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University of Belgrade
Faculty of Chemistry

7th EuroVariety

European Variety in University Chemistry Education

BOOK OF ABSTRACTS

*University Chemistry Education for the Challenges of
Contemporary Society*

Belgrade, 28 – 30 June 2017

Published by
Serbian Chemical Society
Karnegijeva 4/III, 11000 Belgrade, Serbia

For Publisher,
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Edited by
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Proofreading by
Jasmina Arsenijevic Mijalkovic
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Circulation
150 Copy Printing

ISBN 978-86-7132-065-8

Printing
R&D center of printing engineering, the University of Belgrade – Faculty of Technology and Metallurgy, Karnegijeva 4, Belgrade, Serbia

CIP- Каталогизација у публикацији
Народна библиотека Србије

371.3::54(048)

EUROVARIETY European Variety in University Chemistry Education (7 ; 2017 ; Beograd)
University Chemistry Education for the Challenges of Contemporary Society : book of abstracts / 7th
EuroVariety - European Variety in University Chemistry Education, Belgrade, 28-30 June 2017 ; [organized by]
EUChemS Division of Chemical Education, Serbian Chemical Society [and] Faculty of Chemistry ; [edited by
Dragica Trivic]. - Belgrade : Serbian Chemical Society, 2017 (Belgrade : R&D Center of Printing Engineering). -
147 str. ; 25 cm

Tiraž 150. - Bibliografija uz većinu radova. - Registar.

ISBN 978-86-7132-065-8

1. EUChemS Division of Chemical Education (Belgrade) 2. Serbian Chemical Society (Belgrade) 3. Faculty of Chemistry (Belgrade)

a) Хемија - Високошколска настава - Апстракт

COBISS.SR-ID 237903372

PREFACE

The conference entitled 7th EuroVariety – European Variety in University Chemistry Education has been organized by the University of Belgrade – the Faculty of Chemistry, the Serbian Chemical Society and the EUChEMS Division of Chemical Education. The main aim of the Conference is to provide an opportunity to share knowledge and experience relating to the important issues concerning university chemistry and chemical technology education in order to prepare future students to better respond to their personal needs and the needs of the contemporary society and to meet the labour market requirements. Therefore, the conference theme "**University Chemistry Education for the Challenges of Contemporary Society**" points out the need for continuous reconsideration of the connections between BSc, MSc and PhD chemistry studies and the contemporary professional, social and scientific challenges.

Over 70 participants from 29 countries have shared their experiences in their presentations offering their insights, pointing up the challenges and suggesting new solutions regarding the following Conference topics:

- Development of the university curricula for BSc, MSc and PhD chemistry studies
- Competency-based university chemistry education
- Chemistry education through university-industry partnerships
- Laboratory work as an element of problem solving and inquiry-based chemistry education
- Ethical guidelines and university chemistry education for sustainable development
- The use of ICT in chemistry education at the 3rd level
- The role of history of chemistry and philosophy of science in university education
- Cultural heritage and chemistry education
- Development of educational competencies of academic chemistry teachers
- Evaluation of learning outcomes and problems relating to assessment in HEIs
- The contemporary chemistry teachers' education and the long-term professional development of chemistry teachers.

Summaries in this Book of Abstracts deal with the practical aspects of teaching chemistry and research into chemistry education at both undergraduate and postgraduate levels with the aim of enabling students to build key professional and transferable skills needed in order to be successful in a highly competitive labour market and life in the rapidly changing world.

I wish all participants a successful conference and fruitful discussion. I hope you will all enjoy your stay in Belgrade.

Dragica Trivic

Head of the Local Organizing Committee



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7th EuroVariety - European Variety in University Chemistry Education is supported by



The Ministry of Education, Science and Technological Development of the Republic of Serbia



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CHEMICAL WEAPONS IN UNIVERSITY CURRICULA - A WAY TO SAFER SOCIETY

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Chemistry has been used as a tool of war for thousands of years. The earliest tools were poisoned arrows, Greek fire, water poisoning by hellebore plant extracts, etc. Apart from the chemicals used in the early wars, the modern chemical weapons (CW) were created during WWI and took more than one hundred thousand lives and caused around million casualties. Today CW have been regulated/prohibited by the Chemical Weapons Convention (OPCW, 2005) signed by 192 state parties. The implementing body for CWC is the Organisation for the Prohibition of Chemical Weapons (OPCW).

Nowadays, when fear of terrorism is bigger than ever, society needs a better insight into CW, safety and widely used industrial chemicals with terrible potential. In the current curriculum CW is studied mostly from military point of view and the focus is more on the weapons than on chemistry. Authors suggest that the development of chemical weapon related courses in a chemistry curriculum could be a way to achieve safer society. CW courses could cover different topics, e.g. ethics in science, history of chemistry, safety in chemistry and chemical industry, organic and bioorganic chemistry, biochemistry, analytical chemistry, environmental and industrial chemistry, multiple usage chemicals, green chemistry as an alternative to widely used CW related chemicals, etc. Development of a CW syllabus could be supported by various internet-based resources used for education for peace (www.opcw.org/special-sections/education, <http://multiple.kcvs.ca>, www.thefiresproject.com). Diversity of chemicals covered by CWC in combination with multi-disciplinary approach is a great foundation for development of different student skills: science ethics, problem-solving skills, safety skills, 21st century searching skills, team skills... The authors created a new graduate course called Chemical weapons at Faculty of Chemistry, University of Belgrade in 2016/17. The syllabus of CW can be seen on the internet (www.chem.bg.ac.rs/predmeti/279H1-en.html).

In conclusion, the chemistry behind chemical weapons is quite diverse and the authors suggest that undergraduate or graduate course Chemical weapons could be very interesting and beneficial for both chemistry major/minor students.

Keywords: Chemical weapons, Curriculum development, Misuse of chemicals, Green chemistry, CBRNE

References:

Organisation for the Prohibition of Chemical Weapons - OPCW (2005). *Convention on the prohibition of the development, production, stockpiling and use of chemical weapons and on their destruction*. The Hague, Netherlands: Publisher: Organisation for the Prohibition of Chemical Weapons - OPCW