998 the XIth International Congress on *Photosynthesis*. It was a great honor for us to organize the 12th Congress of the FESPP in Budapest at the turn of millennium, at 21-25 August, 2000. The event was a very successful meeting of about 700 plant scientists from 50 countries (Figure 1).

The statutes of the Society allow to donate a honorary membership to scientists who outstandingly contributed to the development of plant physiology in Hungary by cooperation in research and teaching or in organization of institutes. The first Honorary Member was Prof. Dr. H. K. Lichtenthaler (Karlsruhe), followed by Prof. Dr. H. R. Bolhár-Nordenkamp (Vienna), Prof. H. C. F. Proctor (Exeter), Prof. Dr. R. J. Strasser (Genf) and Prof. P. Böger (Konstanz). At the ceremony of the donation of Honorary Membership a special hand-painted diploma was bestowed (Figure 2).

On May 12, 2006 the General Assembly changed the name of the Society to the Hungarian Society for Plant Biology, in accordance with the new name of FESPB. The new name expressed the acceptance of the new trend in plant biology. At the same time the mandate of the president and secretary expired and Dr. János Györgyey was elected as president and Dr. Irma Tari as secretary. A new initiative was the organization of the Forum of Young Plant Scientists which

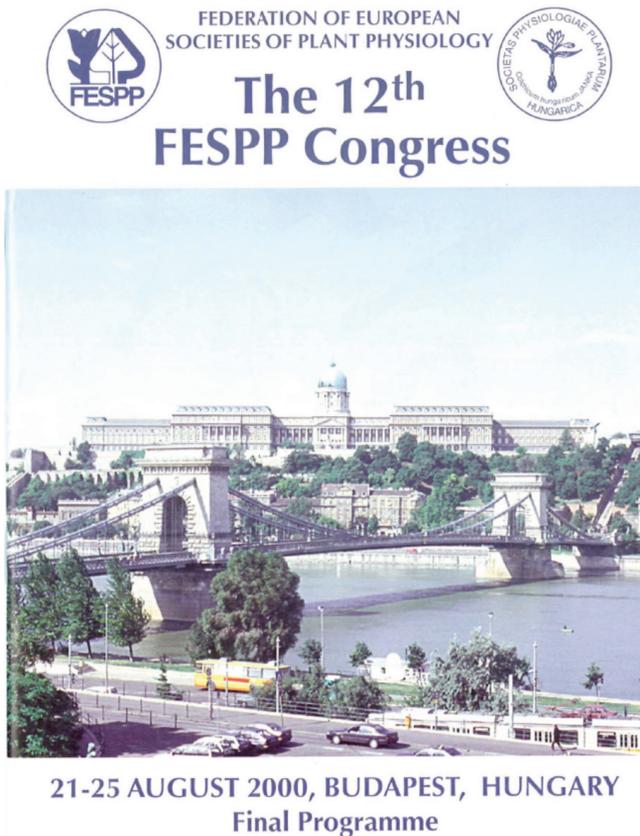


Figure 1. The Final Programme Booklet of the 12th FESPP Congress held in Budapest.

is a one-day workshop held yearly usually in January. So far about 25 presentations were held in the last 4 years. The Forum serves for the selection of candidates for the FESPP Award at the actual forthcoming FESPP Congresses. At the General Assembly in 2011 László Erdei stepped down as National Representative at FESPP and János Györgyey was elected for this position.

On the side of the HAS, a Committee for Plant Physiology, initiated by academician Dénes Dudits, was established in 1996. The Committee has been working in close cooperation with the Society mainly in the evaluation process of scientific merits of the candidates for the title of Doctor of Science (DSc) or by other name, the Doctor of the Hungarian Academy of Sciences. Unfortunately, the Academy reorganized the scientific committees by reducing their numbers and by the decision of 9/2011 (II.22.) the Committee for Plant Physiology of the Department of Biological Sciences was dissolved and incorporated into a committee for a broader discipline (molecular- and cell biology).



Figure 2. An example for the Diploma of Honorary Membership bestowed to the awardee person.

