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FASCINATION OF PLANTS DAY (FOPD) - REALITY AND TRADITION IN BULGARIA

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Abstract. The present report aimed at providing information about the Fascination of Plants Day (FoPD) which is an initiative for popularization of plant science. FoPD was launched by the European Plant Science Organisation /EPSO/ to facilitate the understanding of plant science and to improve its impact and visibility. The FoPD initiative was set worldwide in 2012 for first time, as Bulgaria joined in 2015 and since then participates with events that bring plant science to the non scientific public. The Agrobioinstitute of the Agricultural Academy as a coordinator for Bulgaria took the challenge to introduce FoPD among the academic society. In response, the scientific faculties of Sofia University, Shumen University, Agricultural University and other plant research institutions embraced the opportunity to reveal the charm of plants. Here is given an overview of the generally mastered strategies as we put accent on the activities undertaken in the Faculty of Biology of Sofia University where faculty members and students united with the Agrobioinstitute. Our mission is on one hand to convince more Bulgarian researchers to participate in the coming FoPDs, and on the other hand to attract more schoolteachers to bring pupils and future scientists to the organized events, as well as interested citizens, professionals, decision-makers and media.

Keywords: Agrobioinstitute, Bulgaria, European Plant Science Organisation /EPSO/, Faculty of Biology, public, schools, Sofia University

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INTRODUCTION

Williams (2011) points out important aspects why the study of plant biology has never been more important or more exciting. Briefly, plants and humans share a common ancestor that lived ca. 3 billion years ago, they share a common DNA language and a mostly similar cell structure. During the evolution plants incorporated a single-celled photosynthetic bacterium into their cells, which enabled them to carry out photosynthesis, i.e. the ability to convert the sunlight energy into chemical energy. Thanks to photosynthesis, all the food that animals eat comes directly or indirectly from plants. Notably, as a by-product of photosynthesis, plants produce the oxygen that we and other beings need to live. Furthermore, a complex set of biochemical pathways has evolved in plants, which produce a wide variety of interesting and novel chemical compounds. Many of these compounds function to deter pathogens or herbivores, and some are medicinally useful to us. Genetic tools are enabling plant scientists to understand plants with ever-increasing levels of sophistication. This knowledge is making it possible to develop plants that are more efficient providers of the food, medicines, fibers, and raw materials upon which our human population is wholly dependent.

The European Plant Science Organisation (EPSO) is an independent academic organisation currently representing 69 institutional members bringing together more than 200 research institutes, departments and universities from 31 countries in Europe and beyond (EPSO 2020a). EPSO's mission is to improve the impact and visibility of plant science in Europe (**Fig. 1**). Among EPSO's top priorities is to facilitate the understanding of plant science (EPSO 2020a).

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EPSO's mission is to improve the impact and visibility of plant science in Europe, particularly to:

Promote plant science
 Discuss future plant science
 Provide authoritative source of plant science research to and support plant science programmes independent information on meet the 21st century challenges scientists across Europe plant science funding and in breeding, agriculture, advice to policy horticulture, forestry, plant ecology and sectors related to plant science

Fig. 1. Schematic representation of EPSO's mission (after <https://epsoweb.org/about-epso/>).

Fascination of Plants Day (FoPD) was initiated and supported by EPSO with the clear aim to promote the fascination and importance of plants and plant science worldwide (FoPD 2020; **Fig. 2**). The goal of FoPD, declared there, is to involve as many people as possible around the globe who are fascinated by

Plant Science Agriculture **S**

Renewable Resources	Protection and Nutrition
Fascination of	Forestry
Plants Day	
Environmental Messages	Plant
	Breeding
J 11	
Conservation	Biodiversity

Plant Nourishment

Fig. 2. FoPD promotes the importance of plant science (adapted from FoPD PR Toolbox Posters: <https://plantday18may.org/wp-content/uploads/2019/01/Poster-1.pdf>).

plants, recognize the importance of plant science and assess its role for agriculture, food and feed production, as well as for horticulture, forestry, and all of the non food products (paper, timber, energy, chemicals, pharmaceuticals), and realise the importance of plants for sustainable environment. For first time FoPD was celebrated in 18th May 2012 (EPSO 2020a; FoPD 2020) and since than the initiative became bi-annual: throughout the whole month of May in 2013, 2015, 2017, 2019 with thousands of events across the world (EPSO 2020b; **Table 1, Fig. 3**).

