

Personal Information

Family name, first name, title Heydari Abolfazl, Ph.D.
Address Polymer Institute SAS, Dúbravská cesta 9, 845 41 Bratislava
Telephone +421-2-3229 4302; +421 949 133 061
E-mail abolfazl.heydari@savba.sk; heydaria86@gmail.com
Gender Male

Education

Sep 2012 – Jan 2017 **Doctor of Philosophy, Organic Chemistry**
Department of Chemistry, Shahid Bahonar University of Kerman,
Kerman, Iran
Supervisor: Prof. Hassan Sheibani

Sep 2009 – Feb 2012 **Master of Science, Organic Chemistry**
Department of Organic Chemistry, University of Tabriz
Tabriz, Iran
Supervisor: Prof. Hassan Namazi

Jan 2005 – Feb 2009 **Bachelor of Science, Chemistry**
Department of Chemistry, University of Zabol
Zabol, Iran

Research Experience

Feb 2017 – Present **Research Scientist**
Department for Biomaterials Research, Slovak Academy of
Sciences, Bratislava, Slovakia
Advisor: Prof. Igor Lacik

- New generation PMCG multicomponent microcapsule with tailored biointerface to avoid the immune response after transplantation

This work was funded through JDRF and APVV projects.

Feb 2017 - present **Research Assistant**
Shahid Bahonar University of Kerman, Kerman, Iran

- Performance of physicochemical properties of alginate beads using nanomaterials
- Preparation and characterization of starch film with chemical or physical cross-linking
- Chemical modification of wheat bran
- Investigation of the physical and biochemical properties of our cyclodextrin polymers

May 2016 – Jan 2017

Visiting Research Scholar

Department of Composites Materials, Slovak Academy of Sciences, Bratislava, Slovakia

Advisor: Prof. Ivan Chodak

- Characterization of dynamic changes of filler network in rubber vulcanizate from electrical conductivity during uniaxial or cyclic deformation
- Preparation and characterization of starch film with chemical or physical cross-linking

This work resulted in 1 WOS publication.

Sep 2012 – Jan 2017

Graduate Student Researcher (Ph.D.)

Department of Chemistry, Shahid Bahonar University of Kerman, Kerman, Iran

- Title of thesis: Synthesis and characterization of ionic poly(β -cyclodextrin) and poly(β -cyclodextrin)/ graphene or clay nanocomposite hydrogels: pharmaceutical and environmental applications

This work resulted in 8 WOS publications.

Sep 2009 – Feb 2012

Graduate Student Researcher (MSc)

Department of Organic Chemistry, University of Tabriz, Tabriz, Iran

- Title of thesis: Synthesis of cyclodextrin-based nanostructure dendrimers and investigation of their applications as drug delivery system

This work resulted in 2 WOS publications, and one book chapter.

Teaching Experience

Dec 2012 – Sep 2015

Lecturer

Department of Chemistry, Shahid Bahonar University of Kerman, Kerman, Iran

Key Skills & Activities

Languages

Persian, English

Expertise and

Research Interests

- Modification of polysaccharides
- Synthesis of biocompatible and biodegradable polymers
- Preparation and characterization of thermoplastic films
- Familiar with cyclodextrins chemistry and their modification process
- Preparation and characterization of nanocomposite/ composite materials
- Modification of graphene oxide
- Material characterization
- Design and preparation of drug delivery system
- Water purification by biocompatible and biodegradable polymers
- Familiar with different software packages

Memberships of scientific societies

- Iran Nanotechnology Initiative Council (INIC)
- Iranian Chemical Society
- Iranian Polymer Society
- Young Researchers and Elite Club of Islamic Azad University Kerman Branch
- Biochemical Society of Iran

Awards

May 2017	Afzali-Pour prize as the "Distinguished Student Researcher" of the Shahid Bahonar University of Kerman in 2016-2017.
May 2016	Scholarship by the Ministry of Science, Research and Technology of Iran for visiting researcher abroad

