

Organochlorine Pesticide Levels in the Brazilian army conscripts living in the city of Rio de Janeiro, Brazil

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SUMMARY

Humans are exposed to harmful substances in many ways, including inhalation, ingestion and skin contact. Human exposure to toxic chemicals has been occasioned by increased agricultural production, industrialization and urbanization. Taking into consideration their severe effects, a cross-sectional study was performed with blood donors, Brazilian army conscripts living in the urban area of greater Rio de Janeiro City, for the analysis of persistent organochlorine compounds (OCPs), by applying a questionnaire and collecting biological material (venous blood). The biological monitoring was conducted in blood serum of (N = 306) conscripts. All procedures complied with the ethical guidelines. The identification and quantification were by gas chromatography with micro electron capture detection (CG/ μ ECD) for OCPs, isomers and metabolites, totalling 4896 assays. All median results were lower than the limit of quantification (LOQ), from 0.02 to 0.16 μ g/dL. The residues of β -HCH pesticide and of the metabolite pp'DDE were found at the maximum levels of 0.01 μ g/dL and 0,15 μ g/dL, respectively. Levels of β -HCH and pp'DDE were significantly low for these urban individuals, as to indicate a remote exposure to DDT and HCH only. OCPs levels have decreased in the blood serum of Brazil adults over time, as a result of the ban or restriction of these pesticides. In Brazil there are no reference values for organochlorine pesticides in human serum. This work was part of the Subproject Pilot of the First National Survey of Populations Exposed to Chemical Substances (CGVAM/SVS/MS), USP e IAL, 2009.

Key words: Persistent Chlorinated Pesticides; Environmental Exposure; Blood Serum Public Health.