Everybody is welcome to join the FoPD initiative - from schools to horticulture and anyone who feels interested in plants (FoPD 2020). Also invited are the media, scientists, farmers, politicians and industrialists to discuss the latest state-of-the-art research and breakthroughs in the plant science and explore the potential applications plant science can offer.

Plant science institutions, universities, schools, botanical gardens and museums, together with farmers and industry, have opened their doors during the FoPD in 2012,

2013, 2015, 2017 and 2019. Variety of interactive plant related events were held across the globe (see summaries as *Success Stories* in links in **Table 1**).

RESULTS AND DISCUSSIONS

The FoPD organizers recommend for each country to make public the translation of the “Why study plants” presentation of Williams (2011), and for Bulgaria in particular, a Bulgarian version was created (FoPD 2015). In 2015 in Bulgaria, the national representative of EPSO Prof. Rossilza

87

Table 1. FoPD statistics (<https://plantday18may.org/statistics/>).

FoPD Events	uploaded Participating	institutions Participating	countries Links:
1st 2012	560	39	https://blog.rsb.org.uk/fascination-of-plants-day-18th-may-2012/
2nd 2013	1032	689	54 FoPD-2013-success-story: https://plantday2015bg.files.wordpress.com/2020/04/suppl.-information-fopd-2013-success-stories.pdf
3rd 2015	965	589	56 FoPD-2015-success-story: https://plantday2015bg.files.wordpress.com/2020/04/suppl.-information-fopd-2015-success-stories.pdf
4th 2017	1019	n.a.	52 FoPD-2017-success-story: https://plantday2015bg.files.wordpress.com/2020/04/suppl.-information-fopd-2017-success-stories.pdf
5th 2019	865	n.a.	52 FoPD-2019-success-story: https://plantday2015bg.files.wordpress.com/2020/04/suppl.-information-fopd-2019-success-stories.pdf Statistics Facebook

Batchvarova (Agrobiointitute of the Agricultural Academy /AA/) opened the first FoPD ceremony. The national coordinator Dr. Anelia Iantcheva (Agrobiointitute, AA) promoted the initiative and its further maintenance in 2017 and 2019 (**Table 2**). The events in each country could be uploaded by the national coordinator on the official page of the Fasciantion of Plants Day (FoPD 2020c), where the respective information and program, as well as final report assigned as *Success story*, could be seen worldwide. Each institution is invited to circulate the news on its own webpage and media of choice. In Sofia, the Department of Methodology of Biology Education in the Faculty of Biology assisted in informing and inviting different schools, and in

the last FoPD-2019 edition schoolchildren were invited to take active part in demonstrating the fascination of science together with their Biology teacher and faculty supervisors (**Table 2**).

Altogether, researchers, university professors and students invented charming presentations, demonstrations and gatherings related to interesting facts and properties of plants and their importance for people and environment. To attract more young people, some organizers conducted successfully various contests for drawing, photography, writing, scientific lottery, and the Agrobioinstitute even created picturesque art comers for kids.

The Agrobioinstitute in union with Sofia University via the Faculty of Biology 88

Fig. 3. Participating countries in FoPD-2019: Argentina, Australia, Austria, Belgium, Bolivia, Bosnia, Brazil, Bulgaria, Canada, Chile, China, Croatia, Czech Republic, Ethiopia, Finland, France, Germany, Greece, Hungary, Iceland, India, Ireland, Italy, Japan, Latvia, Lebanon, Lithuania, Mexico, Mozambique, Nepal, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, Ukraine, Uruguay, USA, Zambia. Note that in previous years other countries took part, too: Algeria, Angola, Cameroon, Cyprus, Denmark, Estonia, Guinea-Bissau, Guyana, Israel, Paraguay, Saudi Arabia, South Africa, South Korea, Tanzania, Thailand, Turkey (adapted from FoPD-2019-success-stories: <https://plantday2015bg.files.wordpress.com/2020/04/suppl.-information-fopd-2019-success-stories.pdf>).

