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PERSONAL DATA

Name DR. TIBOR BENEDEK
Date and Place of Birth **Gyergyószentmiklós, 30 December 1985**
Address **2173 Kartal, Bocskay utca 42**
Phone Number **+ 36 28 522 000/1611** Cell Phone 06-30208 6681
E-mail benedek.tibor@uni-mate.hu
Citizenship Hungarian, Romania

CURRENT POSITION

Senior Research Fellow

PROFESSIONAL EXPERIENCE

Period	2019-
Position	Senior Research Fellow
Main responsibilities	Research and Innovation – “The reduction of pharmaceutical contaminants’ concentration from polluted water ecosystems by using innovative biotechnological methods” Grant Number: 2018-2.1.16-TÉT-IL-2018-00002
Name and address of the Employer	Hungarian University of Agriculture and Life Sciences, Institute of Aquaculture and Environmental Safety, Department of Molecular Ecology
Responsibilities	Principal Investigator
Period	2019-2020
Position	Research Fellow
Main responsibilities	Research and Innovation - “Sociomicrobiology of biofilm forming, hydrocarbon degrading and ureolytic bacteria for bioremediation purposes”. - Grant Number: PD 128831
Name and address of the Employer	Szent István University, Regional University Centre of Excellence in Environmental Industry
Responsibilities	Principal Investigator
Period	2017-2019
Position	Research Fellow
Main responsibilities	Research and Innovation - "Remediation of hydrocarbon contaminations using biofilm base permeable barriers" – Grant Number: GINOP-2.1.1-15-2015-00630
Name and address of the Employer	Szent István University, Regional University Centre of Excellence in Environmental Industry
Responsibilities	Researcher
Period	2015-2017
Position	Scientific Evaluator
Main responsibilities	Scientific evaluation expert, member of the scientific evaluation experts group of the “Green Industry Innovation” program of the Norwegian Financial Mechanism
Name and address of the Employer	Szent István University
Responsibilities	Evaluation of project progress reports
Period	2014-2017
Position	Research Fellow
Main responsibilities	Research and Innovation – “Development of a microbial consortium prototype for environmental remediation” - Grant Number: 35040 GOP-1.1.1-09/1-2010-0224
Name and address of the Employer	Szent István University, Regional University Centre of Excellence in Environmental Industry
Responsibilities	Researcher

Period	2012– 2013
Position	Department Engineer
Main responsibilities	Microbiological investigation of hydrocarbon contaminated soil and groundwater, as well as bacterial biofilms using cultivation dependent and independent molecular biological tests.
Name and address of the Employer	Szent István University, Regional University Centre of Excellence in Environmental Industry
Responsibilities	Research
Period	2009 – 2012
Position	PhD Student
Main responsibilities	Research and Innovation – “The microbiology of Saint Anna crater-lake” – Grant Number KPI IPC: 5/19/2012
Name and address of the Employer	Sapientia Hungarian University of Transylvania, Romania
Responsibilities	Research
Period	2010 – 2011
Position	Research Student
Main responsibilities	Assessing microbial diversity of petroleum hydrocarbon contaminated soils using cultivation independent molecular biological techniques (T-RFLP, DGGE)
Name and address of the Employer	Eötvös Loránd University, Department of Microbiology, Budapest
Responsibilities	Researcher
Period	2007– 2008
Position	Research Student
Main responsibilities	Research and Innovation - “Bioremediation of gasoline contaminated soils II.” – Grant Number - KPI 663/2007
Name and address of the Employer	Sapientia Hungarian University of Transylvania, Romania
Responsibilities	Researcher
Period	2006 – 2007
Position	Research Student
Main responsibilities	Research and Innovation - “Bioremediation of gasoline contaminated soils I.” Grant Number - KPI 1047/2006
Name and address of the Employer	Sapientia Hungarian University of Transylvania, Romania
Responsibilities	Researcher

