

Content of selected toxic elements in bee products

Summary

The development of industry, intensive agriculture and the automotive industry has contributed to a massive increase in pollution of the environment. The many pollutants accumulating in the environment include toxic elements (Hg, Zn, Cu, Pb, As, Cd) whose natural content in soil and the atmosphere is very small. Honeybees (*Apis mellifera* L.) are entirely dependent on flowering plants that provide them with nectar and pollen. They also make use of plant buds, from which they collect propolis. Therefore, since 1998 in the Apiculture Department of the Faculty of Animal Science research has been conducted on the content of heavy metals in bee products from all over Poland (108 apiaries, 324 colonies). The content of mercury and lead in propolis, honey and beebread was analysed. The results obtained were satisfactory, as the average mercury content (0.00027 mg/kg) and lead content (0.0485 mg/kg) of honey was low and did not exceed accepted norms in any of the samples tested. Moreover, the average content of mercury (0.00091 mg/kg) and lead (0.2885 mg/kg) in the beebread did not exceed the norms in any of the samples. The only product in which the average content of mercury (0.00491 mg/kg) and lead (9.6621 mg/kg) exceeded the norm was propolis. The results show that in most areas of Poland there is no danger of contamination of bee products with mercury and lead. Our findings and a review of the results of other authors clearly indicate that bee products such as propolis, honey and beebread can be used as bioindicators of environmental pollutants such as heavy metals.

KEY WORDS: bee products, heavy metals, accumulation