

Separation Science Research Group (SSRG) at Department of Biotechnology and Microbiology



Team members



András Szekeres
Group Leader



Mónika Varga
Senior researcher



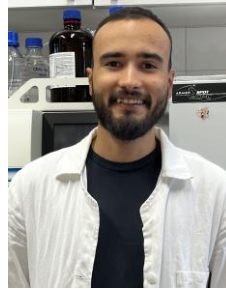
Barbara Buella-Tóth
Research Assistant

Our motto:

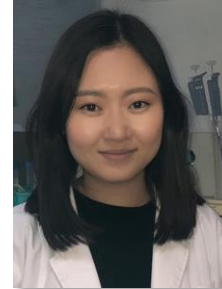
„Playing instruments, working diligence.”



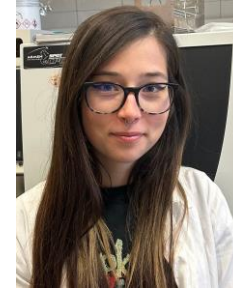
Dóra Anna Papp
Predoc



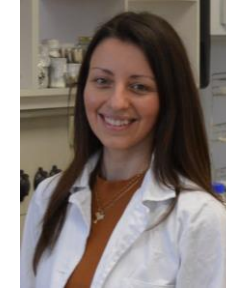
Dániel Hercegfalvi
PhD Student



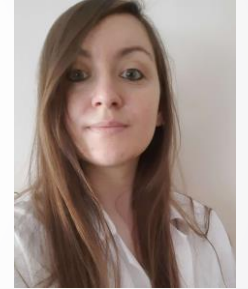
Nomuun Oyunbat
PhD Student



Csenge Kasuba
PhD Student



Dóra Balázs
PhD Student



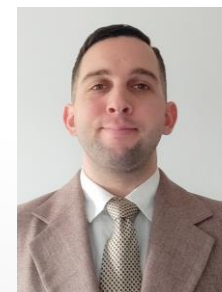
Gyányi Bettina
PhD Student



Kitti Tari
Msc Student



Noémi Regina Sebők
Msc Student



Balázs Schwartz
Bsc Student



Roberta Valentinyi
Bsc Student

Our Activities

Analytical examinations:

- Quantitations
- Component identification
- Metabolical examinations

Preparative investigations:

- Targeted purifications
- Method development (LLC)

Own research projects

Microbial interactions
Microbial secondary metabolites

Assignments
from external
organisations

GLP

Our
activities

Departmental research collaborations

Gacser's
Lab

Papp's
Lab

Kredics
's Lab

Tako's
Lab

Hamari's
Lab

NKFIH
142686

GINOP_PLUSZ-
2.1.1-21-2022-00080

NKFIH
134886

Research collaborations

GINOP_PLUSZ-
2.3.1-21-2022-00083

GINOP_PLUSZ-
2.1.1-21-2022-00189

Departmental projects

Instrumental background

Analytical examinations:

- LC-Q-Orbitrap HRMS
- LC-MS/MS
- GC-MS
- HPLC/UV, FLD, RID

Preparative investigations :

- Prep-HPLC
- Flash chromatograph
- Centrifugal Partition Chromatograph



Achievements connected to SSRG

- **2012. Start – a used HPLC**
- **2013. HPLC-MS**
- **2014. GC-MS**
- **2016. UHPL-HRMS, HPLC-MS/MS, CPC**
- **2017. Prep/Flash system**
- **2018. GC-FID, GC-EI-MS**
- **2020. GC-CI-MS**
- **2021. Top 50 Certification**
- **2023. Software updates**

Education activities:

- PhD students: 10
- Msc diploma thesis: 25
- Bsc diploma thesis: 28

Research activities:

- Impact factors: 264

**TOP 50 RESEARCH
INFRASTRUCTURES
in Hungary 2021**



Purification - bioactive molecules

Fermentation

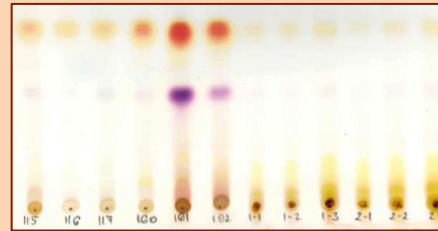
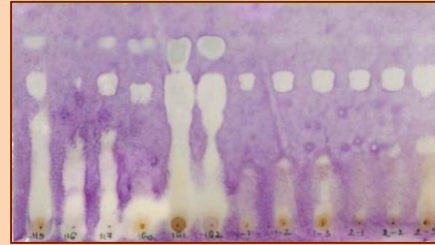