STUDIES

Period	2009 - 2012
Degree	Ph.D.
Main subjects	Chemical Engineering Ph.D. studies on the basis of the regulation of the doctoral school of Politehnica University of Bucharest
Institution	Politehnica University of Bucharest, Applied Chemistry and Materials Science Doctoral School, Bucharest, Romania
National/International Classification	8 (doctoral or equivalent)
Period	2004 - 2009
Degree	Environmental Engineer
Main subjects	chemistry, biology, microbiology, ecology, mathematics, soil science, biotechnology, biochemistry, physics, analytical chemistry

Institution	Sapientia Hungarian University of Transylvania, Faculty of Engineering and Social Sciences, Department of Engineering and Environmental Sciences. Thesis defense at the Politehnica University of Bucharest, Faculty of Applied Chemistry and Materials Science.
National/International Classification	7 (master or equivalent)
Study Trips Abroad	<p>June 2021 – University of Duisburg Essen, Probst-Laboratory. Participation on an informal bioinformatics training in genome resolved metagenomics. Essen, Germany.</p> <p>May 2019 – Erasmus+ scholar, Spain BCN Staff Training Week. Participation on an intensive English course. Barcelona, Spain.</p> <p>September 2018 – Guest Researcher Fellow, University of Pau and de Pays de L'Adour, Environmental Microbiology Research Centre, Pau, France.</p> <p>March 2018 – Delegation Member, Erasmus+ Mobility Program to Ireland (Galway). Participant of the course entitled “Academic Writing”, Ireland.</p> <p>September 2017 – Guest Research Fellow, Center for Biofilm Engineering, Montana State University, Bozeman, Montana, USA.</p> <p>April 2017 – Delegation Member, Study tour to Norway (Trondheim) in frame of the “Green Industry Innovation” program of the Norwegian Financial Mechanism, Norway.</p> <p>January 2017 – Delegation Member, Mobility program to Iceland (Reykjavik, Borgarnes). Participant of the course: Sensitisation training with reference to migration, racism, discrimination, culture and diversity with strategies for teaching these issues to diverse age groups, Iceland.</p> <p>September 2016 – Delegation Member, Study tour to Norway (Oslo) in frame of the “Green Industry Innovation” program of the Norwegian Financial Mechanism, Norway.</p> <p>October 2015 – Guest Research Fellow, Helmholtz Center, Institute of Groundwater Ecology in München. Cooperative Project ID – 2015 BMBF/NIH “Revisiting hypoxic BTEX degradation in groundwater”, Germany.</p>

PRIZES AND RECOGNITION

2020 - Best Young Author for presentations „Selective enrichment and isolation of diclofenac, ibuprofen and karbamazepin degrading bacteria from a subsurface bacterial biofilm” and “ Engineering a bacterial consortium for complete and fast biodegradation of all six BTEX compounds – Hungarian Society of Microbiology, Annual Congress 2020, Kecskemét, Hungary.

2019 - Scientific Manuscript Competition 2nd prize awarded by The Hungarian Society of Microbiology in the section of Environmental Microbiology and Biotechnology for the manuscript entitled "Aerobic and oxygen-limited enrichment of BTEX-degrading biofilm bacteria: dominance of *Malikia* versus *Acidovorax* species".

2019 – Grassalkovich - Scientific Advancement Supporting Scholarship, awarded by the Szent István University

2018 – Postdoctoral Excellence Program Scholarship, PD_18 PD 128831, National Research, Development and Innovation Office, Hungary. Project title: “Sociomicrobiology of biofilm forming, hydrocarbon degrading and ureolytic bacteria for bioremediation purposes”.

2018 - Nation's Young Talents Scholarship, NTP-NFTÖ- 18-B-0139, Ministry of Human Capacities, Hungary. Project Title: “Looking for new catabolic functional genes using the CODEHOP approach”.

2017 – Nation's Young Talents Scholarship, NTP-NFTÖ-17-B-0205, Ministry of Human Capacities, Hungary. Project title: “Engineering a biofilm bacterial consortium for development of semipermeable reactive biobarriers”.

2017 - New National Excellence Program Scholarship, ÚNKP-17-4-III/SZIE17, Ministry of Human Capacities, Hungary. Project title: “Establishing a bacterial strain collection from biofilm forming and toxic simple aromatic hydrocarbons degrading bacteria”.

