Resume
Ing. Gábor Benkovics

Personal Information

- **Name** Ing. Gábor Benkovics
- **Gender** Male
- **Nationality** Slovak
- **Place of birth** Dunajská Streda
- **Date of birth** 26.11.1987
- **Marital status** married
- **Address** Mierová 8, Topoľníky 93011, Slovak Republic
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Education

10/2012 – current study program
Charles University in Prague, Czech Republic
Faculty of Science, Department of Organic and Nuclear Chemistry
Organic chemistry full-time doctoral study program
Thesis: Selectively substituted cyclodextrins for analytical and pharmaceutical applications
Main courses: Organic synthesis, Spectoscopic Methods NMR, Supramolecular Chemistry

9/2010 – 6/2012
Slovak University of Technology in Bratislava, Slovak Republic
Faculty of Chemical and Food Technology,
Department of Analytical Chemistry,
MSc. in Analytical Chemistry
Thesis: Synthesis and characterization of novel β – cyclodextrin derivatives and their application in capillary electrophoresis
Main Courses: Analytical Chemistry, Physical Chemistry

10/2011 – 6/2012
Charles University in Prague, Czech Republic
Faculty of Science,
Department of Analytical Chemistry
Erasmus Student Exchange Program
Research focusing on synthesis and characterization of novel cyclodextrin derivatives and their application in analytical chemistry

9/2007 – 6/2010
Slovak University of Technology in Bratislava, Slovak Republic
Faculty of Chemical and Food Technology,
BSc. in Chemistry and Medicinal Chemistry
Thesis: Behavior study of diazepam derivatives in chiral columns in the presence of alcohol using HPLC-NMR
Main Courses: Organic and Inorganic Chemistry, Analytical Chemistry, Physical Chemistry, Chemical Engineering, Medicinal Chemistry

9/2003 – 6/2007
Základná škola a Gymnázium s vyučovacím jazykom maďarským, Dunajská 13, Bratislava, Slovak Republic
High school diploma obtained
Graduated from English, Slovak, Hungarian languages and Chemistry

Scientific activity

2018
Author and co-author of 14 full research papers and 1 review article in international peer-reviewed journals (see the below the list of publications)

5/2014
Poster presentations on the 17th International Cyclodextrin Symposium awarded by the RSC Books Poster Prize.
Title of the poster presentation: Supramolecular aggregates based on cinnamyl and hydrocinnamyl modified α- and β-cyclodextrins

11/2013
Participating on the Course on Advanced Techniques in Electron Microscopy, Institute of Cellular Biology and Pathology of the First Faculty of Medicine, Charles University in Prague.
Practical course on Correlative Light and Electron Microscopy (CLEM),Cryo-electron microscopy, 3D reconstruction of individual macromolecules (single particle analysis), Electron tomography

6/2013 – 9/2013
Internship at CycloLab Cyclodextrin Research and Development Laboratory, Ltd. – Hungary
Research focused on synthesis and characterization of cinnamyl derivatives of alpha and beta cyclodextrins and on application of novel positively charged cyclodextrins in capillary electrophoresis for chiral separation.

List of publications

1. Havlíková, M.; Bosakova, Z.; Benkovics, G.; Jindrich, J.; Popr, M.; Coufal, P.: Use of 6-O-mono-substituted derivatives of β-cyclodextrin-bearing substituent with two permanent positive charges in capillary electrophoresis
Chem. Pap. **2016**, *70* (9), 1144–1154.
Journal impact factor (2016): 1.33.

2. Benkovics, G.; Hodek, O; Havlikova, M.; Bosakova, Z.; Coufal, P; Malanga, M; Fenyvesi, E; Darcsi, A; Beni, S; Jindrich, J.: Supramolecular structures based on regioisomers of cinnamyl-alpha-cyclodextrins
Beilstein J. Org. Chem. **2016,** *12*, 97-109.
Journal impact factor (2016): 2.70.

3. Malanga, M.; Darcsi, A; Balint, M; Benkovics, G; Sohajda, T; Beni; S.: New synthetic strategies for xanthene-dye-appended cyclodextrins
Beilstein J. Org. Chem. **2016,** *12*, 537-548.
Journal impact factor (2016): 2.70.

4. Benkovics, G.; Fejos, I.; Darcsi, A.; Varga, E.; Malanga, M.; Fenyvesi, E.; Sohajda, T.; Szente, L.; Beni, S.; Szeman, J.: Single-isomer carboxymethyl-γ-cyclodextrin as chiral resolving agent for capillary electrophoresis
J. Chromatogr. A **2016,** *1467,* 445-453.
Journal impact factor (2016): 4.03

5. Fejos, I.; Varga, E.; Benkovics, G.; Darcsi, A.; Malanga, M.; Fenyvesi, E.; Sohajda, T.; Szente, L.; Beni, S.: Comparative evaluation of the chiral recognition potential of single-isomer sulfated beta-cyclodextrin synthesis intermediates in non-aqueous capillary electrophoresis
J. Chromatogr. A **2016,** *1467,* 454-462.
Journal impact factor (2016): 4.03

6. Benkovics, G.; Afonso, D.; Darcsi, A.; Beni S.; Fenyvesi, E.; Szente, L.; Malanga, M.; Sortino, S.: Novel β-CD-eosin conjugates
Beilstein J. Org. Chem. **2017,** *13*, 543-551.
Journal impact factor (2016): 2.70.

7. Fejos, I.; Varga, E.; Benkovics, G.; Characterization of a single-isomer carboxymethyl-beta-cyclodextrin in chiral capillary electrophoresis
Electrophoresis **2017,** *38,* 1869-1877.
Journal impact factor (2016): 2.48.

