



Chemical Society Annual Report to the EuCheMS Division of Chemical Education for 2019-2020

1. Abstract

In 2019-2020 the *Division of Chemical Education and Dissemination of the Portuguese Chemical Society*, carried out a group of activities intending to promote the chemistry's teaching and learning. In 2019 the Division activities were mainly focused in the celebrations of the International Year of Periodic Table. Due to our extensive program spread all over the country, only a few representative examples will be given in this report. In 2020 the activities of the Division were hampered by the impact of COVID and limited to non-presential activities.

As an outline of our normal activities, we would like to point out the regular and institutional cooperation with Portuguese Ministry of Education; the *VIII Meeting of the Division of Chemical Education and Dissemination of the Portuguese Chemical Society in Coimbra*; the *Chemistry Olympiads including the EUSO which were withheld in Portugal (Almada)*; *The Ibero-American Chemistry Olympiads in Porto*; the promotion of several formative actions for teachers through our own government certified Formative Centre for basic and high School Chemistry Teachers; and the collaboration with the *Young Chemists Group of the Portuguese Chemical Society in ChemRus* competition.

2. National educational policy

Institutional Cooperation - Ministry of Education

Keeping the commitment started in 2010, the Portuguese Chemical Society continued to integrate the Consultative Committee of the IAVE (Institute for Educational Evaluation), taking part in regular meetings with the National Examinations Commission where are prepared and emitted assessments of curricula and programs, among other matters. The *Portuguese Chemical Society* representative at the Scientific Council of the IAVE, Dr. Fernando Santos, held its participation during 2019-2020.

In 2019/2020 the new "essential learning outcomes", generalized to all schools schools during 2018/2019, was scrutinized by the *Portuguese Chemical Society* representatives in the continuous evaluation of the implementation process.



The Ministry of Education is now replicating the new curriculum for the XXI century student in the parallel system of Professional Schools. The Portuguese Chemical Society was invited to lead the process regarding the Chemistry Curricular Units: The previously drawn “Constitutional” principles defining, broadly, the transdisciplinary skills a student must develop, civic education and citizenship as well as inclusion will be translated to the core curriculum braiding the actual subjects of each curricular unit with competences and attitudes. The project was submitted to ANQEP (the Professional Schools tutelary agency) and will be implemented in 2020/2021 academic year.

3. Events in chemical education

VII Meeting of the Division of Chemical Education and Dissemination of the Portuguese Chemical Society (VIII EDEDQ- SPQ)

The National Meeting took place in November 15 and 16 of 2019 in Coimbra. The VIII EDEDQ is a meeting for teachers, researchers, disseminators, students who wish to present the results of their research and projects in the field of education, and dissemination in chemistry at all levels of education, as well as exchange experiences and promote learning and motivation for chemistry in formal and non-formal contexts of teaching.

During the various sessions, there was opportunity to discuss novelties in the field of education and dissemination of chemistry, as well as outline possibilities for future cooperation. The main topics of the meeting were related with the celebrations of IYPT2019 but also in the more usual areas of:

- Teaching Chemistry: the new transdisciplinary challenges of a central science
- Pedagogical innovations in the teaching of chemistry: classroom practices and didactics
- Experimental and laboratory work and teaching and learning of chemistry
- Educational technology in chemical education
- Non-formal spaces of scientific education: experiences and projects

This Meeting was certified by the new Portuguese Chemical Society formative centre and worked like a 12 hours teacher’s training course, contributing to the scientific and didactic updating of the teaching staff (<http://www.eedq2019.eventos.chemistry.pt>)

XXVI National Meeting of the Portuguese Chemical Society

The National Meeting took place in June 24 to 26 of 2019 in Porto. The XXVI meeting of SPQ was included in the national celebrations of IYPT2019 under the moto 150 year to 118 elements and had as subtopics:

- The periodic table and the elements of life



- The luminescent Periodic Table
- The Periodic Table in the Class Room

4. Activities of the National Chemical Society

Chemistry Olympiads

The *Portuguese Chemistry Olympiads*, also known as *Chemistry Olympiads* has been organized by the *Portuguese Society of Chemistry* (<http://olimpiadas.chemistry.pt>). It is a competition where students, from middle and secondary schools, need to be able to solve theoretical and practical problems of Chemistry. The objectives of these *Chemistry Olympiads* are: a) stimulate the study and teaching of Chemistry; b) provide a closer approach between schools and universities; c) generate interest in chemistry among students, disseminate chemistry as science and attract vocations to scientific and technological careers. Currently the *Chemistry Olympiads* include three types:

1. *Chemistry Olympiads Plus* – directed to secondary education;
2. *Chemistry Olympiads Junior* – directed to basic education;
3. *International Chemistry Olympiads (IChO)*, the *Latin American Chemistry Olympiads (OIAQ)* and the *European Science Olympiads (EUSO)* – international competitions in which the *Portuguese Society of Chemistry* ensures the representation of Portugal.

Continuous Professional Development Courses

The SPQ Centre for Continuous Professional Development of high and basic school teachers was certified on the 5th of March 2018. Since its creation it has promoted certified actions under the umbrella “Periodic Table: An icon of chemistry as a central science” in Queluz, Mafra, Gaia, Guimarães, Gondomar, Oeiras, Vila Real. A formative action in “Inorganic and Organic nomenclature” was certified and implemented in the town of Entroncamento. In 2019 “Understanding light for an active citizenship” was implemented online due to COVID.

