Establishment of Analytical Method for Metazosulfuron Residue in Brown Rice
(현미 중 Metazosulfuron의 잔류 분석법 확립)

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A single residue analytical method was developed for herbicide metazosulfuron in brown rice using two different purification methods. To establish purification method, two different SPE (Alumina-N and aminopropyl column) were used with metazosulfuron standard solution. When both SPE were eluted with acetone/dichloromethane/acetic acid (20:80:1, v/v/v), the recoveries were above 90%. For selection of partitioning system, water containing metazosulfuron was partitioned twice with three types of solvents (n-hexane, ethyl acetate, and dichloromethane). The best recovery (>95%) was obtained with ethyl acetate. Limit of quantitation (LOQ) of metazosulfuron was 2 ng and method limit of quantitation (MLOQ) was 0.02 mg/kg. Excellent linearity was achieved between 0.05 and 12.5 mg/kg of metazosulfuron standard solutions, with coefficients of determination of 0.999. For recoveries test, brown rice samples were macerated and fortified with metazosulfuron standard solution at three fortification levels (MLOQ, 10 MLOQ, and 100 MLOQ). And then those were extracted with acetonitrile, concentrated and partitioned with ethyl acetate. Then the extracts were concentrated again and cleaned-up through alumina-N and aminopropyl SPE, respectively, before concentration and analysis with HPLC. C18 column was used with isocratic elution of water and acetonitrile (40:60, v/v) (1 mL/min). Good recoveries 80.3-94.4% (alumina-N) and 83.5-91.9% (aminopropyl) with coefficients of variation of less than 10% were obtained, which satisfies the criteria of KFDA. The method established in this study could be applied to brown rice as an official method for residue analysis of metazosulfuron.

Key words : Metazosulfuron, Recovery, MLOQ, Method Limit of Quantitation
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