Projects

Sep 2017 - Aug 2019	<p>Project title: New generation PMCG multicomponent microcapsule with tailored biointerface to avoid the immune response after transplantation.</p> <p>Role on project: Post-doctoral researcher</p> <p>Funding agency: Jovenile Diabetes Research Foundation. JDRF Grant</p>
Sep 2017 - Aug 2019	<p>Project title: Materials and processes for functional encapsulation of pancreatic islets in diabetes treatment</p> <p>Role on project: Post-doctoral researcher</p> <p>Funding agency: Slovak Research and Development Agency (APVV)</p>
May 2017 - Present	<p>Project Title: Preparation and characterization of biodegradable edible film made from starch/ bentonite clay nanocomposites using citric acid as crosslinker and preparation of fortified film with vitamin B₂.</p> <p>Role on project: Principal investigator</p> <p>Funding agency: Endocrinology & Metabolism Research Center of Kerman University of Medical Science</p>
Dec 2016 - Present	<p>Project Title: Synthesis of poly(styrene-co-meldrum's acid methyl styrene) as an electrophile for nucleophilic reaction on polystyrene.</p> <p>Role on project: Principal investigator</p> <p>Funding agency: Young researchers and elite club of Islamic Azad University Kerman Branch</p>
Feb 2016 - Oct 2016	<p>Project title: Synthesis of poly(β-cyclodextrin)/bentonite clay nanocomposite hydrogel by epichlorohydrin as a crosslinker for removal of heavy metals from water.</p> <p>Role on project: Principal investigator</p> <p>Funding agency: Physiology Research Center of Kerman University of Medical Science</p>

Nov 2015 - Apr 2016

Project title: Synthesis of cationic poly(cyclodextrin-co-guanidine) by epichlorohydrin crosslinker and preparation of inclusion complex with riboflavin (vitamin B2) for controlled vitamin release.

Role on project: Principal investigator

Funding agency: Physiology Research Center of Kerman University of Medical Science and Department of Chemistry of Shahid Bahonar University of Kerman

Jun 2015 - Jul 2016

Project Title: Synthesis and characterization of water soluble β -cyclodextrin-epichlorohydrin polymers and investigation of their applications in drug delivery of nifedipine.

Role on project: Principal investigator

Funding agency: Young Researchers Society of Shahid Bahonar University of Kerman

Supervision & Advising of Graduate Students

2017

1/MSc student (co-supervision)

Department of Chemistry, Shahid Bahonar University of Kerman, Kerman, Iran

Thesis title: Chemical modification of wheat bran and edible films based on starch/ bentonite clay nanocomposite by citric acid and their applications

2016

2/MSc student (co-supervision)

Department of Chemistry, Shahid Bahonar University of Kerman, Kerman, Iran

Thesis title: Synthesis and characterization of poly(β -cyclodextrin)/ bentonite clay nanocomposite hydrogels and their application for removal of methylene blue from aqueous solution

Thesis title: Synthesis of cationic β -cyclodextrin hydrogels in the presence of guanidine and epichlorohydrin and their application for removal of anionic dye compounds from aqueous solution

2014

3/MSc student (co-supervision)

Department of Chemistry, Shahid Bahonar University of Kerman, Kerman, Iran

Thesis title: Synthesis of β -cyclodextrin derivatives as nanocarriers and investigation of their applications in drug delivery systems

Thesis title: Synthesis of anionic β -cyclodextrin hydrogels in the presence of citric acid and their application for removal of methylene blue from aqueous solution

Thesis title: Synthesis and characterization of water soluble/insoluble epichlorohydrin- β -cyclodextrin polymers and investigation of their applications in drug delivery of nifedipine

List of publications

Book Chapters

Hassan Namazi, Farzaneh Fathi, ABOLFAZL HEYDARI. *Nanoparticles based on modified polysaccharides*. The Delivery of Nanoparticles, Edited by Abbass A. Hashim, 05/2012: chapter 8; InTech. ISBN: 978-953-51-0615-9.