Extraction

- mycelia
- ferment broth

Bioactivity

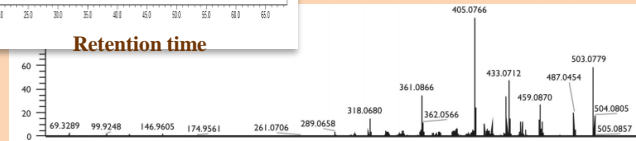
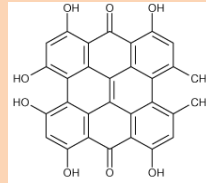
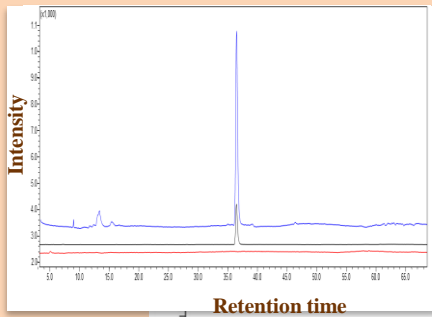
→ bioautography



Fractionation



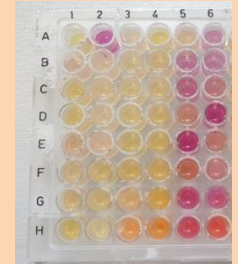
Identification



Purification

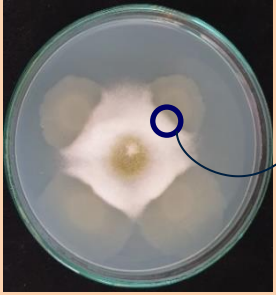


Bioactivity



Metabolomical examinations - interactions

Interaction



Extraction



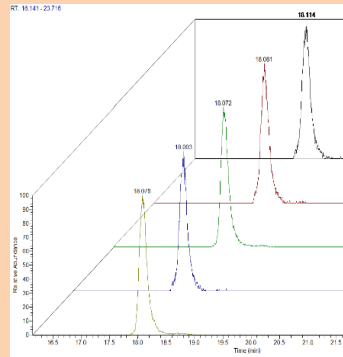
Analysis

LC-HRMS → secondary metabolites
GC-MS → primary metabolites



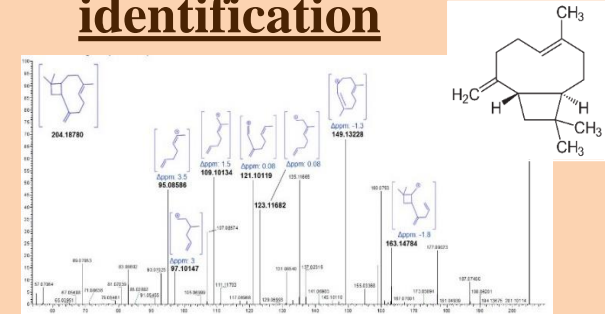
Bioinformatics

Spectrum analysis
Baseline correction
Background subtraction
Peak identification
Retention time alignment
Exact mass

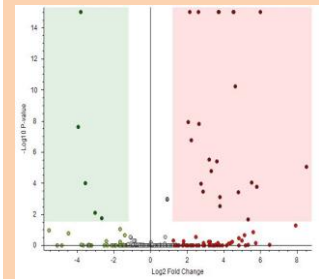
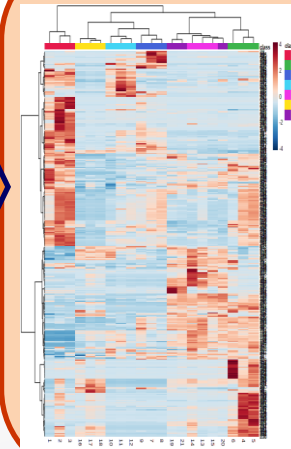


	Samples						
Compounds	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7
Compound 1	4.04e6	1.97e6	4.24e6	3.11e6	3.38.e3	3.68e6	4.51e6
Compound 2	4.71e5	7.42e5	7.71e5	6.18e5	2.39e3	7.45e5	6.49e5
Compound 3	7.02e3	9.00e5	2.19e4	3.36e4	4.78e3	5.78e5	4.61e5
Compound 4	4.64e7	4.96e7	4.55e7	4.62e7	4.11e7	4.37e7	3.84e7
Compound 5	4.52e5	1.99e4	7.77e3	3.47e5	5.26e3	1.44e4	6.21e3
Compound 6	2.73e8	2.86e8	2.89e8	1.98e8	2.59e8	2.70e8	2.74e8

Metabolite identification



Statistics

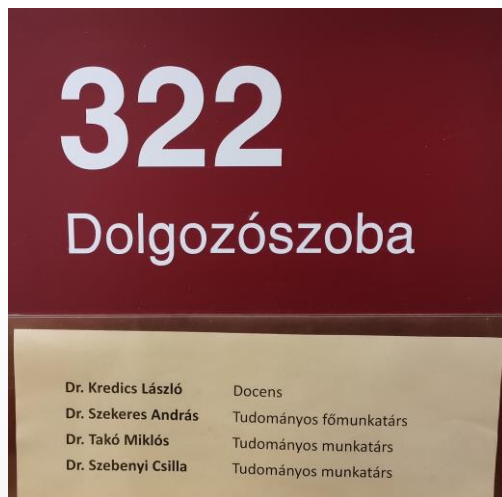


Contact Info

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