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Quantitative Determination of Cyanide in Maesil (Prunus mume) Extracts by HPLC-FLD

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In accordance with Korea Food Code, the cyanide analysis of Maesil (Prunus mune) extracts is currently being performed by picrate method. It showed that the color of picrate paper changed from yellow to brown at about 0.1 mg/ 20 g CN^-. However, picrate method was qualitative analysis, it was difficult to detect the exact amount of cyanide in Maesil extracts. Accordingly, this work mainly focuses on the quantitative analysis of cyanide in Maesil extracts. A fast and effective method for the quantitative analysis of cyanide was developed using the distillation, the OPA (o-phthalaldehyde) derivatisation and HPLC fluorescence detection. We determined the optimum conditions of the OPA derivatisation for HPLC (FLD) detection. The optimization condition for derivatisation were 123^0c (reaction temperature) and 30 min (reaction time). Also the correlation coefficient of cyanide ranged from 0.025 to 1 mg/kg was 0.999 and limits of quantification was 0.5 mg/kg. To evaluate performance of the method, validation experiments were carried out on Maesil extracts. Recovery of cyanide from fortified samples at 0.5 mg/kg was 90%. These results could be used as KFDA official methods for the analysis of cyanide in Maesil extracts. Also this method is expected to be useful for a simple and rapid determination of cyanide.

Biography

Mi-Ra Kim has completed her Ph.D at the age of 31 years from Chonnam National University (in Republic Korea). She majored in Agricultural Chemistry. She is currently serving as scientific researcher at KFDA (Korea Food and Drug Administration) and responsible for analyzing the hazardous substance including pesticides and cyanide etc. in food.

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