

# Genetics & Applications

An Aspiring Interdisciplinary Journal of Genetic Research

*special edition*



## ABMBBIH

CONFERENCE 2023

International Conference of  
Biochemists and Molecular  
Biologists in Bosnia and  
Herzegovina



The Official Publication of the  
Institute for Genetic Engineering and Biotechnology  
University of Sarajevo



ISSN 2566-2937

# **Genetics & Applications**

*An Aspiring Interdisciplinary Journal of Genetic Research*

Volume 7, Number 2

Special edition

Book of abstracts

International Conference of Biochemists and Molecular Biologists in  
Bosnia and Herzegovina - ABMBBIH

May, 2023

## **Indexed/Abstracted**

This journal is indexed or abstracted by:

*EBSCO, DOAJ, CAB Abstracts, Google Scholar, Global Health database, Crossref, Index Copernicus, EuroPub, Scilit and MIAR.*



The Official Publication of the  
Institute for Genetic Engineering and Biotechnology  
University of Sarajevo

**Congress Management Board**  
**Coordinating the Congress committees below**

*Adlija Čaušević* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Hercegovina

*Radivoj Jadrić* - University of Sarajevo, Faculty of Medicine, Bosnia and Hercegovina

*Edhem Hasković* - University of Sarajevo, Faculty of Science, Bosnia and Hercegovina

*Tamer Bego* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Hercegovina

**Scientific Advisory Committee**  
**Developing and managing the scientific programme**

*Adlija Čaušević* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Hercegovina

*Adaleta Mulaomerović* - University of Tuzla, Faculty of Pharmacy, Bosnia and Hercegovina

*Aida Kulo* - University of Sarajevo, Faculty of Medicine, Bosnia and Hercegovina

*Aida Smajilović* - University of Tuzla, Faculty of Pharmacy, Bosnia and Hercegovina

*Damir Marjanović* - Institute for Anthropological Research, Croatia

*Dragana Puhalo Sladoje* - Department of Biochemistry, Faculty of Medicine, University of East Sarajevo, Bosnia and Hercegovina

*Edhem Hasković* - University of Sarajevo, Faculty of Science, Bosnia and Hercegovina

*Emina Kiseljaković* - University of Sarajevo, Faculty of Medicine, Bosnia and Hercegovina

*Erna Karalija* - University of Sarajevo, Faculty of Science, Bosnia and Hercegovina

*Erna Islamagić* - University of Sarajevo, Faculty of Science, Bosnia and Hercegovina

*Esmeralda Dautović* - University of Tuzla, Faculty of Pharmacy, Bosnia and Hercegovina

*Ferhan Sagin* - Ege University, Faculty of Medicine, Turkey

*Ismet Tahirović* - University of Sarajevo, Faculty of Science, Bosnia and Hercegovina

*Ivanka Mikulić* - School of Medicine, University of Mostar, Bosnia and Hercegovina

*Jana Nekvindova* - Institute for Clinical Biochemistry and Diagnostics, University Hospital Hradec Kralove, Czech Republic

*Janja Marc* - University of Ljubljana, Faculty of Pharmacy, Slovenia

*Jasmina Fočo Solak* - Clinical Center University of Sarajevo, Sarajevo, Bosnia and Hercegovina

*Jelena Kotur Stevuljević* - University of Belgrade, Faculty of Pharmacy, Serbia

*Jerka Dumić* - University of Zagreb, Faculty of Pharmacy and Biochemistry, Croatia

*Kasim Bajrović* - University of Sarajevo, Institute of Genetic Engineering and Biotechnology, Bosnia and Hercegovina

*Lada Lukić Bilela* - University of Sarajevo, Faculty of Science, Bosnia and Hercegovina

*Lejla Kapur Pojskić* - University of Sarajevo, Institute of Genetic Engineering and Biotechnology, Bosnia and Hercegovina

*Maja Malenica* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Hercegovina

*Marija Gavrović-Jankulović* - University of Belgrade, Faculty of Chemistry, Serbia

*Martina Gobec* - University of Ljubljana, Faculty of Pharmacy, Slovenia

*Miron Šopić* - University of Belgrade, Faculty of Pharmacy, Serbia

*Mirsada Hukić* - Full member of Academy of Science and Arts of Bosnia and Herzegovina (ANUBIH) Member of European Academy of Science, Bosnia and Herzegovina  
*Nahida Srabović* - University of Tuzla, Faculty of Pharmacy, Bosnia and Herzegovina  
*Naris Pojskić* - University of Sarajevo, Institute of Genetic Engineering and Biotechnology, Bosnia and Herzegovina  
*Nino Sinčić* - University of Zagreb, Faculty of Medicine, Croatia  
*Jovan Antović* - Karolinska Institutet, Department of Molecular Medicine and Surgery, Sweden  
*Ivana Carev* - Mediterranean Institute for Life Sciences, Croatia  
*Radivoj Jadrić* - University of Sarajevo, Faculty of Medicine, Bosnia and Herzegovina  
*Sabaheta Hasić* - University of Sarajevo, Faculty of Medicine, Bosnia and Herzegovina  
*Sabina Semiz* - Department of molecular biology and genetics, College of medicine and health sciences, Khalifa University, Abu Dhabi, UAE  
*Safija Herenda* - University of Sarajevo, Faculty of Science, Bosnia and Herzegovina  
*Stojko Vidovic* - University of Banja Luka, Faculty of Medicine, Bosnia and Herzegovina  
*Suzana Tihic Kapidžić* - Clinical Center University of Sarajevo, Bosnia and Herzegovina  
*Tamer Bego* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Herzegovina  
*Tanja Dujčić* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Herzegovina  
*Una Glamočlija* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Herzegovina  
*Vanja Vidovic* - University of Banja Luka, Faculty of Medicine, Bosnia and Herzegovina

