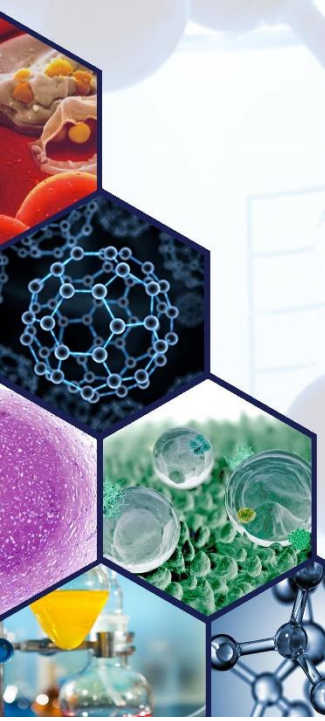
Serbian Young Chemists' Club

Serbian Chemical Society

Seventh Conference
of the Young Chemists of Serbia
Book of Abstracts



Belgrade, 2nd November 2019

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

54(048)(0.034.2)
577.1(048)(0.034.2)
60(048)(0.034.2)
66.017/.018(048)(0.034.2)

CONFERENCE of the Young Chemists of Serbia (7 ; 2019 ; Beograd)
Book of abstracts [Elektronski izvor] / Seventh Conference of the Young Chemists of Serbia, Belgrade, 2nd November 2019 ; [organized by] Serbian Chemical Society [and] Serbian Young Chemists Club ; [editors Tamara Todorović ... [et al.]]. - Belgrade : Serbian Chemical Society, 2019 (Belgrade : Development and Research Centre of Graphic Engineering Faculty of Technology and Metallurgy). - 1 elektronski optički disk (CD-ROM) ; 12 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. - Tiraž 150. - Bibliografija uz većinu apstrakata. - Registar.

ISBN 978-86-7132-076-4

а) Хемија -- Апстракти б) Биохемија -- Апстракти в) Биотехнологија -- Апстракти
г) Наука о материјалима -- Апстракти

COBISS.SR-ID 280545292

7th CONFERENCE OF THE YOUNG CHEMISTS OF SERBIA
BELGRADE, 2nd November 2019
BOOK OF ABSTRACTS

Published and Organized by
Serbian Chemical Society and Serbian Young Chemists Club
Karnegijeva 4/III, 11000 Belgrade, Serbia
Tel./fax: +381 11 3370 467; www.shd.org.rs; office@shd.org.rs

Publisher
Vesna MIŠKOVIĆ-STANKOVIĆ, *president of Serbian Chemical Society*

Editors
Tamara TODOROVIĆ
Ljubodrag VUJISIĆ
Jelena RADIVOJEVIĆ
Vuk FILIPOVIĆ

Page Layout and Design
Vuk FILIPOVIĆ

Circulation
150 copies

ISBN ***978-86-7132-076-4***

Printing
Development and Research Centre of Graphic Engineering
Faculty of Technology and Metallurgy, Karnegijeva 4, Belgrade, Serbia

Year of Publication: ***2019***

SCIENTIFIC COMMITTEE

Dr Tamara TODOROVIĆ
Dr Ljubodrag VUJISIĆ
Dr Jelena RADIVOJEVIĆ

ORGANIZING COMMITTEE

Dr Života SELAKOVIĆ
Vuk FILIPOVIĆ
Jelena LAZIĆ

Supported by

Ministarstvo prosvete, nauke i tehnološkog razvoja Republike Srbije
Ministry of Education, Science and Technological Development of Republic of Serbia

EuChemS European Chemical Society —European Young Chemists' Network—

Evropska mreža mladih hemičara
The European Young Chemists' Network

EVONIK POWER TO CREATE

Evonik Industries AG

Table of Contents

Plenary Lecture

Marijana Ponjavić

The poly(ε-caprolactone) chemistry role in creating new polymer biomaterials ___ 5

Invited Lectures

Života Selaković

Novel diazachrysenes and naphthyridines in the fight against Ebola _____ 6

Dušan Malenov

Stacking interactions of aromatic ligands in transition metal complexes _____ 7

Contributions

Biochemistry and biotechnology _____ 9

Food chemistry _____ 21

Chemistry of macromolecules and nanotechnology _____ 33

Educational chemistry _____ 41

Chemical analysis _____ 51

Chemical synthesis _____ 75

Industrial and applied chemistry _____ 99

Medicinal chemistry _____ 109

Materials science _____ 127

Theoretical chemistry _____ 149

Author Index _____ 161

Materials science

MS PP 13

Removal of hexavalent chromium Cr(VI) from aqueous solutions using cellulose-magnetite membrane CelMag- M

Jovana M. Perendija[1], Dragana L. Milošević[1], Mladen D. Bugarčić[2], Aleksandar D. Marinković[3]

[1] *University of Belgrade - SI Institute of Chemistry, Technology and Metallurgy National Institute, Center of Ecology and Technoeconomics, Belgrade, Serbia*

[2] *Institute for technology of nuclear and other raw materials, Belgrade, Serbia*

[3] *University of Belgrade - Faculty of Technology and Metallurgy, Belgrade, Serbia*

The industries of leather-tanning, mining and textile dyeing, generate large amounts of chromium-containing wastewater. Hexavalent Cr(VI) is highly poisonous and extremely mobile in the surface-water and groundwater in a broad pH range and therefore it has been identified as a potentially carcinogenic substance. The aim of the presented work was to develop cellulose-based membrane functionalized with magnetite, which could be used as an efficient adsorbent for the removal of hexavalent chromium Cr(VI) ions from aqueous solutions. Cellulose-based filter (CF) was functionalized with magnetite in three-step process. In the first and second step CF surface was modified using an ethanolic solution of (3-aminopropyl)triethoxysilane (APTES), and diethylenetriaminepentaacetic acid dianhydride, respectively. The introduction of amino and carboxylic groups provided successful precipitation of magnetite in the third step. The obtained cellulose-magnetite membrane (CelMag-M) was characterized by FTIR and SEM analysis. Adsorption of Cr(VI) onto CelMag-M was studied using batch-adsorption test. Under optimum pH conditions, the maximum experimental adsorption capacity of CelMag-M for Cr(VI) was found to be 111.2 mg g^{-1}. The adsorption process was endothermic, the equilibrium adsorption data could be best fitted to the Langmuir adsorption isotherm model and kinetics was in agreement with the pseudo-second-order rate equation.

Acknowledgments

This research was financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia as a part of the projects: OI 176018 and OI 172013.