8. Sohajda, T.; Fabian, A.; Tuza, K.; Malanga, M.; Benkovics, G.; Fulesdi, B.; Tassonyi, E.; Szente, L.: Design and evaluation of artificial receptors for the reversal of neuromuscular block
Int. J. Pharm. **2017,** *531,* 512-520.
Journal impact factor (2016): 3.99.

9. Benkovics, G.; Malanga, M. Fenyvesi, E.; The 'Visualized' macrocycles: Chemistry and application of fluorophore tagged cyclodextrins
Int. J. Pharm. **2017,** *531,* 689-700.
Journal impact factor (2016): 3.99.

10. Agnes, M.; Thanassoulas, A.; Stavropoulos, P.; Nounesis, G.; Miliotis, G.; Miriagou, V.; Benkovics, G.; Malanga, M.; Yannakopoulou, K.:
Designed positively charged cyclodextrin hosts with enhanced binding of penicillins as carriers for the delivery of antibiotics: the case of oxacillin
Int. J. Pharm. **2017,** *531(2),* 480-491.
Journal impact factor (2016): 3.99.

11. Benkovics, G.; Perez-Lloret, M.; Afonso, D.; Darcsi, A.; Béni, S.; Fenyvesi, E.; Malanga, M.; Sortino, S.:
A multifunctional β-cyclodextrin-conjugate photodelivering nitric oxide with fluorescence reporting
Int. J. Pharm. **2017,** *531(2)*, 614-620.
Journal impact factor (2016): 3.99.

12. Thomsen, H.; Benkovics, G.; Fenyvesi, É.; Farewell, A.; Malanga, M.; Ericson, B., M.: Delivery of cyclodextrin polymers to bacterial biofilms – an exploratory study using rhodamine labelled cyclodextrins and multiphoton microscopy
Int. J. Pharm. **2017,** *531(2)*, 650-657.
Journal impact factor (2016): 3.99.

13. Stjern, L.; Voittonen, S.; Weldemichel, R.; Thuresson, S.; Agnes, M.; Benkovics, G.; Fenyvesi, É.; Malanga, M.; Yannakopoulou, K.; Feiler, A.; Valetti, S.: Cyclodextrin-mesoporous silica particle composites for controlled antibiotic release. A proof of concept toward colon targeting
Int. J. Pharm. **2017,** *531 (2),* 595-605.
Journal impact factor (2016): 3.99.

14. Wankar, J.; Salzano, G.; Pancani, E.; Benkovics, G.; Malanga, M.; Manoli, F.; Gref, R.; Fenyvesi, E.; Manet, I.: Efficient loading of ethionamide in cyclodextrin-based carriers offers enhanced solubility and inhibition of drug crystallization
Int. J. Pharm. **2017,** *531(2),* 568-576.
Journal impact factor (2016): 3.99.

15. Malanga, M.; Fejos, I.; Varga, E.; Benkovics, G.; Darcsi, A.; Szeman, J.; Beni, S.: Synthesis, analytical characterization and the first capillary electrophoretic use of the single-isomer heptakis-6-O-sulfobutyl-ether-beta-cyclodextrin
J. Chromatogr. A **2017,** *1514,* 127-133.
Journal impact factor (2016): 4.03.

Work experience

7/2014 – current position
Position: Research chemist at CycloLab Cyclodextrin Research and Development Laboratory, Ltd. – Hungary

2/2013 – 6/2014
Position: Researcher at the Charles University in Prague, Czech Republic
Faculty of Science, Department of Organic and Nuclear Chemistry

Research skills

6 years practical research experience in the field of cyclodextrin chemistry gained as a:

- research chemist of CycloLab Cyclodextrin Research and Development Laboratory, Ltd., during the realization of the synthetic part of the project financed by the European Commission:

CyclonHit – Nanocarriers for the delivery of antimicrobial agents to fight resistance mechanisms

- researcher of the Charles University in Prague, Faculty of Science during the realization of the synthetic part of the project financed by the Czech Science Foundation:

Chiral supramolecular polymers based on derivatized cyclodextrins as a new environment for capillary separation techniques

- intern at CycloLab Cyclodextrin Research and Development Laboratory, Ltd.
- MSc. student of the Slovak University of Technology and the Charles University during the realization of the final year research project:

Synthesis and characterization of novel β – cyclodextrin derivatives and their application in capillary electrophoresis

The gained research skills cover the following areas:

- gram-scale synthesis of new cyclodextrin derivatives
- characterization of cyclodextrin derivatives with different NMR and MS techniques
- separation and purification of regioisomers of cyclodextrins with preparative chromatographic techniques
- analysis of cyclodextrin derivatives with HPLC-MS, HPLC-ELSD, HPLC-UV/Vis and MALDI-TOF techniques
- application of cyclodextrins in CE, HPLC and CEKC for chiral separation
- characterization of the complexation behavior of cyclodextrins by isothermal titration calorimetry
- characterization of the aggregation behavior of cyclodextrin derivatives by dynamic light scattering
- characterization of cyclodextrin based aggregates with different techniques of electron-microscopy

Language skills

- Hungarian native
- Slovak fluent
- English fluent
- Czech fluent

Interests and achievments

- General science
- Distance running (finisher of 7 marathons and several half-marathons)
- Travelling

Referees

1. **doc. RNDR Jindřich Jindřich, Csc.**

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2. **doc. RNDR. Zuzana Bosáková, CSc.**

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3. **Ing. Dr. Jaroslav Škubák**

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