

Evaluation of Glucosinolate Content and Composition Contained in Korean Leaf Mustard (*Brassica juncea* var. *integrifolia*) Germplasm Using Liquid Chromatography Electrospray Ionization Mass Spectrometry(LC-ESI-MS/MS)

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Glucosinolates(GSLs) are major secondary products(β -thioglucoside *N*-hydroxysulfates) containing sulfates that are found mainly in *Cruciferae* family such as cabbage, broccoli, radish, turnip, kale, mustard and rapeseed as the important crops in agronomic and economic aspects. Especially, isothiocyanates(ITCs) have been shown to inhibit carcinogenesis with regulation cancer cell development followed by regulating target enzymes, inducing cell cycle arrest and apoptosis against various human cancer cell lines. Total desulfo(DS)-GSLs of nine type in 210 Korean leaf mustard accessions were isolated and confirmed using electrospray ionization mass spectrometric(ESI-MS/MS) method and DS-GSLs powerful library made from several reference data.

The isolated individual DS-GSLs were identified by removed β -D-glucopyranose residue ($C_6H_{11}O_5$, MW 163) from MS/MS data. Among them sinigrin(41.7%), glucoiberberin(21.7%) and gluconasturtiin(12.6%) were major components, Especially, despite gluconapin was minor component, accession K046197-1 and K046197-2 showed higher content of 4.11 and 3.31 mg/g(DW), respectively. The total GSLs contents in 210 accessions were ranged from 5.3 to 23.2 mg/g(DW) with a mean value of 13.0 mg/g(DW). As a result of principal component analysis(PCA), the individual GSLs loading plots were composed of three groups and components belonged to each group showed relationship in quantitative pattern.

Key words : leaf mustard, glucosinolate, anti-carcinogenesis, LC-ESI-MS/MS