2016 – Scientific Manuscript Competition shared 1st prize awarded by The Hungarian Society of Microbiology in the section of Environmental Microbiology and Biotechnology for the manuscript entitled: "Polyphasic analysis of an *Azoarcus* – *Leptothrix*-dominated bacterial biofilm developed on stainless steel surface in a gasoline-contaminated hypoxic groundwater”.

2016 – Best Young Author at the Annual Congress of the Hungarian Society of Microbiology in the section of Environmental Microbiology and Biotechnology. Presentation Title: – „Selective enrichment of microaerobic and aerobic BTEX degrading biofilm bacteria – population dynamics”. Keszthely, Hungary;

2015 – Scientific Manuscript Competition 2nd prize awarded by The Hungarian Society of Microbiology in the section of Environmental Microbiology and Biotechnology for the manuscript entitled: "Analysis of biofilm bacterial communities responsible for carbon removal through a reactor cascade treating wastewater”.

2014 – Best Young Author at the Annual Congress of the Hungarian Society of Microbiology in the section of Environmental Microbiology and Biotechnology. Presentation Title: Uncovering taxonomical and metabolic diversity of a bacterial biofilm developed in a hydrocarbon contaminated groundwater, 2014, 15-17 October, Keszthely, Hungary.

INDIVIDUAL SKILLS AND COMPETENCES

Mother Tongue	Hungarian				
Other Languages	English, Romanian, French				
Self-assessment	Comprehension		Speaking		Writing
<i>European level (*)</i>	Listening	Reading	Conversation	Fluent Speaking	
English	good	excellent	good	good	good
Romanian	intermediate	excellent	intermediate	intermediate	good
French	basic	intermediate	basic	basic	basic
Social skills and competences	So far, I have been working in several research groups inside and outside of the country (USA, Germany, France, Romania, Israel). I have good connection with all these research units. Therefore, I consider myself a team-minded person, sociable, who always seeks for teamwork to be more efficient. I am punctual, precise, perseverant to bring the best out of everything I do.				
Organizational skills and competences	So far, I have been the supervisor of many BSc, MSc and PhD students. Some of them participated on Scientific Students Conferences and were awarded. I have been the principal investigator of two projects, one of them is a postdoctoral research project lasting for two years, and the other is a Hungarian-Israeli cooperation project started in 2019. I have been involved in planning, writing and implementation of a series of research projects, where I could develop my organizational skills and competences.				
Computer skills and competences	Advanced knowledge of Microsoft Office™ (Word, Excel, Powerpoint). The knowledge of statistical softwares applied in ecology or DNA sequence analysis (PAST-Paleontological Software Package, MEGA).				

SUPPLEMENTARY INFORMATION

Membership in scientific organizations	Hungarian Society of Microbiology - Member Hungarian Academy of Science – Member of public body
MTMT accession number	10033210 https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=authors10033210
Review experience in scientific journals	Annual Review and Research in Biology; OMICS Publishing Group/BioBio; Open Veterinary Journal; Polycyclic Aromatic Compounds; World Journal of Microbiology and Biotechnology; Environmental Science and Pollution Research.

Scientific Supervision

Márton Pápai (2021) – Identification of pharmaceuticals (diclofenac, ibuprofen and carbamazepine) degrading bacteria and metabolic pathways by using “omics” approaches. Hungarian University of Agriculture and Life Sciences, The Environmental Sciences Doctoral School. PhD supervision.

Flóra Szentgyörgyi (2019) – Assessing the applicability of bacterial biofilms that developed in petroleum hydrocarbon contaminated environments in environmental remediation. Hungarian University of Agriculture and Life Sciences, The Environmental Sciences Doctoral School. PhD supervision.

Anara Zhaksybayeva (2020) Identification of carbamazepine, ibuprofen and diclofenac degrading bacteria from biofilm by using 16S rRNA gene based fingerprinting techniques, Szent István University, Regional University Centre of Excellence in Environmental Industry. MSc thesis.