### ***Organizing Committee***

#### ***Overseeing logistics including local arrangements and sponsorship***

*Tamer Bego* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Herzegovina  
*Lejla Kapur Pojskić* - University of Sarajevo, Institute of Genetic Engineering and Biotechnology, Bosnia and Herzegovina  
*Emina Kiseljaković* - University of Sarajevo, Faculty of Medicine, Bosnia and Herzegovina  
*Safija Herenda* - University of Sarajevo, Faculty of Science, Bosnia and Herzegovina  
*Esmeralda Dautović* - University of Tuzla, Faculty of Pharmacy, Bosnia and Herzegovina  
*Belma Pehlivanović* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Herzegovina  
*Erna Islamagić* - University of Sarajevo, Faculty of Science, Bosnia and Herzegovina  
*Neven Meseldžić* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Herzegovina  
*Belmina Šarić Medić* - University of Sarajevo, Institute of Genetic Engineering and Biotechnology, Bosnia and Herzegovina  
*Selma Imamović Kadrić* - University of Sarajevo, Faculty of Pharmacy, Bosnia and Herzegovina  
*Ermin Begović* - Clinical Center University of Sarajevo, Bosnia and Herzegovina  
*Lejla Alić* - University of Sarajevo, Faculty of Medicine, Bosnia and Herzegovina

***Editor in Chief of Genetics & Applications***

*Kasim Bajrović* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

***President of Editorial Board of Genetics & Applications***

*Rifat Hadžiselimović* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

***Executive Editor of Genetics & Applications***

*Jasmina Čakar* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

***Technical Editors of Genetics & Applications***

*Abdurahim Kalajdžić* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Belma Jusić* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Belmina Šarić Medić* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Irma Durmišević* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Jasna Hanjalić* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Lejla Ušanović* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Merima Miralem* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Mujo Hasanović* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Nikolina Tomić* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Tamara Četković Pećar* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

*Tarik Čorbo* - University of Sarajevo, Institute for Genetic Engineering and Biotechnology, B&H

***Publisher of Genetics & Applications***

Institute for Genetic Engineering and Biotechnology, University of Sarajevo  
Zmaja od Bosne 8, 71000 Sarajevo, Bosnia and Herzegovina

www.ingeb.unsa.ba

Phone: +387 33 220-926

Fax: +387 33 442-891

ingeb@ingeb.unsa.ba

## RELATIONSHIP BETWEEN URINARY COPPER EXCRETION BETWEEN PATIENTS WITH WILSON DISEASE, BEFORE AND AFTER THE TREATMENT

Stojanovska Natalija<sup>1</sup>, Biljali Sefedin<sup>1</sup>, Velickova Nevenka<sup>2</sup>

<sup>1</sup>PHI University Institute of Clinical Biochemistry in Skopje, R.North Macedonia

<sup>2</sup>Faculty of Medical Sciences, University "Goce Delchev" - Stip, R.Nosth Macedonia

Wilson's disease (WD) is an autosomal recessive inherited disease, caused by a mutation in the *ATP7B* gene, located on chromosome 13, which is responsible for synthesizing enzymes needed to transport copper from the liver to the bile. The disease is characterized by a pathological accumulation of copper, first in the liver and then in the brain, kidneys, bones, and cornea. The biochemical characteristics of WD include decreased serum ceruloplasmin and copper concentrations and increased urinary copper excretion. Determination of copper in the urine by atomic absorption spectrometry is a rapid method for determining excess copper in the body which helps to remove the excess copper in the body through the urine. The aim of this study task is to point out the importance of biomonitoring of urinary copper excretion, using atomic absorption spectrometry, in patients with WD, before and after chelating agent therapy or treatment. The laboratory examination of the copper content in 24hour urine was performed at the PHI University Institute of Clinical Biochemistry in Skopje, at the Clinical Center "Mother Teresa" using atomic absorption with a PinAAcle 900F spectrometer. The relationships between urinary copper excretion in 24h urine between patients with WD, before and after treatment observe high concentration ( $\mu\text{g}$ ) of copper in 24h urine ( $108,92\pm 35,44$ ) in patients without chelating agent therapy compare with concentrations of copper in 24h urine ( $24,49\pm 13,95$ ) with chelating agent therapy. Minimum values of copper in 24-hour urine in patients with and without chelating agent therapy are 91,39 and 4,44 respectively. Maximum values of copper in these two group of patients are 172,88 and 42,94 respectively. Determining the concentration of copper in various biological media is becoming increasingly important, but in WD it has been shown that determining 24-hour urinary copper excretion is important for diagnostic purposes and monitoring.

**Keywords:** Wilson's disease, copper, urinary copper excretion, monitoring treatment

*Correspondence:* [nevenka.velickova@ugd.edu.mk](mailto:nevenka.velickova@ugd.edu.mk)