WOS Publications

Fatemeh Farrokhi, Zahra Karami, Saeed Esmaeili-Mahani, ABOLFAZL HEYDARI. Delivery of DNAzyme targeting c-Myc gene using β -cyclodextrin polymer nanocarrier for therapeutic application in human breast cancer cell line. In Journal of Drug Delivery Science and Technology, **2018**, Accepted Manuscript, (2.297, IF2017)

ABOLFAZL HEYDARI, Hassan Sheibani, Viktor Hronský, Ivica Janigová, Miroslav Šlouf, Peter Šiffalovič, Ivan Chodák. *β -Cyclodextrin-epichlorohydrin polymer/graphene oxide nanocomposite: preparation and characterization*. In Chemical Papers, **2018**, 72, 1299-1313. (1.258, IF2016). ISSN 2585-7290.

ABOLFAZL HEYDARI, Fatemeh Mehrabi, Tayebeh Shamspur, Hassan Sheibani, Ali Mostafavi: *Encapsulation and controlled release of vitamin B2 using peracetyl- β -cyclodextrin polymer-based electrospun nanofiber scaffold*. In Pharmaceutical Chemistry Journal, **2018**, DOI: 10.1007/s11094-018-1759-8. (0.445, IF2016). ISSN 0091-150X.

ABOLFAZL HEYDARI, Abbas Pardakhti, Hassan Sheibani. *Preparation and characterization of zwitterionic poly(β -cyclodextrin-co-guanidinocitrate) hydrogels for ciprofloxacin controlled release*. In Macromolecular Materials and Engineering, **2017**, 302, 1600501. (2.834, IF2016). ISSN 1439-2054.

ABOLFAZL HEYDARI, Yeganeh Hassani, Hassan Sheibani, Abbas Pardakhti. *Water soluble β -cyclodextrin polymers as drug carriers to improve water solubility, thermal stability and controlled release of nifedipine*. In Pharmaceutical Chemistry Journal, **2017**, 51, 375–383. (0.445, IF2016). ISSN 0091-150X.

ABOLFAZL HEYDARI, Hamideh Khoshnood, Hassan Sheibani, Farideh Doostan. *Polymerization of β -cyclodextrin in the presence of bentonite clay to produce polymer nanocomposites for removal of heavy metals from drinking water*. Polymers for Advanced Technologies, **2017**, 28, 524–532. (1.823, IF2015). ISSN 1099-1581.

Masoud Ghanei-Motlagh, Mohammad Ali Taher, ABOLFAZL HEYDARI, Reza Ghanei-Motlagh, Vinod K. Gupta. *A novel voltammetric sensor for sensitive detection of mercury(II) ions using glassy carbon electrode modified with graphene-based ion imprinted polymer*. Materials Science and Engineering C, **2016**, 63, 367-375. (3.42, IF2015). ISSN 0928-4931.

ABOLFAZL HEYDARI, Farideh Doostan, Hamideh Khoshnood, Hassan Sheibani. *Water-soluble cationic poly(β -cyclodextrin-co-guanidine) as a controlled vitamin B2 delivery carrier*. RSC Advances, **2016**, 6, 33267-33278. (3.289 - IF2015). ISSN 2046-2069.

ABOLFAZL HEYDARI, Hassan Sheibani. *Facile polymerization of β -cyclodextrin functionalized graphene or graphene oxide nanosheets using citric acid crosslinker by in-situ melt polycondensation for enhanced electrochemical performance*. RSC Advances, **2016**, 6, 9760-9771. (3.84 - IF2014). ISSN 2046-2069.

ABOLFAZL HEYDARI, Mahsa Iranmanesh, Farideh Doostan, Hassan Sheibani. *Preparation of inclusion complex between nifedipine and ethylenediamine- β -cyclodextrin as nanocarrier agent*. Pharmaceutical Chemistry Journal, **2015**, 49, 605–612. (0.452, IF2014). ISSN 0091-150X.

ABOLFAZL HEYDARI, Hassan Sheibani. *Fabrication of poly (β -cyclodextrin-co-citric acid)/ bentonite clay nanocomposite hydrogel: thermal and absorption properties*. RSC Advances, **2015**, 5, 82438-82449. (3.84 - IF2014). ISSN 2046-2069.

Hassan Namazi, ABOLFAZL HEYDARI. *Synthesis of β -cyclodextrin-based dendrimer as a novel encapsulation agent*. Polymer International, **2014**, 63, 1447–1455. (2.125, IF2012). ISSN 1097-0126.

