



Aachen – Germany | Old imperial city in the heart of Europe

International Conference of Trace Elements and Minerals

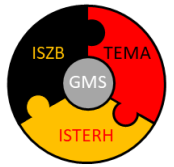
ABSTRACT BOOK

Online Meeting of 36th GMS, 7th ISZB, TEMA17 and 13th ISTERH

August 2 – 6 2021

www.ictem.de

Welcome address



Dear Colleague,

It is with great pleasure that we welcome you to the first online joint meeting of GMS, ISTERH, ISZB and TEMA! After we had to postpone the meeting twice we are excited to finally meet all of you again, to hear interesting presentations, have inspiring discussions and exchange the latest findings in the field of trace element research!

Our online meeting takes place via Zoom. Please follow this **link throughout the conference**:

<https://rwth.zoom.us/j/95678132081?pwd=MnRlMFRiVERlbn92ci9zaU1kVGY4dz09>

Meeting-ID: 956 7813 2081

Passcode: ICTEM2021

All keynote lectures and oral presentations will be recorded for attendees from around the globe that have difficulties to join the Zoom due to time shifts. The recordings are available until August 15th and can be found here:

<http://zinc-net.com/ISZB2021/>

Password: ICTEMonline2021

Nevertheless, we are also looking forward to seeing you in person and thus are very happy to announce **next year's on-site conference in Aachen, Germany** (see p. 2)!

Furthermore we are glad to inform you that two **special issues related to the ICTEM meetings 2021 and 2022** will be published. You are very welcome to send submissions (see page 3 for further details).

We are looking forward to the online meeting and to hosting you in Aachen next year!

Yours sincerely,

The ICTEM organizing committee



Prof. Dr. Lothar Rink



PD Dr. Henrike Fischer

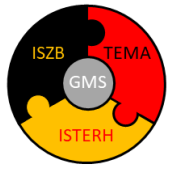


Dr. Inga Wessels



Dagmar Marx

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D2 P5

Title: Iodine content in the hair of the adult population of the Mangistau region of the Republic of Kazakhstan and its interaction with coronavirus infection (COVID-19): a cross-sectional study

Authors: Batyrova Gulnara, Kononets Victoria*, Umarova Gulmira, Umarov Yeskendir, Tlegenova Zhenisgul

Affiliations: West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan

Correspondence: micropaleontolog@yandex.kz

Introduction: Amidst the COVID-19 pandemic, the issue of vulnerability to this disease of certain groups of the population, caused by a violation of the trace element status, is relevant. For certain regions with a decrease in the iodine content in the environment and food, the iodine deficiency can be the factor causes a decrease in the body's immune characteristics. Mangystau region of the Republic of Kazakhstan belongs to the regions in which the iodine content in the soil is reduced and iodine deficiency conditions are quite common.

Aim: To study the iodine content in the hair of residents who have not been ill and have had a coronavirus infection COVID-19, living in the Mangistau region of the Republic of Kazakhstan.

Methods: cross-sectional study. The study included residents over 18 years old, permanently residing in this area. The study was approved by the Local Ethics Committee. Persons with decompensated chronic and oncological diseases, pregnant women, lactating women, and those taking vitamin and mineral supplements were excluded from the study. The selection was carried out by the method of simple random sampling. The sample size was 260 people. A single sampling of hair strands from the back of the head was carried out to determine the level of iodine concentration in them. The determination of the iodine concentration in the hair was carried out by inductively coupled plasma mass spectrometry (ICP-MS).

Results: The subjects were divided into 2 groups: group 1 - those who did not have COVID-19 (n = 158), group 2 - those who had COVID-19 (n = 102). The groups were balanced in terms of age and gender. The concentration of iodine in the hair of the examined group 1 was 0.267 (0.156-0.476), group 2 - 0.209 (0.1401-0.340) $\mu\text{g} / \text{g}$. The difference between the groups is statistically significant ($p = 0.048$). In the 2nd group, there is a deviation from the reference values for the iodine content in the hair towards a decrease.

Conclusion: The iodine level in the hair of residents of the Mangistau region who have recovered from COVID-19 is significantly lower than in the group who did not have COVID-19. In the group of patients with COVID-19, there is a decrease in the iodine content in comparison with the established reference values.

D4 P2

Title: Zinc content in the hair of residents recovered from COVID-19 in the Mangistau region of the Republic of Kazakhstan.

Authors: Gulnara Batyrova*, Victoria Kononets, Gulmira Umarova, Yeskendir Umarov, Zhenisgul Tlegenova

Affiliations: West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan (68, Maresyev str., Aktobe, 030019);
batyrovagulnara77@gmail.com

Introduction: The current COVID-19 pandemic caused by SARS-CoV-2 has swept the world and poses a global problem. COVID-19 affects the immune system by inducing a systemic inflammatory response or cytokine release syndrome. In respect that, zinc has the ability to increase inborn and adaptive immunity during a viral infection, we decided to study the zinc content in the hair of residents who did not get sick and had a coronavirus infection COVID-19.

Aim: to compare the content of zinc in the hair of residents recovered from COVID-19 infection and a control group, living in the Mangistau region of the Republic of Kazakhstan.

Methods: Hair zinc content in 260 permanent residents aged from 18 to 60 was determined using ICP-MS. The study included residents (n = 102) (39.2%) who suffered from COVID-19 during the first wave in the summer (June, July, August) of 2020 and a control group (n = 158) adults (60.8%). The study was conducted prior to the universal vaccination campaign.

Results: Significant differences were revealed in zinc content (Me (q25; q75) µg/g) in hair of the group that had COVID (Me 199.462 (166.558; 247.600) µg/g) and the control group (Me 182.154 (151.3635; 215.494) µg/g) (p <0.001).

Conclusion: Residents of the Mangistau region of the Republic of Kazakhstan who suffered from COVID-19 had a reduced hair zinc content in comparison to the control group.