played significant role in spreading knowledge about plant fascination and plant science at FoPD in Sofia. The teams of researchers and students explored various ways to bring out why plants are interesting to study (**Tables 2, 3; Fig. 4**). It was organized a visit to the Herbarium of the Sofia University (registered as SO in Index Herbariorum, A *senov et al.* 2012) where are stored specimens from the Bulgarian and foreign flora (op. cit.). Very spectacular demonstrations were performed by the faculty Students Club for Education and Development with Ecological Center (with abbreviation SKOREC, transliterated from Bulgarian language) where its members showed compilation of live plants and animals, as well as home-made souvenirs. The young visitors could learn how to do soil planting, while the Institute of Ornamental and Medicinal Plants set flower expositions for the adults who could take home various plants in pots. Some of the plants were planted outdoor as a memory from the event. Everyone could enjoy the works of the contestants, covering a broad age limit, by attending the Facebook webpage or as exhibition and wall-projection in the faculty lobby. The most active participants received certificates as a proof for the efforts made. In addition, the Agrobioinstitute researchers transferred their fascination about plants by awarding the winners from the competitions with lab

Fig. 4. Captured moments from FoPDs in Faculty of Biology.

made luxury ikebana with in vitro ornamental plants.

Other AA institutions in Sofia and the Institute for Plant Genetic Resources in

Sadovo had also participated with round tables and open days (**Table 2**). The Faculty of Natural Science of Shumen University and the Agricultural University in Plovdiv took seriously the FoPD as opportunity for organization of various gatherings for celebrating plant fascination. The university members showed contagious enthusiasm in promoting local research on fascinating Bulgarian plant species, medicinal plants, bio-products, grain and bread production, etc. Again, the events were intended for pupils and students where the young explorers demonstrated own knowledge about practical aspects of plant science and were involved in degustation of culinary exposition.

Writing about the FoPD, we have to recall especially on its education focus with

90

Table 2. FoPD events in Bulgarian scientific institutions.

FoPD Bulgarian institutions (main organizers)	Type of activities	Location
3rd 2015 Agrobiointitute, AA (Anelia Iantcheva, PhD)	demonstrations Scientific lottery Contests on the topics “The Fascination of Plants”, “The Fascination of Protected Bulgarian Plant Species”, “The Flora and Us” (photography and drawing) Awarding of certificates and prizes	<i>fascination of plants in Bulgaria</i> Faculty of Biology Sofia
Faculty of Biology, Sofia University (Miroslava Zhiponova, PhD; Kameliya Yotovska, PhD; Dean Mariela Odjakova)	Presentations and practical demonstrations Visit of Herbarium of SU Flower planting in the courtyard of the faculty	
Joint Genomic Center (Atanas Atanassov, Acad. Prof.)		
Institute of Ornamental Plants, Negovan (Nadejda Zapryanova, PhD Rosen Sokolov, PhD)	Movie projection about the plants during the four seasons Exposition of flowers	Faculty of Natural Science Shumen
Faculty of Natural Science, Shumen University (Dimcho Zahariev, PhD)		
Presentations and practical	Presentation series about <i>The</i>	
Institute for Plant Genetic Resources, AA	Open day for visiting the botanical garden AA Sadovo	
Institute of Agricultural Economics, AA	AA	(Anelia Iantcheva, PhD)
Institute of Cryobiology and Food Technology, AA	Institute of Soil Science, Agrotechnology and Plant Protection, AA	
Institute of Animal Science,	4th 2017 Agrobiointitute, AA	

Sofia

Faculty of Biology, Sofia University (Miroslava Zhiponova, PhD; Kameliya Yotovska, PhD; Dean Stoyan Shishkov)	Presentations Plant Art corner for kids Planting seeds and plants in soil Contests on topic <i>Protected and endangered Bulgarian plant species</i> (photography, drawing, presentation, video, essay) Awarding of certificates and prizes	Faculty of Biology Sofia
Round table about <i>The agricultural science in favor to the practice</i>	Presentations and practical demonstrations Visit of Herbarium of SU AA Sofia	
International conference about <i>Soil and agrotechnology in a changing world</i>	AA	
FoPD Bulgarian institutions (main organizers)	Type of activities	Location
Institute of Ornamental Plants, Negovan (Nadejda Zapryanova, PhD)	flowers	Exposition of
NATURAL+ Ltd. Kombucha drink testing and discussion		
School company "Alpha" from Secondary School "Kozma Trichkov" - Vratsa	Faculty of Natural Science Shumen	
Faculty of Natural Science of Shumen University (Dimcho Zahariev, PhD)	Bio-exhibition	Agricultural University, Plovdiv
Agricultural University, Plovdiv (Svetla Yancheva, PhD) Environmental technologies		
Program dedicated to the medicinal plants		
5th 2019 Agrobioinstitute, AA (Anelia Iantcheva, PhD)	Dean Stoyan Shishkov) American College of Sofia (Ganka Dineva, PhD) Institute of Ornamental Plants, Negovan (Nadejda Zapryanova, PhD)	(photography, drawing, presentation, video, essay) Awarding of certificates and prizes Presentations and practical demonstrations
Faculty of Biology, Sofia University (Miroslava Zhiponova, PhD; Kameliya Yotovska, PhD;	Presentations Plant Art corner for kids Planting seeds and plants in soil Contests on topic <i>Plants as a food for animals and humans</i>	The Biotechnology Club