The history of the Congresses of the Hungarian Society for Plant Physiology/Biology

The first congress of our National Committee, the predecessor of the Society, was held at 7-9 July, 1982 in Szeged in the Biological Research Center, Hungarian Academy of Sciences. Typically, just like in the case of the first congress of the FESPP, it was not named as the 1st Congress, since it could not be foreseen whether there would be continuation or not. The Congress was definitely a success with about 130 participants providing 85 abstracts covering the main fields of plant physiology from mineral nutrition through photosynthesis to the first molecular biological topics. It was decided that the Congress should be organized in every 3rd year, possibly intermitting the biennially held FESPP congresses. The numbers of participants and abstracts (100) have increased in the 2nd Congress (July 2-4, 1985). The 3rd Congress (July 5-7, 1988) showed a significant development in basic research and applied methods in plant molecular biology, membrane-transport mechanisms, signal transduction, stress physiology and photosynthesis. The abstracts of this and the 4th Congress were published in Hungarian in *Botanical Communications (Botanikai Közlemények)*, vol. 77 and 78, respectively.

In 1994, the 5th Congress (July 13-15) became international since it was joined to the "Biostress '94 – Bioexpo '96" Workshop on Plant Responses to Environmental Stress (July 10-12, 1991) and organized by the Hungarian Society for plant Physiology with about 25 participants from Argentina, Austria, Greece, Israel, Italy, Japan, Germany, the Netherlands, UK as well as Hungary. The Workshop material appeared as full papers in *Acta Phytopathologica et Entomologica Hungarica* Vol. 30: 5-132 (1995). Unfortunately, the Bioexpo World Exhibition planned for 1996 in Budapest and Vienna was cancelled and thus our related activities in this direction also ceased. The 6th Congress, held in Budapest on

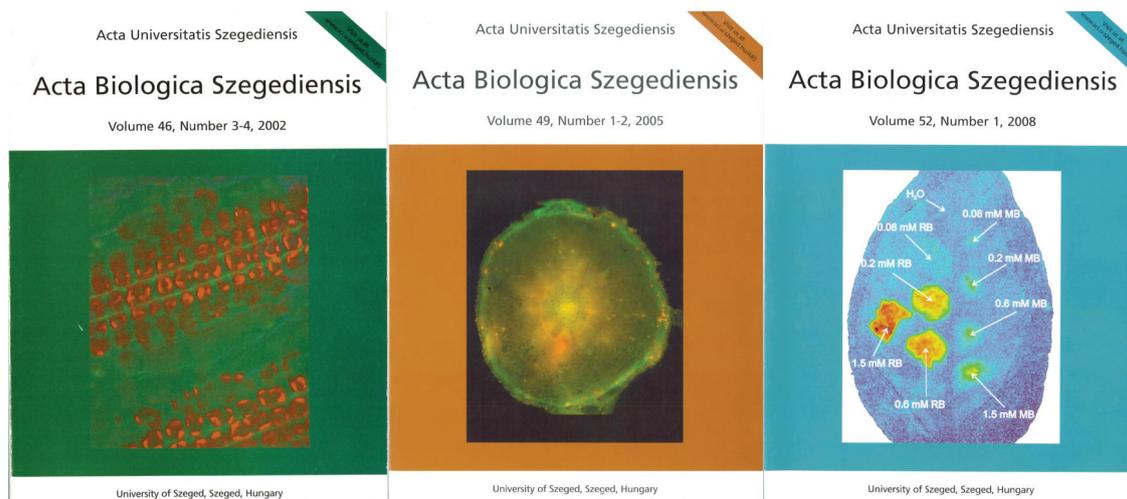


Figure 3. Front cover pages of *Acta Biologica Szegediensis* involving the contributions to the 7th, 8th and 9th Congresses of the Hungarian Society of Plant Physiology/Biology, respectively.

June 30, 1997, with 55 participants and near 40 contributions, ended an almost two-decade era, since the abstracts were published for the last time in Hungarian in *Botanikai Közlemények* 85: 139-154 (1998).

In the year 2000 the Society organized the 12th FESPP Congress, therefore, a separate Hungarian Congress was not held.

