

Identification and quantitative determination of glucosinolates in *Brassica napus* cv. Hanakkori.

ABSTRACT

The objective of this study was to identify and quantify glucosinolates (GSLs) in *Brassica napus* cv. Hanakkori and its parents and to evaluate its potential bitter taste. 'Hanakkori' materials were cultivated with commercial chemical nutrients (20 kg/ha, N-P-K: 16-10-10) at the field. GSLs were isolated by means of extraction with 70%(v/v) boiling methanol (MeOH) followed by desulfation from those plants by reversed-phase high performance liquid chromatography (HPLC) and identified by electronic spray ionization-mass spectrometry (ESI-MS) analysis. In 'Hanakkori', 11 GSLs were identified as progoitrin, glucoraphanin, glucoalyssin, gluconapoleiferin, gluconapin, 1-methylpropyl, glucobrassicinapin, glucobrassicin, 4-methoxyglucobrassicin, gluconasturtiin, and neoglucobrassicin. The total GSL contents were 109 and 36.1 mmol/kg dry weights (d.w.) for the seeds and edible parts, respectively. The major GSLs (>5 mmol/kg d.w.) in the seeds were progoitrin (78.8), gluconapin (10.7), and glucobrassicinapin (7.81), whereas they in the edible parts were progoitrin (16.1) and glucobrassicinapin (8.58). In addition, the bitter taste in the edible parts was presumably related with the presence of progoitrin (>45% to the total GSL).

Keyword: Bitterness; Brassica crop; Glucosinolate; Interspecific hybridization; Progoitrin.