

Ethyl Carbamate in Korean Total Diet Study: Level, Dietary Intake, and Risk Assessment

Authors : Eunmi Koh, Bogyoun Choi, Dayeon Ryu, Jee-Yeon Lee, Sungok Kwon, Cho-Il Kim

Abstract : Ethyl carbamate(EC) is a probable human carcinogen (Group 2A) found in alcoholic beverages and fermented foods. A total of 351 samples including fermented foods and alcoholic beverages were chosen from 734 foods appeared in the pooled intake data of 2008, 2009, 2010, and 2011 Korea National Health & Nutrition Examination Survey (KNHANES). Sampling was carried out from September 2013 to July 2016 in 18 supermarkets of 9 metropolitan cities in Korea. The samples were pooled, prepared according to various cooking methods, and analyzed. A total of 1245 samples were analyzed using gas chromatograph-mass spectrometer. EC was detected in 13 items (1.0%), which ranged from not-detected to 151 µg/kg. Alcoholic beverages (maesilju, whisky, and bokbunjaju) and fermented soy products (soy sauce and soybean paste) were the food items with relatively higher EC levels. Dietary intake of EC in the Korean population was estimated to be 2.11 ng/kg body weight (bw) per day for average population and 8.42 ng/kg bw per day for high consumers (the 97.5th percentile). When the estimated average dietary exposure to EC was compared with the Benchmark Dose Lower Confidence Limit 10% (BMDL10) of 0.3 mg/kg bw per day, margin of exposure (MOE) values of 1420000 to 28000000 were observed. This indicates that there is no health concern for the Korean population.

Keywords : ethyl carbamate, total diet study, dietary exposure, margin of exposure

Conference Title : ICFSNPH 2017 : International Conference on Food Safety, Nutrition and Public Health

Conference Location : Zurich, Switzerland

Conference Dates : July 27-28, 2017