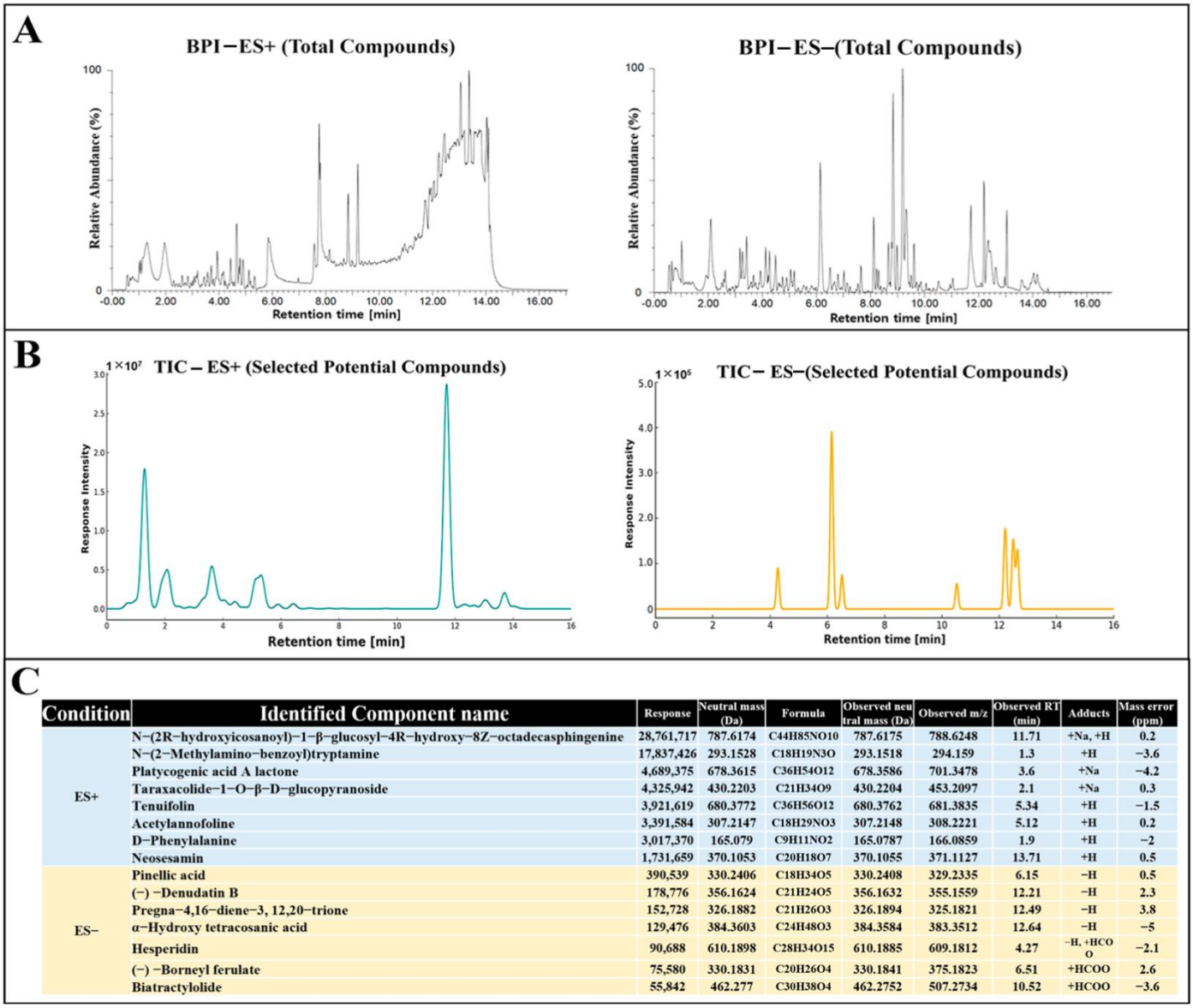
(Supplementary materials) Tentative Chemical Composition of GMK Analyzed by UHPLC–QTOF–MS/MS

The chromatographic profiles and tentative compound annotations summarized here were derived from UHPLC–QTOF–MS/MS data previously reported by our research group (https://doi.org/10.3390/cells14130977) and are provided to support the chemical characterization of GMK.