Faculty of Biology Sofia

Exposition of flowers

University (Dimcho Zahariev, PhD)
Program *No one is bigger than bread*
Faculty of Natural
Science
Shumen

Faculty of Natural Science of Shumen

Agri-
cultural
University,
Plovdiv
IPPG,
BAS

and Genetics (IPPG), Bulgarian
Academy of Sciences (BAS)
(Valya Vassileva, PhD)
Gathering organized by the
Student Council

92

Agricultural University, Plovdiv
(Svetla Yancheva, PhD)

Confocal microscopy for
studying NudC proteins in roots

Institute of Plant Physiology

Table 3. FoPD events in the Faculty of Biology of Sofia University. Numerous activities were organized by faculty teams including the Departments of Plant Physiology, Methodology of Biology Education, Biochemistry, Biophysics and Radiobiology, Botany, General and Applied Hydrobiology, Virology, Biotechnology, General and Industrial Microbiology, as well as Bachelor (also Erasmus), Master and PhD students. The Agrobiointstitute', as well as other partners' topics are included.

**Participants from
Faculty of Biology Topics
FoPD
BSc MSc PhD Departments
of presentations and practical demonstrations**

3rd 2015 26 7 4 18 members **"FLORA OF TASMANIA"** - the exotic plant biodiversity on the island. (Assist. Prof. Lyuben Zagortchev, Prof. Mariela Odjakova)

SALT-TOLERANT PLANTS. FROM THE FIELD TO THE LABORATORY AND BACK" - molecular approaches to improve the plants sustainability. (Assist. Prof. Lyuben

Zagortchev, Prof. Mariela Odjakova)

"ORCHIDS" - types of orchids, their cultivation and characteristics. (Hristina Samardzhieva)

"THE FORESTS - THE LUNGS OF THE EARTH" - importance of maintaining the forests

that provide the oxygen for breathing. (Thomas Damjanov, Sergey Kavlak)

“PLANT-PREDATORS” - interesting facts about carnivorous plants. (Martin Ninov)

“AVOCADO IN POT” - interesting facts about the avocado and its cultivation.

(Desislava

Mantovska)

“CRYOPRESERVATION IN PLANTS” - a method of freezing plants for their long-term

preservation. (Assist. Prof. Daniela Dragolova, Prof. Veneta Kapchina-Toteva)

PLANT PATHOGENS - RISING THREAT FOR BIOLOGICAL DIVERSITY”

infor

mation about the causes of disease in plants. (Agrobiointitute: Assist. Prof. Aneta

Lyubenova,

Assoc. Prof. Slavtcho Slavov, Prof. Rossitza Batchvarova)

MOLECULAR MARKERS FOR INCREASING THE EFFICIENCY OF SELECTION

OF ECONOMICALLY IMPORTANT CROPS” - discussion of the contemporary approach

es for improving plant species that are important for mankind. (Agrobiointitute: Assoc. Prof.

Prof. Nikolai Christov, Dr. Stefan Tsonev, Dr. Lyubov Uristova, Assoc. Prof. Elena

Todorovska)

“FROM THE CELL TO THE WHOLE PLANT” - explanation about the unique ability of

plants to regenerate. (Agrobiointitute: Miglena Revalska, Assoc. Prof. Anelia Iantcheva)

“ROOT CULTURES” - applications of root cultures from medicinal plants. (Nia

Petrova, As

sist. Prof. Zhenya Yordanova)

“THE MAGIC OF THE BULGARIAN HERBS” - role of the Bulgarian herbs for health and

demonstration of representatives in a tube. (Assist. Prof. Milena Dimitrova)

FoPD

Participants from

Faculty of Biology Topics

BSc MSc PhD Departments

of presentations and practical demonstrations

HABERLEA AND THE SECRET OF THE ETERNAL LEAF” how one endemic plant can reveal the secrets of resurrection - presentation and demonstration.

