MODELLING OF ENVIRONMENTAL CHEMICAL POLLUTION AND PERSPECTIVES OF EXPOSURE AND RISK ASSESSMENT IN UKRAINE

National report

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Abstract

There is heavy pollution of environmental media in Ukraine by chemicals. Modelling of the distribution of pollutants in water and air is conducted by Ukrainian scientists. Instructions on calculation of chemicals in the water and air were worked out. In the nearest future appropriate modelling and epidemiological studies shall be conducted for assessment of chemical exposure and risk in Ukraine.

1. Introduction

In the present time annual anthropogenic impact on air quality of pollutant emissions from fixed sources is near 4.5 million ton and from mobile sources near 1.5 million ton in Ukraine. There are massive discharges of pollutants into Ukrainian water bodies. Annually the amount is more than 4.5 million ton of pollutants.
That is why working-out and implementation of mathematical models of environmental exposure to chemicals is very important as well from the scientific as from the practical point of view. The aim of this paper is to give a short review of the state and perspective of environmental pollution modelling in Ukraine as a first step of exposure modelling.
It is known that exposure of the population to pesticide is mostly by the oral route through food products. Ukrainian scientists have worked out a mathematical model called "pesticide-plant" [1,2].
In Ukraine, also an automatised control system of pesticides in agricultural and food products for 150 pesticides was worked out [3].
The elements of input information of pesticide into this load estimation model were:

- A real list of products and pesticides;
- The relative frequency of exposure (%) of each pesticide residue;
- The absolute values of pesticide residues in each product;
- The class of hazard of each revealed pesticide (in numbers);

J.B.H.J. Linders (ed.), Modelling of Environmental Chemical Exposure and Risk, 255–260.