

Short information about presentations:

Section 3: Water and Health

Chair - Doc. RNDr. Stanislav Rapant, DrSc., ŠGÚDŠ

- Z. Valovičová – Health aspects connected to water quality (zuzana.valovicova@uvzsr.sk)
Water as one of the main factors of environment belongs to determinants of health, which affect health condition of population. Situation in the sphere of drinking water supply and with using of recreation waters and their possible health effect is monitored by authorities of public health. Contribution deals with current situation of infectious diseases occurrence that are transmitted by the water and also deals with occurrence of the other health problems, which may be related with using of drinking and bathing water.
- K. Fajčíková – Chemical composition of ground/drinking water and cardiovascular diseases mortality (katarina.fajcikova@geology.sk)
The results show that mortality on cardiovascular diseases (CVD) in the Slovak Republic may be influenced by the chemical composition of the groundwater, in particular by Ca, Mg and their sum Ca+Mg (mmol.l⁻¹). We found CVD was significantly lower than the national average when drinking water concentrations were as follows: Ca more than 89.4 mg.l⁻¹, Mg between 42–78.1 mg.l⁻¹ and Ca+Mg between 4.4–7.6 mmol.l⁻¹. These levels, as determined by us, are about 2-3 times higher than the limit levels of the drinking water standards in Slovakia. We propose considering increasing current recommended values for these indicators of water quality.
- C. Cvečková - Chemical composition of ground/drinking water and oncological diseases mortality (veronika.cveckova@geology.sk)
Based on the achieved results the mortality of oncological diseases (OD) in the Slovak Republic is influenced, mainly by the Ca, Mg contents and Ca+Mg levels in the groundwater/drinking water. Mortality for OD is significantly lower compared to Slovak average when groundwater content of these parameters are: for Ca > 60 mg.l⁻¹, for Mg within range of 25-35 mg.l⁻¹ and for Ca+Mg within range of 1.7-5.8 mmol.l⁻¹. Our derived limit values are about 2 times higher compared to limits defined within the Slovak guideline for drinking water and therefore we recommend increasing them. The increased mortality for OD in the Slovak Republic is associated to low (deficit) contents of these parameters v groundwater/drinking water.
- S. Rapant – Impact of ground/drinking water chemical composition on population health and the proposal of limit values for important elements (stanislav.rapant@geology.sk)
Based on the achieved results we can conclude that health status together with life expectancy of the population in the Slovak Republic is significantly influenced by the chemical composition of the groundwater/drinking water, in particular, by the Ca, Mg contents and water hardness (Ca+Mg). Mortality for the main causes of death including cardiovascular and oncological diseases and also diseases of the gastrointestinal and respiratory system is markedly lower at concentration ranges of these parameters in groundwater as follows: Ca 78 – 155 mg.l⁻¹, Mg 28 – 54 mg.l⁻¹ and water hardness (Ca+Mg) 2.9 – 6.1 mmol.l⁻¹. Worse health status and lower life expectancy are observed at low, deficit contents of these parameters in groundwater/drinking water. Our derived limit values are about 2 times higher compared to limits defined within the Slovak guideline for drinking water. We propose to increase them in the case of drinking water used from public supply at following concentrations: Ca>50 mg l⁻¹, Mg>25 mg l⁻¹ and Ca+Mg >2 mmol.l⁻¹. For drinking bottled water we recommend following limit values: Ca>60 mg.l⁻¹, Mg>30 mg.l⁻¹ and Ca+Mg pre >2.5 mmol.l⁻¹.

- K. Munka – Improvement of low mineralised water quality by re-carbonisation
karol.munka@vuvh.sk

According to the World Health Organization, chemical and microbial contaminants in drinking water will continue in the interest of suppliers of drinking water. The review establishment of new knowledge for drinking water including the potential benefits of the mineral content is necessary. The presentation is focused on an assessment of the quality of water from surface source for drinking water preparation and quality of drinking water produced at the water treatment plant. The lab-scale verification of water recarbonization with lime and carbon dioxide was chosen based on the results of full scale plant data analysis. Recarbonization tests were carried out with the raw water and the impact of recarbonization on coagulation process at different coagulant doses was studied. The results show that water recarbonization had adverse influence on the water treatment processes.