ESTIMATION OF DIETARY INTAKE OF CADMIUM AND LEAD THROUGH FOOD CONSUMPTION

C. Ciobanu¹, B. G. Şlencu¹, Rodica Cuciureanu²
¹. PhD student of University of Medicine and Pharmacy „Grigore T. Popa” - Iaşi
University of Medicine and Pharmacy „Grigore T. Popa” - Iaşi
Faculty of Pharmacy
². Department of Environmental and Food Chemistry

ESTIMATION OF DIETARY INTAKE OF CADMIUM AND LEAD THROUGH FOOD CONSUMPTION (Abstract): Cadmium and lead are toxic metals occurring in the environment naturally and from anthropogenic activities and can lead to chemical contamination of products entering in the human food chain. The consumption of polluted food is the main source of lead and cadmium intake in the non-smoking population. Lead is a heavy metal that can affect different organs and systems in humans including the peripheral and central nervous system, the gastrointestinal tract, muscles, kidneys, and the hemopoetic system. Neurological symptoms can range from fatigue, headache, and lethargy to peripheral neuropathy, severe convulsions, encephalopathy, and even coma. The direct neurotoxic actions of lead include apoptosis, excitotoxicity. Lead has been associated with impaired neurobehavioral functioning in children, decrements in intelligence quotient (IQ) while the critical effect of long-term exposure to cadmium is renal tubular dysfunction, which is irreversible; chronic renal failure is the final and severe endpoint. Cadmium is able to induce bone damage (Itai-Itai). The body burden of cadmium and lead depends mostly on the dietary intake of these elements. This paper aims to present a brief overview of cadmium and lead contents present in foodstuffs from different countries and the estimated dietary intake of cadmium and lead through food consumption. It has been shown that in some countries the concentrations of cadmium and lead contained in foodstuffs are higher than normal therefore the health of the people consuming them is at threat. **Key words**: CADMIUM, LEAD, DIETARY INTAKE

Toxic metals can be found as environmental contaminants, both through natural occurrence and as a result of human activities (1, 2, 3). Overmuch accumulation of toxic metals in agricultural soils from various sources, may not only result in soil contamination, but also may lead to high toxic metal uptake by crops, and thus affect food quality and safety (2, 3).

Diet is the main route of exposure to these heavy metals in the case of non-smoking population (3) therefore, Codex Committee for Food Additives and Contaminants suggested that dietary intakes of toxic metals with high public concern must be kept under surveillance and updated to identify recent dietary intakes of toxic metals in developing countries. Despite the fact that metals can change their chemical form, they cannot be degraded nor destroyed, thus, the risk evaluation of these elements through dietary intake is an important problem (4).