

## TRACE ELEMENTS IN LITHUANIAN HONEY

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**Summary.** The amount of trace metals Pb (lead), Cd (cadmium), Zn (zinc), Sr (strontium), Rb (rubidium), Ba (barium) and rare elements Ce (cerium), La (lanthanum), U (uranium) was determined in samples of honey, collected from different parts of Lithuania. The research was done in Federal Institute of Consumer Health Protection and Veterinary Medicine in Berlin, Germany, using inductively coupled plasma mass spectrometry ICP-MS by “FINNIGAN MAT” company. It was found, that there are a lot of biologically important trace metals in Lithuanian honey, although their concentrations not exceed allowable EU Foodstandards. The concentration of harmful trace elements in Lithuanian honey vary within a large range: Pb  $2.9 \div 22.1$   $\mu\text{g}/\text{kg}$ , Cd  $4.1 \div 14.6$   $\mu\text{g}/\text{kg}$ , Cu  $119.6 \div 342.9$   $\mu\text{g}/\text{kg}$ , Zn  $514.0 \div 5639.0$   $\mu\text{g}/\text{kg}$ . The amounts of these heavy metals in Lithuanian honey are smaller than in honey from the other EU countries. According to the rubidium amounts in honey, it could be assorted into honey of mead and forest. 2446.5  $\mu\text{g}/\text{kg}$  of rubidium was found in honey, which was collected in Labanoras forest. This is 4  $\div$  12 times more than in other samples. Maximum amounts of Pb (22.1  $\mu\text{g}/\text{kg}$ ), Ce (31.9  $\mu\text{g}/\text{kg}$ ), La (16.0  $\mu\text{g}/\text{kg}$ ), and high amounts of Sr (154.0  $\mu\text{g}/\text{kg}$ ), Ba (47.3  $\mu\text{g}/\text{kg}$ ) were found in honey, which was collected in Karmelava (nearby Kaunas City, close to highways). Traces of rare elements (Ce, La, U) were also found in honey. Ecologically Lithuanian honey is cleaner in comparison to honey collected in the other EU countries and can successfully compete in market.

**Keywords:** honey, trace elements, mass-specters.