(Agrobiointitute: As sist. Prof. Daniela Moyankova, Petko Mladenov. Prof. Dimitar

Djilianov)

ROLE OF THE PLANTS FOR THE WATER WORLD” discussion about the importance of plants for the life in the water, as well as the business aspects of the work with aquatic plants. (Vasilena Angelova. Eleonora Fikovska, Stefani Pyrvanova. Dr. Marieta Stanachkova. Assoc. Prof. Galerida Raykova. Prof. Yana Topalova)

“THE WATER MOVEMENT IN THE PLANT CELLS” - observation under microscope of plasmolysis in epidermis of red onion. (Assist. Prof. Daniela Dragolova)

“THE ROLE OF STOMATA IN PLANTS” - observation of stomata cells under microscope. (Assist. Prof. Miroslava Zhiponova)

“WHAT IS PHOTOSYNTHESIS?” - experiment about the properties of the plant pigments. (Trifon Sotirov. Martin Maznilev, Milena Milekova)

“THE FASCINATION OF MICRO ALGAE” - demonstration of pigments isolated from al gae. (Assoc. Prof. Ganka Chaneva)

“THE VOICE OF PLANTS” - application of biophysical approach for “hearing” the

plants. (Stela Dimitrova. Petar Markov. Assist. Prof. Kolyo Dankov. Momchil Paunov, Prof. Vasilij Goltsev)

DID YOU KNOW THAT THE PLANTS HAVE HORMONES??" introduction into the classes of plant hormones that mediate signals of how plants should grow and develop appropriately. (Assist. Prof. Miroslava Zhiponova): **"ABSCISIC ACID"** (Ivalena Ilieva, Miroslava Ivanova); **"AUXINS AND CYTOKININS"** (Boryana Ivanova. Hyuliya Tatarly. Ana Vylkova. Borislava Stanoykova, Mirela Georgieva. Yoana Kirilova. Carmen Yordanova. Dimityr Dimitrov. Rummyana Ganeva); **"GIBBERELIC ACID"** (Joe Velchev. Alexandar Kavazov); **"ETHYLENE"** (Zomitsa Kirilova. Bojidara Pavlova. Prof. Evgeni Ananiev) **"FLOWER IN THE TUBE"** - propagation of plants in test tubes. (Maria Rogova. Anelia Raycheva. Katya Ivanova)

VISIT OF THE SOFIA UNIVERSITY HERBARIUM. (Assoc. Prof. Asen Asenov. Prof. Maya Stoyneva)

ORNAMENTAL PLANTS EXHIBITION (Negovan: Assoc. Prof. Nadejda Zapryanova. As sist. Prof. Rosen Sokolov)

4th 2017 25 +

2

Erasmus

PLANTING OF ROSES, GOJI BERRIES AND FLOWERS IN THE FACULTY BACK YARD TO MEMORIZE THE FIRST FOPD. (Assist. Prof. Dilyana Nikolova,

Assist. Prof. Yana Evstatieva, Assist. Prof. Anita Tosheva, Prof. Veneta Kapchina-Toteva; Agrobioinstitute: Assist. Prof. Nabil Mosa Abumhadi)

LOTTERY (Assoc. Prof. Anelia Iantcheva, Prof. Rossitza Batchvarova)

DRAWING CONTEST (Agrobioinstitute; Assist. Prof. Kameliya Yotovska)

PHOTOGRAPHY CONTEST (Silvana Angelova, Dayana Angelova, Bojidara Pavlova, Ivalena Ilieva, Desislava Mantovska)

MOVIE PROJECTION (Assoc. Prof. Dolya Pavlova, Acad. Prof. Atanas Atanasov, Assist. Prof. Ilian Badjakov)

5 3 13 members **"ORGANIC FERTILIZERS - DO IT YOURSELF"** benefits of bio compost. (Gabriela Tsoynska)

"FOR PLANTS AND FOR WATER - WHY ARE PLANTS "SWEATING"?"

explaining what is transpiration. (Violeta Kostova, Iliyana Stoyanova, Assoc. Prof. Kameliya Yotovska, Assoc. Prof. Asya Asenova)

"CARNIVOROUS PLANT" - facts that make them fascinating. (Dayana Paskova, Zhasmina Redzhepova)

"ABOUT THE MEDICINAL PLANTS" - tradition and science. (Natalie Atanasova, Evgenia Mihaylova)

