

# Anahit Hambardzum Shirvanyan

## Research Institute of Biology

Laboratory of Microbiology, Bioenergetics and Biotechnology  
Researcher

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## 🎓 Education

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
<b>Date</b>	2020 - 2023
<b>Degree name</b>	PhD student

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
<b>Date</b>	2018 - 2020
<b>Degree name</b>	Masters

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
<b>Date</b>	2014 - 2018
<b>Degree name</b>	Bachelor

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## 🎓 Scientific Rank/degree

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<b>Institution</b>	Yerevan State University
<b>Date</b>	2024
<b>Degree name</b>	Candidate
<b>Specialty</b>	Biological sciences
<b>Scientific Supervisor</b>	Թռչունյան Կարեն Արմենի
<b>Research Topic</b>	The action mechanisms of stress factors on some yeast growth parameters and antioxidant enzymes activity.

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## 🌐 Language skills

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Հայերեն Русский English

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## 📁 Work experience

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<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2023 till now

<b>Rank/degree</b>	Researcher at 23LCG-1F003 “The role of global regulators and transcriptional activators in the regulation of metabolic and bioenergetic parameters of microorganisms under conditions of fermentation and respiration” research grant
<b>Institution</b>	Laboratory of Microbiology, Bioenergetics and Biotechnology of YSU Research Institute of Biology
<b>Period of time</b>	2023 till now
<b>Rank/degree</b>	Junior researcher
<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2021 - 2023
<b>Rank/degree</b>	Researcher at 21AG-4D027 “The potential of plant origin compounds in the development of food and feed preservatives and new biologically active additives” research grant
<b>Institution</b>	Department of Biochemistry, Microbiology and Biotechnology of Faculty of Biology, YSU
<b>Period of time</b>	2019 - 2023
<b>Rank/degree</b>	Senior laboratory assistant
<b>Institution</b>	Norapat secondary school
<b>Period of time</b>	2018 - 2019
<b>Rank/degree</b>	Teacher of Biology



## Scientific interests

- Biochemistry
- Microbiology
- Biotechnology



## Participation in international conferences and seminars

<b>22/08/2022 - 23/09/2022</b>	Scientific expedition in framework of 21AG-4D027 research grant Gdansk University of Technology Poland
<b>09/07/2022 - 14/07/2022</b>	The Global Biochemistry summit Portugal
<b>01/04/2019 - 19/07/2019</b>	Erasmus+ Research program University of Saarland Germany

## Membership

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**Institution** Armenian Microbiological Association (FEMS constituent society)

**Period of time** 2023 - 2023

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**Institution** Armenian Biochemical Association (FEBS founding society)

**Period of time** 2021 - 2023

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**Institution** OSA YSU and NAS RA student chapter

**Period of time** 2020 - 2021

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**Institution** ArMicro ASM Student Chapter

**Period of time** 2019 - 2023

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**Institution** Union of Biologists of Armenia

**Period of time** 2016 - 2023

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**Institution** YSU Student Scientific Society

**Period of time** 2014 - 2020

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## Publications

*Article*

**The potential of blackcurrant, fig, and grape leaf extracts in the development of new preparations for overcoming antibiotic resistance and enhancing the efficacy of chemotherapeutic agents**

Mikayel Ginovyan, Silvard Tadevosyan, Anahit Shirvanyan, Anush Babayan, Barbara Kusznerewicz, Izabela Koss-Mikołajczyk, Marika Mróz, Agnieszka Bartoszek, Naira Sahakyan

BMC Complementary Medicine and Therapies 2025 1-54

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*Article*

**Biomass and bioethanol production from pretreated mixed fruit peel hydrolysate using *Saccharomyces cerevisiae* strains at different pH and oxygen conditions**

Anahit Shirvanyan, Ayaulym Daniyarova, Anait Vassilian, Anna Poladyan, Gopalakrishnan Kumar, Duman Orynbekov, Kairat Bekbayev, Karen Trchounian

