

## RESUMO - CONTAMINANTES EMERGENTES E AGROTÓXICOS

### **ASSESSMENT OF RISKS TO HUMAN HEALTH CAUSED BY PESTICIDES IN DRINKING WATER IN THE CITIES OF ITAPEVA AND BARRETOS**

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Water is the basic and indispensable element for life, however several regions of the world suffer from its scarcity. Among the factors that contribute to this shortage is the decrease in water quality due to contamination caused by increased agricultural productivity and the indiscriminate use of pesticides. Given the dynamics of these pesticides in the environment and their possible effects on the environment and human health, they are becoming a very important subject of discussion in scientific circles. One of the main tools for verifying whether or not these damages to human health caused by exposure to these contaminants is risk assessment. In Brazil, there is little work carried out in this area, most of them are related to risk assessment in food. Therefore, the objective of this study was to evaluate the risk to human health caused by the contamination of drinking water by pesticides in two cities in the State of São Paulo. The oral and dermal average daily dose (ADD), the hazard quotient (HQ), the non-carcinogenic risk index (IRnc) for the two routes of exposure and the cumulative dose in children aged 6 years and adults aged 30 years were estimated from the cities of Itapeva and Barretos. These cities were chosen because Itapeva is a large producer of soybeans and Barretos is a large producer of sugar cane. The study pesticides used in the risk assessment

calculations were glyphosate, 2,4D, acephate, atrazine and diuron, which are the active ingredients most used in the two agricultural crops mentioned. To calculate the average daily doses, concentration values for each compound were used, taken from the SISAGUA database, and for intake rates, data were taken from USEPA documents. With the calculations, it was found that the highest doses of both dermal contact and ingestion were concentrated in the group of children, which was already expected due to this group being more susceptible to contamination. For the city of Itapeva, the results found for the HQ<sub>oral</sub> for glyphosate and diuron in the children's group exceeded 1, and for the HQ<sub>oral</sub> in the adult group it was exceeded for the compounds glyphosate, 2.4 D and diuron, this tells us that there is an adverse effect on health. The results obtained for the IR<sub>nc</sub> for glyphosate exceeded 1 in both groups and for 2.4D, this was exceeded for the adult group. The cumulative doses were considerably low, with the highest value occurring due to intake in the group of children, which was 1.51 mg/kg.day. In Barretos, the highest daily oral doses found were for the compound diuron, being in the children's group. With respect to the values of the hazard quotient (HQ) and the non-carcinogenic risk index that exceeded 1, these were also for diuron in both study groups. When calculating the cumulative doses, it was found that the average oral dose for children was very significant, being 1.59.105 mg/kg.day.

Palavras-chave: contaminated water; pesticides residues; risk assessment; health hazard.