Kholood Gharieb (2019): Establishment of a pharmaceuticals degrading bacterial strain collection., Szent István University, Regional University Centre of Excellence in Environmental Industry. MSc thesis

Flóra Szentgyörgyi (2018): Isolation of PAH-degrading bacteria from biofilm for bioremediation purposes. Szent István University, Regional University Centre of Excellence in Environmental Industry. MSc thesis

Márk Aczél (2017): Development of a lab-scale model system from petroleum hydrocarbon elimination. Szent István University, Regional University Centre of Excellence in Environmental Industry. BSc thesis (SZIE TDK I., special prize, OFKD III.).

Dzsenifer Fekete (2017): Characterization of biofilm forming bacteria and sociomicrobiology studies. Szent István University, Regional University Centre of Excellence in Environmental Industry. BSc thesis (SZIE TDK special award).

Flóra Szentgyörgyi (2016): Isolation, identification and testing biofilm forming and hydrocarbon degrading capability of biofilm forming bacteria. Szent István University, Regional University Centre of Excellence in Environmental Industry. BSc thesis (SZIE TDK special prize, OTDK II. place, OFKD II. place).

Kriszta Fábrián (2015): Assessing phylogenetic and functional diversity of a bacterial biofilm developed in petroleum hydrocarbon contaminated subsurface environment. Szent István University, Regional University Centre of Excellence in Environmental Industry. BSc thesis

Relevant Publications

- Benedek, T., Szentgyörgyi, F., Szabó, I., Farkas, M., Duran, R., Kriszt, B., Táncsics, A. (2020) Aerobic and oxygen-limited naphthalene-amended enrichments induced the dominance of *Pseudomonas* spp. from a groundwater bacterial biofilm. *Applied Microbiology and Biotechnology* 104: 6023-6043
- Benedek, T., Szentgyörgyi, F., Szabó, I., Kriszt, B., Révész, F., Radó, J., Maróti, G., Táncsics, A. (2018) Aerobic and oxygen-limited enrichment of BTEX-degrading biofilm bacteria: dominance of *Malikia* versus *Acidovorax* species. *Environmental Science and Pollution Research* 25: 32178-32195
- Benedek, T., Táncsics, A., Szabó, I., Farkas, M., Szoboszlay, S., Fábrián, K., Kriszt, B. (2016) Polyphasic analysis of an *Azoarcus*-*Leptothrix* dominated bacterial biofilm developed on stainless steel surface in a gasoline-contaminated hypoxic groundwater. *Environmental Science and Pollution Research*, 23, p. 9019-9035
- Benedek, T., Táncsics, A., Szilágyi, N., Tóth, I., Farkas, M., Szoboszlay, S., Krifaton, Cs., Hartman, M., Kriszt, B. (2014) Analysis of biofilm bacterial communities responsible for carbon removal through a reactor cascade treating wastewater. *World Journal of Microbiology & Biotechnology*, 30, p. 977-987
- Benedek, T., Vajna, B., Táncsics, A., Márialigeti, K., Lányi, Sz., Máthé, I. (2013) Remarkable impact of PAHs and TPHs on the richness and diversity of bacterial species in surface soils exposed to long-term hydrocarbon pollution. *World Journal of Microbiology & Biotechnology*, 29, p. 1989-2002.
- Benedek, T., Máthé, I., Salamon, R., Rákos, Sz., Pásztohy, Z., Márialigeti, K., Lányi, Sz. (2012) Potential bacterial soil inoculant made up by *Rhodococcus* sp. and *Pseudomonas* sp. for remediation in situ of hydrocarbon- and heavy metal polluted soils. *Studia Universitatis Babeş-Bolyai –Seria Chemia*, 57, p. 199 – 211.
- Máthé, I., Benedek, T., Táncsics, A., Palatinszky, M., Lányi, Sz., Márialigeti, K. (2012) Diversity, activity, antibiotic and heavy metal resistance of bacteria from petroleum hydrocarbon contaminated soils located in Harghita County (Romania). *International Biodeterioration & Biodegradation*, 73, p. 41-49