"THE MEDICINAL MARIJUANA" - pros and cons. (Teodora Uzunova, Desislava Kircheva) **"THE BENEFIT OF PLANT BIOTECHNOLOGY"** - in vitro

micropropagation of valuable plant species. (Ivalena Ilieva, Marina Alexeeva, Assoc. Prof. Zhenya Yordanova, Prof. Veneta Kapchina-Toteva)

"REASONS FOR STUDYING THE PLANTAIN (GENUS *PLANTAGO*)" approaches to explore unknown aspects about this genus. (Ani Kercheva, Dariana Vylova)

"MOLECULAR STUDIES ON HOPS (*HUMULUS LUPULUS*)" the secret molecules

that make the plant a cure. (Dimitar Iliev)

“KALANCHOE - A HOME PHARMACY” - use of the plant with health purpose.

(Alexandra Nissimova, Joe Velchev)

“ESSENTIAL OILS” - biosynthesis, accumulation and excretion in aromatic plants; extraction of essential oils. (Zvezdelina Petrova and Irina Petrova)

“KOMBUCHA OR THE ROAD TRIP OF *CAMELLIA SINENSIS* TEA”

(NATURAL+ Ltd.) **“VAMPIRE PLANTS. BIOLOGY OF PARASITIC PLANTS OF THE GENUS *CUSCUTA*”** - how the *Cuscuta* acts. (Assist. Prof. Denitsa Teofanova, Assoc. Prof. Anita Tosheva, Assoc. Prof. Lyuben Zagorchev)

FoPD

Participants from

Faculty of Biology Topics

BSc MSc PhD Departments

of presentations and practical demonstrations

“PLANTS IN FAVOR OF FIGHTING VIRUSES” (Dr. Anton Hinkov, Venelin Tsvetkov, Assoc. Prof. Stoyan Shishkov)

“PLANT IMMUNITY” - the plants have chemical defence. (Branislav Dinic, Tuba Oztirk, Dilyan Minev)

“THE RESPONSE OF ORDINARY BEECH TO BEETLE INVASION” tree against insect. (Vasil Chavgov, Assoc. Prof. Ganka Chaneva)

“CONFRONTATION OF ABSCISIC ACID AGAINST GIBBERELIC ACID” keeping the balance of plant growth. (Maria Tomeva, Viktor Rashev)

“THE CURIOUS ACTION OF THE AUXIN” - the plant hormone mediates important signals. (Silvia Ganeva, Iva Dimitrova)

“THE VOICE OF PLANTS” - biophysicists can hear it! (Bojidara Pavlova, Stella Dimitrova, Momchil Paunov, Prof. Vasilij Goltsev)

“AGRICULTURAL CRATES WITH SPECIAL COATING FOR CONTINUOUS FRESHNESS OF AREAS AND VEGETABLES FOR PEOPLE WITH SMALL FARMS AND GARDENS” (School company "Alpha" "Kozma Trichkov" - Vtatsa)

“PLANT MORPHOLOGY” - demonstration (Agrobioinstitute: Functional Genetics Legumes Group)

“INFORMATION CENTER IN PLANT BIOTECHNOLOGIES” presentation (Agrobio institute Abiotic Stress Group)

SCIENTIFIC POSTER SESSION - “Plant abiotic stress”. Project “Evaluation and monitoring of the effect of genetically modified plants on agro-ecosystems”, “Beautiful but dangerous: the invasive species of genus *Phytophthora*”, “Production of valuable products from microalgae”, “Functional genetics-cereals”, “The Bulgarian tomatoes Pako-Orange could substitute the carrots from the children pure! Tell to Mom!”, “Plant genetic resources”, “Plant molecular genetics”, “Project STARBIOS-expansion of the responsible biosciences”, “Viruses - the invisible plant enemy”, “Plant biology in legumes” (Agrobioinstitute: Assist. Prof. Mariana Radkova, Prof. Dimitar Djilianov, Assoc. Prof. Daniela Moyankova, Assoc. Prof. Petya Stoykova, Prof. Ivanka Kamenova, Assoc. Prof. Anelia Iantcheva, Assist. Prof. Miglena Revalska)

TOMATO PLANTING (Agrobioinstitute)

ART CORNER FOR KIDS - applications, drawings, cards (Agrobioinstitute, Assist. Prof. Liliya Georgieva)

5th 2019 3 & 6 school

pupils

3 2 11 members + 2 guests

ORNAMENTAL PLANTS EXHIBITION (Negovan: Assoc. Prof. Nadejda Zapryanova) **DRAWING CONTEST** (Agrobioinstitute; Assist. Prof. Kameliya Yotovska) **VISIT OF THE SOFIA UNIVERSITY HERBARIUM.** (Assoc. Prof. Asen Asenov, Prof. Maya Stoyneva)

