SOME BIOINDICATORS OF RADIOACTIVE CONTAMINATION

Constantin COSMA, Ioana COZMUTA, Calin MICU

Faculty of Physics-University Babes
Bolyai Cluj - Napoca, Romania

The lessons that could be learned from the Chernobyl accident were numerous and encompassed all areas. One of those lead to the discovery of new monitoring methods which also supply to cost-effective solutions to control contaminant radioactive discharges in the environment.

Through the measurements performed, we discovered that some samples, because of their radioactive content restrained also for long periods of time, can be used as bioindicators.

Hen eggs laid between May 1-30 1986 were analysed (identification of radionuclides with a Ge(Li) detector and measuring of total gamma activity with NaI(Tl)). Various aspects pursued revealed that eggs are precious witness of vegetable food contamination with fission products, especially Ba-140 and I-131, behaving as radionuclide separators (Ba-140 in the egg shell - 301 Bq/egg and I-131 in the content - 182 Bq/egg).

Some of most important pharmaceutical plants from Transylvania measured during 1986-1994 period presents high cesium radioactivity. The perennial plants (as Lichen Islandicus) for the same period accumulated a greater activity that the annual ones. Especially the lichen, because of their slow decreasing activity are suitable as biological as biological detectors also in retrospective measurements.
Measuring the activity of some pollen samples, the daily evolution following the Chernobyl accident found in air samples was rediscovered. The pollen grains, during their transport in air by the bees, are acting like a filter for radionuclides so that we could use they to monitor the deliverance of these substances in air.