Hassan Namazi, ABOLFAZL HEYDARI, Ali Pourfarzolla. *Synthesis of glycoconjugated polymer based on polystyrene and nanoporous β -cyclodextrin to remove copper (ii) from water pollution*. In International Journal of Polymeric Materials and Polymeric Biomaterials, **2014**, 63, 1-6. (1.865, IF2012). ISSN 1563-535X.

Conferences (2016 - presence)

Maryam Gholam-Hosseinpour, Zahra Karami, ABOLFAZL HEYDARI. Water soluble β -cyclodextrin polymer as nanocarrier agent for enhancing in vitro cytotoxicity of doxorubicin against MCF-7 breast cancer cells. In the 13th International Breast Cancer Congress, 14-16 Feb, 2018, Cancer Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran (as selected poster presentation).

Treľová, Dušana - Rázga, Filip - Kroneková, Zuzana - Némethová, Veronika - Uhelská, Lucia - Raus, Vladimír - Mazancová, Petra - Fraňo, Milan - HEYDARI, ABOLFAZL - Kleščíková, Lucia - Rokstad, Anne Mari - Marchese, Enza - McGarrigle, James - Oberholzer, José - Lacík, Igor. Polyelectrolyte microcapsules: A bridge to improved diabetes treatment. In DVSPM 2017: Danube Vltava Sava Polymer Meeting: book of abstracts. - Vienna, Austria: Institute of Applied Synthetic Chemistry TU Wien, 2017, abstract no. IL-21. ISBN 978-3-9504017-6-9.

Fraňo, Milan - Treľová, Dušana - Kroneková, Zuzana - Kleščíková, Lucia - Mazancová, Petra - Némethová, Veronika - HEYDARI, ABOLFAZL - Uhelská, Lucia - Raus, Vladimír - Rázga, Filip - McGarrigle, J. - Oberholzer, J. - Lacík, Igor. Multicomponent microcapsule for islets encapsulation in diabetes treatment. In 25th International Conference on Bioencapsulation: abstract book. - La Chapelle sur Erde, France: Bioencapsulation Research Group, 2017, p.150-151

Ivan Chodák, ABOLFAZL HEYDARI, Michaela Sedničková. Structure of carbon black physical network determined by electrical conductivity during cyclic deformation of vulcanized rubber mixture. In EUROFILLERS 2017: Polymer Blends: abstract book. - Heraklion, Crete: University of Crete, 2017, p. 93.

Haniyeh Daneshafroz, ABOLFAZL HEYDARI, and Hassan Sheibani. Influence of reaction conditions on the structure of β -cyclodextrin polymer/ graphene oxide nanocomposite. In The 25th Iranian Seminar of Organic Chemistry, Sep 2-4, 2017, Iran University of Science and Technology, Tehran, Iran.

Haniyeh Daneshafroz, ABOLFAZL HEYDARI, and Hassan Sheibani. Optimization and Characterization of Modified Wheat Bran by Citric Acid using a Dry Reaction Method. In The 25th Iranian Seminar of Organic Chemistry, Sep 2-4, 2017, Iran University of Science and Technology, Tehran, Iran.

Ivan Chodák, ABOLFAZL HEYDARI, Michaela Sedničková. Characterization of dynamic changes of filler network in rubber vulcanizate from electrical conductivity during uniaxial or cyclic deformation, Proceedings RubberCon, Praha 23.-25.5.2017.

Ivan Chodak, Michaela Sednickova, ABOLFAZL HEYDARI. The effect of mechanical deformation on the structure of carbon black physical network determined by electrical conductivity of the vulcanized rubber mixture. The 12th Fall Rubber Colloquium, Hannover, Germany; 11/2016.

ABOLFAZL HEYDARI, Hamideh Khoshnood, Hassan Sheibani. *Polymerization of β -Cyclodextrin with Epichlorohydrin in Presence of Bentonite Clay for Produce Nanocomposite hydrogel.* The 6th International Conference on Nanostructures (ICNS6), Kish Island, Iran; 03/2016