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Construction of Vitamin A Database for Korean Key Foods by MFDS's National Analysis System

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Vitamin A plays a role in immune function, vision, reproduction, growth and epithelial cell integrity. Recently, population in insufficient vitamin A intake is steadily increasing in Korea, which is partially due to a low-fat diet aimed to control weight. In order to profile national vitamin A data for restaurant and processed foods in Korean key foods, a comprehensive vitamin A analysis project began according to a statistical sampling and national analysis system designed by Ministry of Food and Drug Safety (MFDS). Restaurant foods were collected nationwide from six regions of Korea and processed foods were purchased from local markets (54 rice dishes, 98 stew, 20 kimchi, and 131 side dishes). Retinol and β-carotene were analyzed simultaneously by using saponification coupled with HPLC-UV (325 nm for retinol and 452 nm for β-carotene). Restaurant and processed foods showed large variations in retinol and β-carotene contents (mg/100 g): 0.0~925.4 and 0.0~168.7 for rice dishes, 0.0~1495.8 and 0.0~427.1 for stew, 0.0~6375.2 and 0.0~163.0 for side dishes, and 28.8~3138.4 and 0.0~18.0 for kimchi, respectively. Overall, β-carotene content was much higher than retinol, especially in side dishes and kimchi due to use of red pepper and sesame oil. Recovery more than 95% was obtained for simultaneous analysis of retinol and β-carotene, indicating good accuracy. All CV values of the applied method were less than 5%, showing good precision. Analytical quality control charts plotted for 7-years study showed that all assay were under the control. This study provides reliable retinol and β-carotene data for Korean key foods.

Biography:

Jiyeon chun is presently working as a professor in the department of food science and technology at Sunchon National University, Korea. As well as she the Editor-in-chief at Editorial board of KOMYRA. Jiyeon Chun is also one of the Committee member in the Eco-friendly agriculture development board.