The following Congresses were organized again in Szeged and, instead of short abstracts, proceedings were published in *Acta Biologica Szegediensis* in English (Figure 3). The 7th Congress (June 24-27, 2002) marked a two-decade span of work and development of plant physiology and plant biology in Hungary since the first congress held in 1982. The congress in 2002 reflected a historically different age: in the third millennium, in the postgenomic era, and under totally altered socio-economic conditions. These were mirrored in the program, in the sessions of different aspects of *Functional genomics; Abiotic stress and environmental pollution; Biotic environmental stress; Photosynthesis and UV-B radiation; Plant nutrition and yield;* and a broad spectrum of *Ecophysiology*. The 8th Congress on Plant Physiology, the last one under the name “*Physiology*”, was held in combination with the 6th Hungarian Conference on Photosynthesis (August 22-25, 2005). The 9th Hungarian Congress on Plant Biology (July 7-9, 2008) followed the path and structure of sessions of the 7th Congress (Table 2).

Now, in this 10th Congress, a round anniversary of 30-years, we can say that the wish of Prof. Gábor Farkas expressed at the first congress, namely that may these congresses bring together every member of Hungarian plant physiologists, came into reality. The Society became a firm, internationally recognized forum of plant biologists. I convey my gratitude and thanks to my colleagues, people and

institutions who helped to organize this series of national congresses.

The great adventure: organizing the 12th FESPP Congress in Budapest

Since the Hungarian Plant Physiologists have been represented and actively participated in the FESPP from the very beginning, we felt in the end of the 90s that the time has come to prepare and held a FESPP Congress in Budapest as soon as a special, suitable date would appear. For an outstanding and memorable occasion the bimillenary, and also the Millennium of the Hungarian Christian statehood, the feast of *Szent István* (St. Stephen), the first Christian King of Hungary on 20th August, 2000 seemed like an excellent choice. The aim was noble but the task tremendous.

The preparatory work began in 1994 on the meeting of the Executive Committee held in the Netherlands, and non-officially it was advertised in the FESPP Newsletter in No. 18, October 1994. Formally, our application was accepted after competing with the newly submitted proposal of Israel, on the 10th FESPP Congress in Florence in 1996.

Preceding our FESPP Congress, the Society was officially involved in the organization of the World Stress Congress in 1997 in Budapest, during which we gained a lot of experience. After a countrywide advertisement the best professional organizing company was selected and they proved their excellence. For the organization of our FESPP Congress, we entrusted them with the local tasks. The other brilliant coincidence was the completion of the new university building for the Eötvös University, which was outstandingly appropriate to house the congress with its great auditorium, larger and smaller lecture rooms, and exclusive halls for din-

Table 2. Congresses of the Hungarian Society for Plant Physiology/Plant Biology and the publications of the congress material.

No.	Date	Place	Publications
1 st	July 7-9, 1982	Szeged	Abstract Book (in Hungarian)
2 nd	July 2-4, 1985	Szeged	Abstract Book (in Hungarian)
3 rd	July 5-7, 1988	Szeged	Botanikai Közlemények (<i>Botanical Communications</i>), Separatum 77 (3-4): 247- 278. 1990.
4 th	July 10-12, 1991	Szeged	Botanikai Közlemények Separatum 78(3-4): 187-223. 1991.
5 th	July 13-15, 1994	Szeged	Abstract Book (in Hungarian), Joined with the Workshop "Biostress'94 Acta Phytopathol. Entomol. Hung. 30:5-132. 1995
6 th	June 30, 1997	Budapest	Botanikai Közlemények 85 (1-2):139-154. 1998.
7 th	June 24-27, 2002	Szeged	Acta Biologica Szegediensis 46(3-4): 1-261.
8 th	August 22-25, 2005	Szeged	Acta Biologica Szegediensis 49(1-2): 3-232. 2005. Joined with the 6 th Hungarian Conference on Photosynthesis
9 th	July 7-9, 2008	Szeged	Acta Biologica Szegediensis 52(1): 39-255. 2008.
10 th	August 31- September 2, 2011	Szeged	Acta Biologica Szegediensis 55 (1):..... 2011.

ing, posters and exhibitions... In May 1999 the Executive Committee paid a visit to judge the state of preparation and the place. They were surprised on the perfection of the place and preparations.

The preparation of the Congress went on without difficulties. All the submitted Abstracts were peer reviewed by the colleagues in the Department of Plant Physiology. Finally, well before the congress date, all the abstracts were sent to the Biochemistry and Physiology of Plants and the copies of the Special Issue containing about 730 contributions from nearly 50 countries of the five continents, arrived on site before the start of the congress (Figure 4, Elsevier 2000).