BMC Biotechnology 2025 136

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*Article*

**Sodium transport and redox regulation in *Saccharomyces cerevisiae* under osmotic stress depending on oxygen availability**

Anahit Shirvanyan, Karen Trchounian

Scientific Reports 2024 23982

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*Article*

**EVALUATION OF ETHANOL AND BIOMASS PRODUCTION RATE BY DIFFERENT *SACCHAROMYCES CEREVISIAE* STRAINS DEPENDING ON EXTERNAL pH AND TEMPERATURE**

Anahit H. Shirvanyan

Proceedings of the YSU B: Chemical and Biological Sciences 2023 141-153

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*Article*

**The Action Mechanisms, Anti-Cancer and Antibiotic-Modulation Potential of Vaccinium myrtillus L. Extract**

Mikayel Ginovyan, Anush Babayan, Anahit Shirvanyan, Alvard Minasyan, Meri Qocharyan,

Barbara Kuszniereicz, Izabela Koss-Mikołajczyk, Nikolay Avtandilyan, Anne Vejux, Agnieszka Bartoszek,

Naira Sahakyan

Discovery Medicine 2023 590-611

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*Article*

**Relationship between proton/ potassium fluxes and central carbon catabolic pathways in different Saccharomyces cerevisiae strains under osmotic stress conditions**

Anahit Shirvanyan, Satenik Mirzoyan, Karen Trchounian

Process Biochemistry 2023 309-318

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*Article*

**CHEMICAL COMPOSITION AND ANTIBACTERIAL ACTIVITY OF ESSENTIAL OIL OF MENTHA ARVENSIS L. HARVESTED AT HIGH ALTITUDE ARMENIAN FLORA**

S. K. TADEVOSYAN, A. H. SHIRVANYAN, A. A. MARKOSIAN, M. T. PETROSYAN, N. Zh. SAHAKYAN

Proceedings of the YSU B: Chemical and Biological Sciences 2023 230-237

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*Article*

**PECULIARITIES OF GROWTH PARAMETERS OF SACCHAROMYCES CEREVISIAE UNDER DIFFERENT CONDITIONS**

Anahit H. Shirvanyan, Satenik N. Mirzoyan, Karen A. Trchounian

Proceedings of the YSU B: Chemical and Biological Sciences 2021 255-265

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*Article*

**Changes of ATPase activity and lipid peroxidation in conditions of long-term hypokinesia**

Shirvanyan A. A., Karapetyan H. M., Trchounian A. H.

Հայաստանի կենսաբանական հանդես 2020 80-84

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*Conference*

**The effect of hydrogen peroxide-induced oxidative stress on catalase activity in yeast Saccharomyces cerevisiae**

Shirvanyan A.H., Karapetyan H.M.

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*Conference*

**Potassium and proton ions transport during glucose fermentation in Saccharomyces cerevisiae under glycerol-induced osmotic stress at different pHs**

A. Shirvanyan, S. Mirzoyan, K. Trchounian

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*Conference*

**Antimicrobial and antioxidant potential of some plant crude extract**

Margarit Petrosyan, Alvard Minasyan, Anahit Shirvanyan, Anush Babayan, Mikayel Ginovyan,

Naira Sahakyan

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Conference

**Prospects for the use of *Ficus carica* L. leave extract as bio-preservative agent**

Anahit Shirvanyan, Alvard Minasyan, Anush Babayan, Armine Moghrovyan, Naira Sahakyan,  
Margarit Petrosyan, Karen Trchounian

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Conference

**Regulation of catalase and superoxide dismutase activities by sodium and potassium ions in *Saccharomyces cerevisiae***

A. Shirvanyan, S. Mirzoyan, K. Trchounian

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Conference

**THE OXIDATIVE STRESS AND POSSIBLE PREVENTIVE ACTION OF PLANT BORN POLYPHENOLS**

Anahit Shirvanyan, Anush Babayan, Alvard Minasyan, Margarit Petrosyan, Anna Poladyan,