ChemRus – 2018-19

The *Young Chemists Group (GQJ)* of the *Portuguese Chemical Society* has held the *ChemRus* competition targeted for students up to 12th grade, which aimed to promote the interest for chemistry by developing a video about a chemistry experiment. ChemRus is an annual competition for chemistry students up to the high school. This competition intends to reward a chemistry experience developed by the students and uploaded as a Youtube® video.



(2019 edition – competing videos on you tube
<https://www.youtube.com/playlist?list=PL6gj-lj95Om8OsB7CLCDK3uap9E9DHHiW>)

Meetings organization

The *Portuguese Chemical Society* organized in 2018 these international and national meetings:

- 1^o Encontro Nacional de Cristalografia; 13-14 de junho de 2019 – Aveiro
- Glupor 13; 3-5 de setembro de 2019 – Porto
- EuroFoodChem XX; 17-19 de junho de 2019 – Porto
- 8^a Reunião Ibérica de Colóides e Interface - RIC18; 17-19 de julho de 2019 – Aveiro
- Natural Products in Drug Discovery and Human Health; 28-31 de julho de 2019 – Lisboa
- 1st International Conference on Noncovalent Interactions; 1-6 de setembro de 2019 - Lisboa
- International Symposium on Synthesis and Catalysis 2019; 3-6 de setembro de 2019 - Lisboa
- 24th European Nitrogen Cycle Meeting; 11-13 de setembro de 2019 – Lisboa

Meetings sponsorship

In 2019 SPQ has pursued an effort of sponsoring non-SPQ chemistry meetings with special emphasis on student organized meetings such as:

- 1st International Meeting on Deep Eutectic Systems
- 4th International Conference on Natural Fibers
- International Conference on Green Energy and Environmental Technology
- 5th International Congress on Water, Waste and Energy Management
- International Conference on Materials and Nanomaterials (M&Ns-19)
- XXXII Jornadas de Engenharia Química do Instituto Superior Técnico
- X Jornadas de Bioquímica da UMinho
- Jortec de Química da UNL- 2019
- 2nd International Meeting on New Strategies in Bioremediation Processes
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International year of the periodic table



A vast program has been implemented and to extensive to report here but full details can be found at (<https://www.iypt2019.pt/> and <https://www.facebook.com/aitp2019/>) giving here some pictorial examples:

Periodic table in flowers



Periodic table of trees



Human periodic tables



Periodic table flashmob: <https://youtu.be/bmVMJoynb1Q>

5. Publications

Chemistry – the bulletin of the Portuguese Chemical Society

There are no publications in English. The *Portuguese Chemical Society* publishes *Bulletin of Chemistry*, (ISSN 0870-1180), a trimestral magazine with news from the society and publishing popular science articles, some scientific articles on specific subject and also articles devoted to chemical education and to help teachers from the secondary school. The *Chemistry* is distributed free of charge to members of the *Portuguese Society of Chemistry* and shared with some international and national associations. The average print run was 1500 copies. The volumes are available electronically to the general public through the portal of the Portuguese Society of Chemistry (<http://www.spq.pt/magazines/bspq>).

The *Portuguese Chemical Society* is co-owner of ChemistryEurope which are responsible for the publication of several journals.

6. Liaison with the chemical industry

In the Portuguese Chemical Society, the liaison with industry is made through its “Industrial Chemistry” Group held by Professor Alberto Canelas Pais.



7. International and European initiatives

Chemistry Olympiads (IChO), Latin American Chemistry Olympiads (OIAQ) and European Science Olympiads (EUSO) – previously mentioned in point 4 of this report.

Portugal hosted the EUSO and *Latin American Chemistry Olympiads (OIAQ)* in 2019.

8. Other events and activities

SPQ has trying to pursue the dissemination of chemistry through arts namely by promoting concerts (<https://www.iypt2019.pt/agenda/event/448>), editing books (“Chemistry in opera – João Paulo André”), theatre plays (“The periodic table neighbourhood”)

9. Name of delegate and deputy

Delegate – Carla Morais

Deputy – João Paiva

10. Contact details of delegates

Carla Morais

Faculdade de Ciências da Universidade
do Porto
Departamento de Química e Bioquímica
Unidade de Ensino das Ciências
Rua do Campo Alegre, 687
4169-007 Porto

Email: cmorais@fc.up.pt

Telephone: (+351) 220 402 529

Mobile Phone: (+351) 93 833 1 777

João Paiva

Faculdade de Ciências da Universidade
do Porto
Departamento de Química e Bioquímica

Unidade de Ensino das Ciências
Rua do Campo Alegre, 687
4169-007 Porto

Email: jcpaiva@fc.up.pt

Telephone: (+351) 220 402 549

Mobile Phone: (+351) 96 250 5 679

11. CV of delegate and deputy

Carla Morais: <http://www.fc.up.pt/pessoas/cmorais/cv/>

João Paiva: <http://www.fc.up.pt/pessoas/jpaiva/>