Estimation of the daily intake of glyphosate based on the market basket method

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Abstract

Daily intake of glyphosate in 2010 and 2011 at Chiba prefecture was estimated using total diet samples prepared according to the market basket method. One hundred eighty six and 175 kinds of foods were purchased from supermarket at Chiba in December 2010 and December 2011, respectively. The purchased foods were divided into 14 food groups as total diet samples, and contents of glyphosate in those groups was analysed by high-performance liquid chromatography with fluorescence (HPLC-FL). Glyphosate was detected from second food group (Cereals and potatoes) and 13th food group (Seasonings and spices, other foods) among 14 food groups. Estimated daily intake of glyphosate in all food groups were 24.2 mg/day in 2010, and 17.6 mg/day in 2011. These estimated daily intake were accounted for 0.064 % in 2010, and 0.047 % in 2011 of the ADI assuming a body weight of 50 kg. The foods contribute to glyphosate detected from second food group were breads, fu, boiled noodle, macaroni, and that in 13th food group was soy sauce. Glyphosate detected by HPLC-FL method from above two food groups and those foods was identified by liquid chromatography with tandem mass spectrometry. Above these foods were all contained flour. Therefore, it seems to be possibility that detected glyphosate is originated from flour.