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**LONG TERM INVESTIGATIONS OF RADIOACTIVITY IN HONEY OF
NORTH-WEST CROATIA**

Zdenko FRANIĆ, Gordana MAROVIĆ and Gina BRANICA

*Institute for Medical Research and Occupational Health, Radiation Protection Unit,
Ksaverska cesta 2, PO Box 291, HR-10000 Zagreb, Croatia
e-mail: franic@imi.hr*

In this work are presented long-term investigations of radioactive contamination of honey of North-west Croatia by ^{137}Cs and ^{134}Cs and by naturally occurring ^{40}K . In Croatia, caesium radionuclides in honey were first investigated after the Chernobyl nuclear accident in 1986. The activity concentrations of both radionuclides peaked in May 1986, decreasing exponentially afterwards. The estimated mean residence time, corrected for radioactive decay, was found to be 1.2 y for ^{137}Cs and 0.9 y for ^{134}Cs . In early 1990s, activity concentrations in honey for both radionuclides were under the detection limit, until Fukushima Daiichi accident in 2011. Radiocaesium activity concentrations in honey are correlated with their activity concentrations in fallout, with coefficient of correlation $r=0.92$. Effective radiation doses due to radiocaesium, received by the Croatian population by honey consumption, were estimated to be very small, annual *per caput* dose being $<1 \mu\text{Sv}$. Investigation of activity concentrations of naturally occurring ^{40}K in honey can serve as a rapid screening method for honey adulteration. When foraging for food, honey bees are exposed to potential pollutants in a surface area of more than 7 km^2 . Therefore, honey and other bee products could be useful as biomonitoring tools for collecting information regarding the environmental pollution within the bees' forage area. Based on the mobility of honey bees and their ability to integrate all exposure pathways, inclusion of honey and other bee-farming products in the routine radioecological monitoring programme for the Croatian environment could add another level of confidence to the present environmental monitoring program.

KEY WORDS: ^{137}Cs , ^{134}Cs , *effective dose, Croatian honey, mean residence time*