STUDENT'S CLUB SKOREC - live plants and animals, home-made souvenirs. (Dimitar Dimitrov, Kiril Vylkanov, Adam Palov, Plamen Petrov, Siyka Lakova, Assoc. Prof. Atanas Grozdanov)

“PLANTS - OBJECT TO ARTISTIC INSPIRATION” - artist guest Savina Mantovska **“APPLYING A JELLYFISH PROTEIN FOR EXPERIMENTS”** the molecule that emits light to see it (The “Biotechnology Club of the American College-Solia: Dr. Ganka Dineva, Mariya Cholakova, Boris Beev, Eva-Mariya Tsanova, Yasen Nikolov, Alexandra Velkova; Assoc. Prof. Iliyana Ilieva) **“LIGHT RECIPE TO IMPROVE PLANT GROWTH”** light intensity needs to be adjusted for each plant. (American College-Solia: Yvette Dimitrova, Ivo Yordanov; Assoc. Prof. Miroslava Zhiponova)

“THE GLUTEN-FREE DIET - MYTH OR SCIENCE” - interesting facts about the food we eat. (Alexandra Atanasova, Kristiyana Georgieva, Assoc. Prof. Denitsa Teofanova, Assoc. Prof. Lyuben Zagorchev)

“PLANTS LIKE FISH - WHAT ARE THE AQUACULTURES?” the neighborhood of pea and golden fishes. (Alexander Tomov, Vasil Chavgov, Assist. Prof. Detelina Petrova, Assoc. Prof. Ganka Chaneva)

“HOW TO EXPLORE MEDICINAL PLANTS?” - in vitro growth of valuable plant species. (Assist. Desislava Mantovska, Assist. Prof. Mariya Rogova)

“DID YOU KNOW THAT PLANTS HAVE HORMONES?” - introduction into plant hormones that mediate signals of how plants should grow and develop appropriately. (Assoc. Prof. Miroslava Zhiponova)

“IDEA FOR ECOLOGICAL FLORICULTURE” come and get it! (Anelya Raycheva, Assist. Prof. Marieta Hristozkova)

“WHAT DO THE ANIMALS EAT” - demonstration of forage and seed samples. (Agrobioinstitute: Assoc. Prof. Anelia Iantcheva)

ART CORNER FOR KIDS - applications, drawings, cards (Agrobioinstitute: Assist. Prof. Liliya Georgieva)

ORNAMENTAL PLANTS EXHIBITION (Negovan: Assoc. Prof. Nadejda Zapryanova) **STUDENT'S CLUB SKOREC** - live plants and animals, home-made souvenirs. (Vassilin Anatkov, Dariana Atanasova, Assoc. Prof. Atanas Grozdanov)

important for teaching and learning. The competences that young people form at school affect their ability to continue their education and integrate successfully in society (Jeremic et al. 2020). It is considered that activities involving interactions between students and professionals are useful for efficient competency achievement (Romanovtseva 2016; Uraliyeva et al. 2016). During this process occur a changing the focus of the training to mastering key competences and developing problem solving abilities such as: integrated cross-curricular interaction; practical orientation

of the training; result orientation; implementation of innovative approaches and practices in the teaching and learning process. In the focus of the FoPD's scope is the integration of young people and improving their motivation for professional orientation. Respectively, in Bulgaria during the organized FoPDs, three groups of youngsters could be distinguished - under school age, school age, and students. The first group of kids seemed to be enthusiastic about the engagement in any kind of activity. The pupils were interested in the demonstrations and mostly of these activities where they could participate, and they were readily initiating discussions demonstrating personal knowledge and interest. The group of the students were put in the role of teachers and it was observed their evolution in hours - from unsecure presenters to well erudite supervisors in the field of science that showed eagerness for better performance. In this way, mainly the students but also the school children started to develop certain science literacy that is ability for conscious and responsible engagement in questions of the natural sciences, for use of technology, for application of theoretical knowledge to practice, for explaining natural processes and phenomena, and for making reasoned conclusions about the natural sciences as part of the knowledge for the world (Cresswell et al. 2015).

