

## **SUMMARY - POSTER PRESENTATION 2- CIPAC SYMPOSIUM SURVEY AND EXPOSURE ASSESSMENT OF PESTICIDE RESIDUES IN CEREALS**

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Introduction:

The pesticide use impact has become attention focus of researchers and institutions around the world due to human and environment toxic effects. Pesticide presence in food is the main source of population chronic exposure. Rice and beans feed more than half human population, occupy world largest grain crops position and are main cereals in Brazilian population diet. Human exposure to these agents in food is worrying, when considered the increased number of toxic active ingredients in use. In order to estimate this pesticide exposure, a study with 44 samples of rice (polished) and 44 samples of dry beans of different brands was carried out. Samples were collected by the municipal health authorities in Sao Paulo metropolis and in Sao Paulo state minor towns according official public health programs.

Objectives:

Estimation of risks of pesticide exposure, by food intake to Brazilians;

Evaluation, implantation of a multi-residue method for pesticides determination in cereals;

Investigation of 35 active ingredients in rice (polished) and dry beans;

Evaluation of these results and contribution to human health risk.

Method:

The method used is described in Analytical Methods for Pesticide Residues in Foodstuffs of the Ministry of Health of Netherlands (1996), as amended. Qualitative and quantitative analysis were performed by gas chromatography with electron capture (ECD) and pulsed flame photometric (PFPD) detectors, resulting in 3080 determinations. The parameters used to evaluate the method, after optimization of

chromatographic conditions were: selectivity, linear response range, limit of detection (LOD), limit of quantification (LOQ), accuracy and precision, resulting in 975 determinations.

#### Results:

In rice, propiconazole residue was found in 28 (64%) samples, 9 (50%) from the metropolis and 19 (73%) from minor towns, at levels between 0.05 and 0.1 mg/kg, within the allowed rice maximum residue levels (MRLs) of 0.1mg/kg. In beans, procymidone residue was found in 10 (44%) samples, 6 (25%) from the metropolis and 4 (19%) from minor towns, at levels between 0.05 and 0.1 mg/kg, within the allowed beans maximum residue levels (MRLs) of 0.5mg/kg. Propiconazole is a hazardous systemic fungicide pesticide. Procymidone, is a slightly hazardous fungicide pesticide. Other pesticides studied in rice and beans showed no residues at LOQ level ranged from 0.05 to 0.5 mg/kg, depending on the active ingredient analyzed. The estimated health risk from exposure to propiconazole by rice intake, considering the highest level found and the IBGE per capita annual brazilians consumption of 17,110 kg, represents 1.9% and 7.8% of the acceptable daily intake (ADI - 0,04mg/kg bw) for adult population (60kg) and children (15kg), respectively. Similarly, the estimated health risk from exposure to procymidone by beans intake, represents 0,04% and 0,15% of the acceptable daily intake (ADI - 0,1mg/kg bw) for adult population and children, respectively.

#### Conclusion:

All samples were considered proper for consumption in relation to the analyzed pesticides and risks estimate. This research contributes to the literature data of pesticide residue in rice and beans, still low in Brazil and enables new studies and programs for public health protection.