Relevant Conference Participations	<p>Szentgyörgyi, F., Táncsics, A., Kriszt, B., Benedek, T. (2019) Isolation of naphthalene-degrading and biofilm producing bacteria. 18th International Congress of the Hungarian Society for Microbiology, Július 3-5, Budapest, Magyarország.</p> <p>Benedek, T., Szentgyörgyi, F., Révész, F., Kriszt, B., Táncsics, A. (2019) Aerobic and oxygen-limited enrichment of BTEX-degrading biofilm bacteria: dominance of <i>Malikia</i> versus <i>Acidovorax</i> species. 15th Symposium on Bacterial Genetics and Ecology, Május 26-30, Lisszabon, Portugália.</p> <p>Aczél, M. B., Táncsics, A., Kriszt, B., Benedek, T. (2018) Development of a biofilm based petroleum hydrocarbon degrading laboratory-scale model system. A Magyar Mikrobiológiai Társaság Éves Nagygyűlése, XIII. Fermentációs Kollokvium, Október 17-19, Eger, Magyarország.</p> <p>Fekete, D., Táncsics, A., Kriszt, B., Benedek, T. (2018) Co-cultivation of hydrocarbonoclastic and biofilm forming bacteria. A Magyar Mikrobiológiai Társaság Éves Nagygyűlése, XIII. Fermentációs Kollokvium, Október 17-19, Eger, Magyarország.</p> <p>Szentgyörgyi, F., Táncsics, A., Kriszt, B., Benedek, T. (2018). Selective enrichment and isolation of PAH-degrading and biofilm forming bacteria. A Magyar Mikrobiológiai Társaság Éves Nagygyűlése, XIII. Fermentációs Kollokvium, Október 17-19, Eger, Magyarország.</p> <p>Szentgyörgyi, F., Benedek, T., Kriszt, B., Táncsics, A. (2018). Identification and characterization of isolates from a biofilm developed in BTEX contaminated groundwater. XII. Szent-Györgyi Albert Konferencia, Április 20-21, Budapest, Magyarország.</p> <p>Benedek, T., Szentgyörgyi, F., Szabó, I., Kriszt, B., Táncsics, A. (2018) Microaerobic and aerobic BTEX degrading biofilm bacteria – Population dynamics from a phylogenetic and functional point of view. VII. Európai Bioremediációs Konferencia, Június 25-28, Kréta, Görögország.</p> <p>Benedek, T., Szentgyörgyi, F., Szabó, I., Szoboszlai, S., Kriszt, B., Táncsics, A. (2017). Selective enrichment and population dynamics of microaerobic and aerobic BTEX degrading biofilm bacteria. Seminar Series at the Montana State University, Szeptember 14, Bozeman, Montana, USA.</p> <p>Benedek, T., Szabó, I., Szoboszlai, S., Kriszt, B., Táncsics, A. (2017). Identifying microaerobic and aerobic BTEX degrading biofilm bacteria – population dynamics. 13th Carpathian Basin Conference for Environmental Sciences, April 5-8, Kolozsvár, Románia.</p> <p>Benedek, T., Máthé, I., Táncsics, A., Vajna, B., Palatinszky, M., Márialigeti, K., Lányi, Sz. (2011). Intrinsic bioremediability of petroleum hydrocarbon contaminated sites in Romania: diversity of bacterial community, catechol dioxygenase and alkane-monooxygenase genes. 17th Romanian International Conference on Chemistry and Chemical Engineering-RICCCE XVII, September 7-10, Sinaia, Romania.</p>
Patents	<p>Benedek, T., Máthé, I., Márialigeti, K., Mara, Gy., György, É., Ábrahám, B., Lányi, Sz.: Nehézfémek jelenlétében is aktív szénhidrogénbontó képességgel rendelkező mikrobiális konzorcium. Szabadalom regisztrációs száma (Románia): OSIM A/00421 – 2012.06.12.</p>

Gödöllő, 2021 August 19

Dr. Benedek Tibor