Naira Sahakyan

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Conference

**The role of *Saccharomyces cerevisiae* ATPases in adaptation mechanisms to osmotic stress under aerobic conditions**

A. Shirvanyan, K. Trchounian

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Conference

**From metabolomics to medicine: exploiting the functional potential of plant extracts in human health, with emphasis on *Ribes nigrum*, *Ficus carica* and *Vitis vinifera***

S. Tadevosyan, M. Ginovyan, N. Avtandilyan, A. Shirvanyan, A. Bartoszek, N. Sahakyan

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Conference

**From agro-bio-waste to application: the power of bilberry aerial part extract as anti-cancer and antibiotic-modulating agent**

N. Sahakyan, M. Ginovyan, A. Babayan, A. Shirvanyan, A. Minasyan, B. Kusznierevicz,  
I. Koss-Mikołajczyk, N. Avtandilyan, A. Bartoszek

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Conference

**Harnessing plant extracts to overcome antibiotic resistance: leaf extracts of *Ribes nigrum*, *Ficus carica*, and *Vitis vinifera* as resistance modifiers of *E. coli* strains**

M. Ginovyan, A. Shirvanyan, S. Tadevosyan, A. Babayan, B. Kusznierevicz, N. Avtandilyan, A. Bartoszek,  
N. Sahakyan

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Conference

**The impact of acetic acid stress on growth parameters and sodium flux of *Saccharomyces cerevisiae* strains under varying oxygen conditions**

Anahit H. Shirvanyan, Gohar S. Azbekyan, Karen A. Trchounian

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Conference

**Impact of menthol on ATPase activity and ion flux in antibiotic-resistant *Escherichia coli***

Silvard K. Tadevosyan, Anahit Shirvanyan, Karen Trchounian, Naira Sahakyan

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Conference

**Bioenergetic differences in *Saccharomyces cerevisiae* ATCC 9804 during growth on glucose or glycerol under aerobic conditions**

Anahit Shirvanyan, Nicoletta Guaragnella, Karen Trchounian

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*Conference*

**Acetic acid-induced alterations in H<sup>+</sup> and K<sup>+</sup> fluxes in *Saccharomyces cerevisiae* ATCC 9804: Implications for stress adaptation and industrial fermentation**

Gohar Azbekyan, Anahit Shirvanyan, Karen Trchounian

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*Conference*

**Biomass and bioethanol production from dairy waste by *Saccharomyces cerevisiae* ATCC 13007**

Liana Anikyan, Anahit Shirvanyan, Karen Trchounian, Anna Poladyan

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*Conference*

**Hap4 System-Regulated Plasma Membrane Proton Fluxes are Crucial for *Saccharomyces Cerevisiae* Adaptation to Varying Ph, Oxygen, and Glucose Concentrations**

Liana Anikyan, Anahit Shirvanyan, Karen Trchounian

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*Conference*

**The Action Mechanisms of Acetic Acid Stress on Industrial Strains of *Saccharomyces Cerevisiae* Under Fermentation and Respiration**

Anahit Shirvanyan, Nicoletta Guaragnella, Karen Trchounian

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*Conference*

**Influence of Menthol on Ion Fluxes and Atpase Activity in Antibiotic-Resistant *E. Coli* Under Aerobic and Anaerobic Conditions**

Silvard Tadevosyan, Anahit Shirvanyan, Karen Trchounian, Naira Sahakyan

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*Conference*

**Inhibitory Effect of Acetic Acid on the Fermentative Metabolism in *Saccharomyces Cerevisiae* ATCC 9804 At pH 3.0.**

G. S. Azbekyan, A. H. Shirvanyan, K. A. Trchounian

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*Conference*

**Bioconversion of fruit waste into bioethanol and single-cell protein using *Saccharomyces cerevisiae* strains**

Anahit Shirvanyan, Ayaulym Daniyarova, Anait Vassilian, Anna Poladyan, Kumar Gopalakrishnan,

Duman Orynbekov, Kairat Bekbayev, Karen Trchounian

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