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Contamination of poultry products by environmental pollutants

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Consumers demand food devoid of any contaminant residues that may impair their health. Any mode of production that bans or moderates the use of pesticides, drugs or chemicals should contribute to comply with these concerns. However, the environment may contain persistent contaminants that can hardly be controlled by the producer. These contaminants may be former pesticides, industrial products used as additives of plastic or insulating materials, or involuntarily produced substances in industrial or urban areas. Present in the environment in which the poultry are raised, either the buildings or the runs, they may be transferred to poultry meat, offal or eggs. Available data show that the chemical contaminants status of poultry products is overall satisfactory, although abnormally high concentrations of contaminants may be recorded in some instances. In order to prevent the risk of contamination on farm, the factors favoring animal exposure and those affecting the transfer of the contaminant at the animal scale should be known. This knowledge should help characterizing rearing systems with respect to this risk and devising relevant rearing practices. For example, in poultry reared outdoor, ingestion of soil, even moderately contaminated, is a well known source of exposure that should be limited on farm. In addition, deteriorated animal's performance such as laying rate or growth, favors high contamination levels in poultry products. However, this new area of sanitary quality has to face the main challenge that the potential pollutants are numerous and constantly emerging, and that their analysis requires expensive devices. Thus, a classical *in vivo* experimental approach is probably beyond reach. Generic approaches, through mathematical modeling at the animal scale, should be helpful in ranking the risk factors. Besides, new technologies involving "omics" may be valuable alternatives to characterize the quality of poultry products with respect to chemical contaminants by back-tracing animal exposure.

Key words: Poultry, meat, egg, environmental pollutant, sanitary quality