On the eve of the Congress, Sunday 20th August, Budapest celebrated Szent István Day with magnificent fireworks which were enjoyed by all congress participants. The Opening Ceremony on Monday 21st August was crowned by the 2nd Hungarian Rhapsody from Ferenc Liszt. The scientific program proceeded with 8 main topics and 23 sessions with oral lectures and the presentation of posters. The topics were Plant growth and development; Systems of regulation; Transgenic plants in use; Photosynthesis, respiration, carbon metabolism; Root physiology; Transport; Stress Physiology, and Environmental Physiology. The cultural events were completed with a painting exhibition by Dr. Katalin Maderspach and Dr. Zoltán Klement, both biologist-painters. The Farewell Party took place on three boats chained together cruising on the Danube along the illuminated capital providing a perfect finale...

After the Congress a large number of reflections were received from the participant colleagues. The Secretary General, Michael Jackson, addressing the General Assembly, said: "I am sure you will have no hesitation in joining me in congratulating our president professor László Erdei and his team for putting on a most excellent and well-attended meeting. There is no doubt that a very high standard of content and organization has been set that will do much to enhance

the reputation of FESPP." A personal impression by Dr. Anja Geitmann (Wageningen): "Apart from the rich scientific programme, this Hungarian FESPP meeting will certainly be remembered because of its impressive social programme that undoubtedly promoted the scientific contacts across disciplinary and national borderlines.... The concert given in

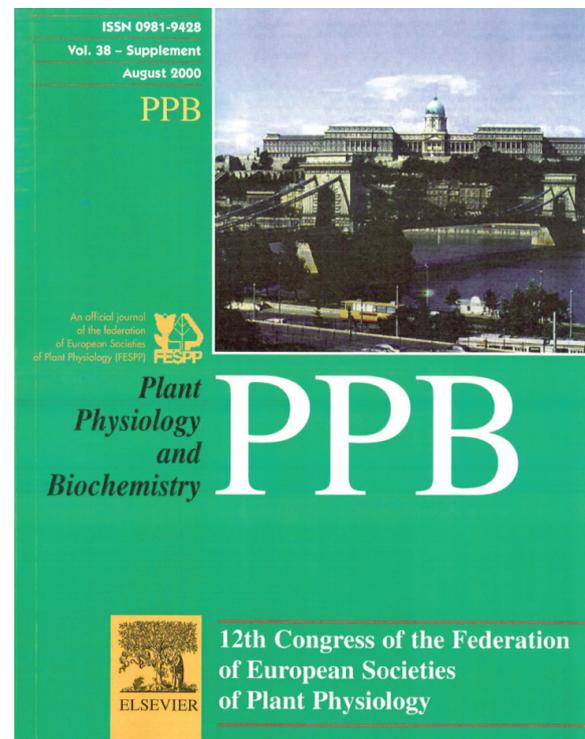


Figure 4. The Special Issue of Biochemistry and Physiology of Plants containing about 730 contributions from near 50 countries to the 12th FESPP Congress held in Budapest. (With permission from Elsevier).

the Mátyás church was all the more mesmerizing by Franz Liszt's coronation mass.... A splendid closure of this year's FESPP meeting was the candle light dinner on the Danube river. How the captain managed to safely manoeuvre the three boats chained to each other beneath the bridges connecting Buda and Pest was beyond my nautical understanding and deserved my fullest admiration..."

The future

In principle, this paper is a retrospective communication. It is difficult to foresee and predict the future development of plant biology. Surely, this century is an exciting time for plant biologists. The postgenomic era provides an overwhelming amount of information for the system biology approach with its multiple *-omics*. The discipline is so complex and research is so expensive that only co-operative work may lead to more or less equilibrated development of this field of science in different countries. Competition and legal regulation may be expected to come in the field of the use of genetically modified organisms as today we are already witnesses of the fight. As for the fate of the National Societies of Plant Biology, they should keep a close contact with each other within the framework of the European Federation. The Hungarian

Society for Plant Biology should again raise and focus Europe and the World's attention to our country and scientific activity by initiating the organization of a new FESPB congress in the not so distant future.

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