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Condition	Identified Component name	Response	Neutral mass (Da)	Formula	Observed neutral mass (Da)	Observed m/z	Observed RT (min)	Adducts	Mass error (ppm)
ES+	N−(2R−hydroxyicosanoyl)−1−β−glucosyl−4R−hydroxy−8Z−octadecasphingenine	28,761,717	787.6174	C44H85NO10	787.6175	788.6248	11.71	+Na, +H	0.2
	N−(2−Methylamino−benzoyl)tryptamine	17,837,426	293.1528	C18H19N3O	293.1518	294.159	1.3	+H	−3.6
	Platycogenic acid A lactone	4,689,375	678.3615	C36H54O12	678.3586	701.3478	3.6	+Na	−4.2
	Taraxacolide−1−O−β−D−glucopyranoside	4,325,942	430.2203	C21H34O9	430.2204	453.2097	2.1	+Na	0.3
	Tenuifolin	3,921,619	680.3772	C36H56O12	680.3762	681.3835	5.34	+H	−1.5
	Acetylannofoline	3,391,584	307.2147	C18H29NO3	307.2148	308.2221	5.12	+H	0.2
	D−Phenylalanine	3,017,370	165.079	C9H11NO2	165.0787	166.0859	1.9	+H	−2
	Neosesamin	1,731,659	370.1053	C20H18O7	370.1055	371.1127	13.71	+H	0.5
ES−	Pinellic acid	390,539	330.2406	C18H34O5	330.2408	329.2335	6.15	−H	0.5
	(−) −Denudatin B	178,776	356.1624	C21H24O5	356.1632	355.1559	12.21	−H	2.3
	Pregna−4,16−diene−3, 12,20−trione	152,728	326.1882	C21H26O3	326.1894	325.1821	12.49	−H	3.8
	α−Hydroxy tetracosanic acid	129,476	384.3603	C24H48O3	384.3584	383.3512	12.64	−H	−5
	Hesperidin	90,688	610.1898	C28H34O15	610.1885	609.1812	4.27	−H, +HCOO	−2.1
	(−) −Borneyl ferulate	75,580	330.1831	C20H26O4	330.1841	375.1823	6.51	+HCOO	2.6
	Biatractylolide	55,842	462.277	C30H38O4	462.2752	507.2734	10.52	+HCOO	−3.6

Figure S1. Tentative identification of compounds in GMK extracts by UHPLC-QTOF-MS/MS analysis. (**A**) Base peak intensity (BPI) chromatograms of GMK extract in positive (ES+) and negative (ES-) ionization modes. (**B**) Total ion chromatograms (TIC) of selected potential compounds in ES+ and ES- modes. (**C**) List of identified candidate compounds based on UHPLC-QTOF-MS/MS analysis with corresponding mass data.

To address the editorial request for chemical characterization, the tentative composition of GMK was summarized using previously acquired UHPLC–QTOF–MS/MS data. Analyses were performed in both positive (ES^+) and negative (ES^-) electrospray ionization modes, enabling the detection of a wide range of polar and semi-polar metabolites. Representative base peak intensity (BPI) chromatograms obtained in both ionization modes (Figure S1A) revealed complex yet reproducible metabolic profiles, reflecting the heterogeneous nature of GMK, while total ion chromatograms (TICs) illustrated the distribution of selected candidate compounds across the chromatographic run (Figure S1B).

Putative compound identification was conducted based on accurate mass measurements and MS/MS fragmentation patterns, with annotations supported by spectral library matching and *in silico* analysis. Only candidates meeting stringent similarity criteria (score ≥ 0.85) were retained. Using this approach, several metabolite classes commonly associated with mushroom-derived materials were tentatively identified, including glucosylceramides, triterpenoid-related compounds, indole alkaloids, phenolic glycosides, and sterol-associated metabolites, which are summarized alongside their corresponding mass data (Figure S1C).

Among the ES^+ features, a tryptamine-related compound, N-(2-methylamino-benzoyl) tryptamine, was detected based on its characteristic fragmentation pattern. In the ES^- mode, pinellic acid was tentatively identified as a representative lipid-derived component. These compounds are frequently reported in natural matrices and have been associated with antioxidant, anti-inflammatory, and neuroprotective biological activities.