From the teachers' point of view, the modern environment offers a wealth of information flow and the teacher has the privilege, but also the responsibility to choose those educational activities that will motivate students to participate actively, provoke their thinking and help him achieve the intended results. One of the biggest challenges for the modern teacher is to inspire his students to realize the meaning of skill acquisition.

Extra-curricular activities are particularly useful for this purpose, including visiting universities and laboratories and getting acquainted with the work of scientists. The scientists can show both students and the teacher a different perspective, "recharge" them and be more relevant to the situation. Therefore, FoPD could be considered as such opportunity.

CONCLUSION

As a part of scientific community and researchers involved in plant science we realize that the international FoPD aims to bring plant researchers closer to the society and to increase awareness for plants, and innovation activities of plant science, with a view to improve the public recognition of plants, creating a model for understanding

Fig. 5. Impact of FoPD on citizen society.

Regarding future perspectives, we have to note that easier electronic access to the organized events would allow attendance from distance and will make the benefits from FoPD available to a broader public (A senova e t a l . 2017). We hope that the present report will motivate more Bulgarian organizations and individuals to join in the future FoPDs and other similar events making science popular.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this article.

AUTHOR CONTRIBUTIONS

A. V. I a n t e h e v a , M. K. Z h i p o n o v a and K. S. Y o t o v s k a contributed to the design, discussion and writing of the manuscript.

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Links to the information in the paper:

Online links in the text, last accessed on April 2020, at:

EPSO sites: <http://epsoweb.org/>, <http://epsoweb.org/about-epsoweb.org/events/fopd-events/>, <https://epsoweb.org/events/fopd-events/>

FoPD sites: <https://plantday18may.org>, <https://plantday18may.org/about-us/> FoPD PR Toolbox Posters (<https://plantday18may.org/pr-toolbox/>): <https://plantday18may.org/wp-content/uploads/2019/01/Poster-1.pdf>.

FoPD-2012 information: <https://blog.rsb.org.uk/fascination-of-plants-day-18th-may-2012/>

FoPD -2013-success-STORIES: <http://plantday2015bg.files.wordpress.com/2020/04/suppl.-information-fopd-2013-success-stories.pdf>

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FoPD-2019 Facebook: <https://www.facebook.com/pg/Fascination-of-Plants-Day-419094251484268/posts/>

FoPD Statistics: <http://plantday18may.org/statistics/>

The Plant Cell (online): http://www.plantcell.org/site/teachingtools/teaching_xhtml

Why study plants? presentation in Bulgarian: <https://plantday2015bg.files.wordpress.com/2020/04/suppl.-information-why-study-plants-bg.pdf>

FoPD-2015 in Bulgaria: <https://www.slideshare.net/plato347bc/fascination-of-plants-day2015bulgaria>

FoPD-2015 in Faculty of Biology, Plantday2015bg: <https://plantday2015bg.wordpress.com/>

FoPD-2017 in Faculty of Biology: https://www.uni-sofia.bg/index.php/bul/novini/novini_i_sbitiya/chetv_rti_den_na_ocharovanieto_na_rastenyata_2017

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FoPD-2017 in Agricultural University, Plovdiv: <http://u4avplovdiv.com/> ro Æ ^ H -6 ep H -^ b . n T -M a K -H -a H m H H C K a -p o 3 a -B

FoPD-2019 in Bulgaria: <https://plantday18may.org/category/europe/bulgaria/>

FoPD-2019 in Bulgaria, Facebook: <https://www.facebook.com/FascinationOf>

101

PlantsDay2019/

FoPD-2019 in Faculty of Biology: https://www.uni-sofia.bg/index.php/bul/uni-versitet_t/fakulteti/biologicheski_fakultet2/arhiv/arhiv_2019/den_na_ocharovanietonarastenyata

FoPD-2019 in Shumen University: [http://shu.bg/HOBHHH-\\$oKyc/HOBHHH-2019/Me^flyHapofleH-fleH-Ha-OHapoBaHHeTO-Ha-pacTeHHaTaFoPD-2019](http://shu.bg/HOBHHH-$oKyc/HOBHHH-2019/Me^flyHapofleH-fleH-Ha-OHapoBaHHeTO-Ha-pacTeHHaTaFoPD-2019) in Shumen University: <https://bnr.bg/shumen/post/101119678>

FoPD-2019 in Institute of Plant Physiology and Genetics (IPPG), Bulgarian Academy of Sciences (BAS): <https://nova.bg/mynews/view/2019/05/17/89567/oHapoBaHHeTO-Ha-pacTeHHHTa>

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