Contribution ID: **1546** Type: **Oral**

Uptake of copper and silver nanoparticles by Metha Spicata L. and their transfer into herbal infusion

Thursday 31 October 2024 15:05 (15 minutes)

The application of copper and silver nanoparticles in the agricultural sector, industry, medicine and commercial products leads to their intentional and unintentional release into the environment. Spearmint (Metha Spicata L.) an important herbal remedy was exposed to root and foliar treatment with silver and copper nanoparticles (PVP-coated) in the concentration range of 1-100 mg/L during 28 days. To determine the content of copper and silver in soils and plant segments inductively coupled plasma optical emission spectrometry and atomic absorption spectrometry technique were used. Transmission electron microscopy allowed to visualize and characterize nanoparticles in solutions. The study revealed the influence of nanoparticles concentration and way of application on their localization in spearmint segments. The preparation of herbal infusion from plants exposed to nanoparticles made it possible to assess the risks to human health through the tea consumption. The percentage of silver and copper extraction into the herbal tea varied depending on the exposure route and nanoparticles concentration in solution. Copper extraction from leaves into the infusion was at the level of 3-64%, while silver extraction was less than 1% (under root exposure), and 22-98% when was applied foliar spraying.

Primary author: PESHKOVA, Alexandra (Joint Institute for Nuclear Research, 6 Joliot-Curie Str., 141980, Dubna, Russia ; Doctoral School Biological, Geonomic, Chemical and Technological Science, State University of Moldova, 60 Alexei Mateevici Str., MD-2009, Chisinau, Moldova)

Presenter: PESHKOVA, Alexandra (Joint Institute for Nuclear Research, 6 Joliot-Curie Str., 141980, Dubna, Russia ; Doctoral School Biological, Geonomic, Chemical and Technological Science, State University of Moldova, 60 Alexei Mateevici Str., MD-2009, Chisinau, Moldova)

Session Classification: Life Science

Track Classification: Life Science