LEVELS OF PCDD/PCDFs IN LUXEMBURGISH FOOD OF ANIMAL ORIGIN AND IN MOTHER'S MILK

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Introduction

Since the strong contamination of a Belgian feeding stuff with polychlorinated dibenzo(p)dioxins (PCDDs) and dibenzofurans (PCDFs) in 1999 which led to the contamination of a number of foodstuffs of animal origin all over Europe, the problem of dioxins in foodstuffs found its place in the centre of the public discussion.[1,2] As one of the consequences of the Belgian feeding stuff scandal, the European Commission in the meantime enacted a number of directives including maximum levels for PCDD/F in feeding stuff and food.[3,4] These limit values will have to be observed throughout Europe from July 1st, 2002 on.

In 2000/2001 the Ministry of Health of the Grand Duchy of Luxembourg conducted a study on the levels of PCDF/Ds in certain foods of animal origin and in mother's milk from different regions of the country. The impulse of this study came from a local, in the South of Luxembourg implemented association (Stop Dioxines), linked to the national Ecological Movement. It was the aim of the study to elaborate the present PCDD/F content in food and to find out whether there are regional differences. In all, 23 cow's milk samples, 16 hen's egg samples, 11 rabbit-meat samples and 22 mother's milk samples were collected and analysed for PCDD/Fs. In this paper the PCDD/F data of the study is reported and the food values are compared with those of other European countries and with the coming EC maximum levels.

Materials and Methods

The food sampling was performed by Biomonitor, Luxembourg, in behalf of the Luxemburgish Ministry of Health. With the exception of three commercial cow's milk samples, all food samples were taken directly from the producers. The mother's milk samples were collected by the association Initiativ Liewensufank, Luxembourg. All women were primiparous at the age of 22 to 40 years (mean of 29.7 years).

The samples were analysed by the GfA for PCDD/Fs by means of fat extraction, gravimetrical determination of the fat fraction, chromatographic defatting of the fat extract, clean-up of the remaining fraction on different adsorbents, analysis of the purified extracts by means of capillary gas chromatography / high resolution mass spectrometry (HRGC/HRMS) and quantification via internal $^{13}C_{12}$-labelled standards (isotope dilution).[5] The methods are DIN EN ISO/IEC 17025 accredited and are routinely applied by the GfA for the analysis of food, feed and human samples.

Results and Discussion

All TEQs are reported as levels in fat (pg TEQ/g fat). TEQs were calculated according to the I-TEQ and WHO-TEQ scheme (TEFs for humans). For both schemes, non-detects were included by taking the