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PAH IN TEA AND COFFEE

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For food regulation in the European Union maximum limits on other foods than tea and coffee includes benzo[a]pyrene and the sum of PAH4 (sum of benzo[*a*]pyrene, chrysene, benz[*a*]anthracene and benzo[*b*]fluoranthene). This study includes analysis of the above mentioned PAH in both, tea leaves, coffee beans and ready-to-drink preparations. Compared to other food matrices (e.g. fish), the analytical methods were challenged by the hot water extracts.

Preparation of tea includes roasting and drying of the tea leaves using combustion gases from burning wood, oil, or coal. These are responsible for accumulation of PAH in tea leaves. Different varieties of tea leaves were analyzed and highest concentrations were found in leaves from mate and black tea with maximum concentrations of 32 µg/kg for benzo[*a*]pyrene and 115 µg/kg for the sum of PAH4.

Also, coffee beans are roasted during processing. However, both benzo[*a*]pyrene and PAH4 concentrations were more than ten times lower for coffee beans than for tea leaves. Highest levels were found for PAH4 of solid instant coffee (5.1 µg/kg).

Data were used to calculate the exposure of benzo[*a*]pyrene (15%) and sum of PAH4 (10%) from tea and coffee for the Danish population.