MONITORING OF ORGANOCHLORINE PESTICIDES IN WATER BASINS

Anahit Aleksandryan, *Ministry of Nature Protection of the Republic of Armenia, Yerevan, Republic of Armenia*
Artak Khachatryan, *Waste Research Center, Yerevan, Republic of Armenia*

Background and Aims: Organochlorine pesticides as persistent organic pollutants (POPs) possess various degree of stability to photolysis, biological and chemical degradation. These substances are semi-volatile; this latter allows their long- distance transport through air flow to all parts of the globe, even to remote areas thousands of kilometers from the nearest POPs source. The following problem was set: to determine residual amounts of organochlorine pesticides, including in surface water of rivers and Lake Sevan as the largest lake in Armenia and a natural reservoir of drinking water for the entire region.
Methods: Generally accepted gas-chromatography analysis was performed to trace the residues of mentioned pesticides in samples of surface and drinking water.
Results: DDE (metabolite of DDT) was determined in water samples from Sevan Lake at 0.016 mcg/L and Lindane (gamma-HCH) at 0.067 mcg/L. In samples of drinking water from Yerevan DDT made 0.0013 mcg/L, while HCH achieved 0.0028 mcg/L. In samples of drinking water from Vanadzor HCH (summary) made 0.01 mcg/L.
Analyses for Hexachlorobenzene (HCB) in waters of open reservoirs revealed this substance in the range of 0.005-0.056 mcg/L. HCB residue amounts were also determined in samples from water supply network of cities Yerevan and Vanadzor. In 9 out of 12 samples of water collected in Yerevan HCB was revealed within the range of 0.0001-0.0078 mcg/L. In Vanadzor the residues of HCBs averaged 0.005 mcg/L.
Analyses to determine residual amounts of Heptachlor found out that in surface waters it ranged 0.034-0.17 mcg/L (averagely 0.074 mcg/L).
Conclusions: The results signify to continuing circulation of organochlorine pesticides in environmental compartments. From contaminated areas POPs, though at insignificant amounts, penetrate to different environmental media (ground and surface waters, air), plants, agricultural produce, and then by trophic chains POPs residues penetrate into human organism