Electronic Supplementary Material (ESI) for Food & Function.

Supporting information

Bio-assay guided identification of hepatoprotective polyphenols from *Penthorum chinense* Pursh on *t*-BHP induced oxidative injured L02 cells

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Table S1. Hepatoprotective effect of subfractions of *P. chinense* eluted from macroporous resin column chromatography.

Subfraction	Cell viability (%) [a]		
	50 μg/mL	100 μg/mL	200 μg/mL
Water extract of *P. chinense*	47.0 ± 2.2	66.0 ± 2.9 **	94.1 ± 3.6 **
E0 fraction	46.1 ± 4.1	48.4 ± 3.3	41.1± 5.8
E25 fraction	43.3 ± 1.9	41.1 ± 1.3	56.0 ± 2.1 *
E50 fraction	60.5 ± 1.2 **	89.4 ± 1.0 **	94.6 ± 1.8 **
E95 fraction	46.8 ± 2.0	68.3 ± 2.1 **	92.6 ± 1.6 **

a, All data were expressed as relative cell viability (%) compared with untreated group which cell viability was considered as 100%. Values are expressed as mean ± SD (n=6)

* and **, *p* value less than 0.05 and 0.01 compared with *t*-BHP (200 μM) treated group whose cell viability was 46.3% ± 1.7 , respectively.

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Table S2. Hepatoprotective effect of subfractions of E50 eluted from MCI column chromatography.

Subfraction	Cell viability (%) [a]		
	50 μg/mL	100 μg/mL	200 μg/mL
E50M0	45.6 ± 4.7	46.0 ± 2.5	41.2 ± 2.8
E50M20	48.1 ± 3.1	48.4 ± 3.3	41.1± 1.8
E50M40	43.3 ± 1.9	51.1 ± 1.3	63.0 ± 1.1 *
E50M80	46.8 ± 2.0	68.3 ± 1.7 *	91.5 ± 2.4 **
E50M100	45.7 ± 1.9	78.5 ± 1.1 **	93.6 ± 2.1 **

a, All data were expressed as relative cell viability (%) compared with untreated group which cell viability was considered as 100%. Values are expressed as mean ± SD (n=6).

* and **, *p* value less than 0.05 and 0.01 compared with *t*-BHP (200 μM) treated group whose cell viability was 45.2% ± 1.9 , respectively.

Table S3. Chemical structures of polyphenols isolated from the E50M60 subfraction of *P. chinense*.

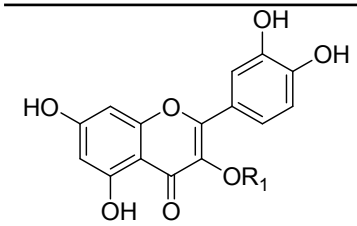
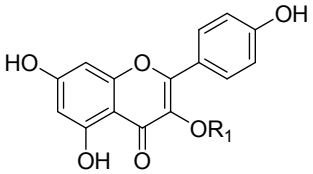
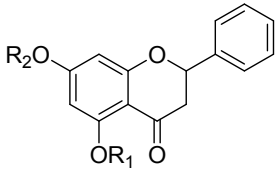
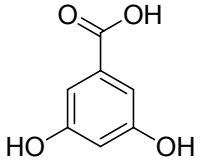
	Compound Name	R_1	R_2
	quercetin	H	---
	quercetin-3-*O*-L-rhamnopyranoside	L-rhamnopyranoside	---
	quercetin-3-*O*-L-arabinofuranoside	L-arabinofuranoside	---
	kaempferol	H	---
	kaempferol-3-*O*-L-rhamnopyranoside	L-rhamnopyranoside	---
	kaempferol-3-*O*-L-arabinofuranoside	L-arabinofuranoside	---
	pinocembrin	H	H
	pinocembrin-7-*O*-D-glucoside	H	glucoside
	5-methoxy-pinocembrin-7-*O*-D-glucoside	mehtyl	glucoside
	3,5-dihydroxy-benzoic acid	---	---

Table S4. Hepatoprotective effect of compounds isolated from the E50M60 subfraction.

NO	Compound	Cell viability (%) [a]		
		40 μM	80 μM	160 μM
2	quercetin-3-*O*-L-rhamnopyranoside	48.6 ± 2.7	46.0 ± 3.5	41.2 ± 1.8
3	quercetin-3-*O*-L-arabinofuranoside	48.1 ± 3.1	48.4 ± 1.3	41.1± 2.8
4	kaempferol	43.3 ± 1.9	41.1 ± 2.3	43.0 ± 1.1
5	kaempferol-3-*O*-L-rhamnopyranoside	42.3 ± 1.2	41.3 ± 3.3	46.8± 3.0
6	kaempferol-3-*O*-L-arabinofuranoside	46.8 ± 2.0	45.3 ± 4.0	41.5 ± 2.4
7	pinocembrin	44.1 ± 3.4	46.4 ± 1.6	45.1± 1.8
8	pinocembrin-7-*O*-D-glucoside	43.3 ± 1.6	47.1 ± 2.2	44.0 ± 2.1
9	5-methoxy-pinocembrin-7-*O*-D-glucoside	45.3 ± 1.5	44.3 ± 1.3	45.7± 2.0
10	3,5-dihydroxy-benzoic acid	46.5 ± 2.1	45.1 ± 3.0	44.5 ± 3.4

a, All data were expressed as relative cell viability (%) compared with untreated group which cell viability was considered as 100%. Values are expressed as mean ± SD (n=6)

Table S5. Content of quercetin in E50M0 ~100 subfractions eluted from MCI column.

ND, not detected.

Subfraction	Content of quercetin (%)
E50M0	ND
E50M20	ND
E50M40	ND
E50M60	0.1
E50M80	1.7
E50M100	0.1

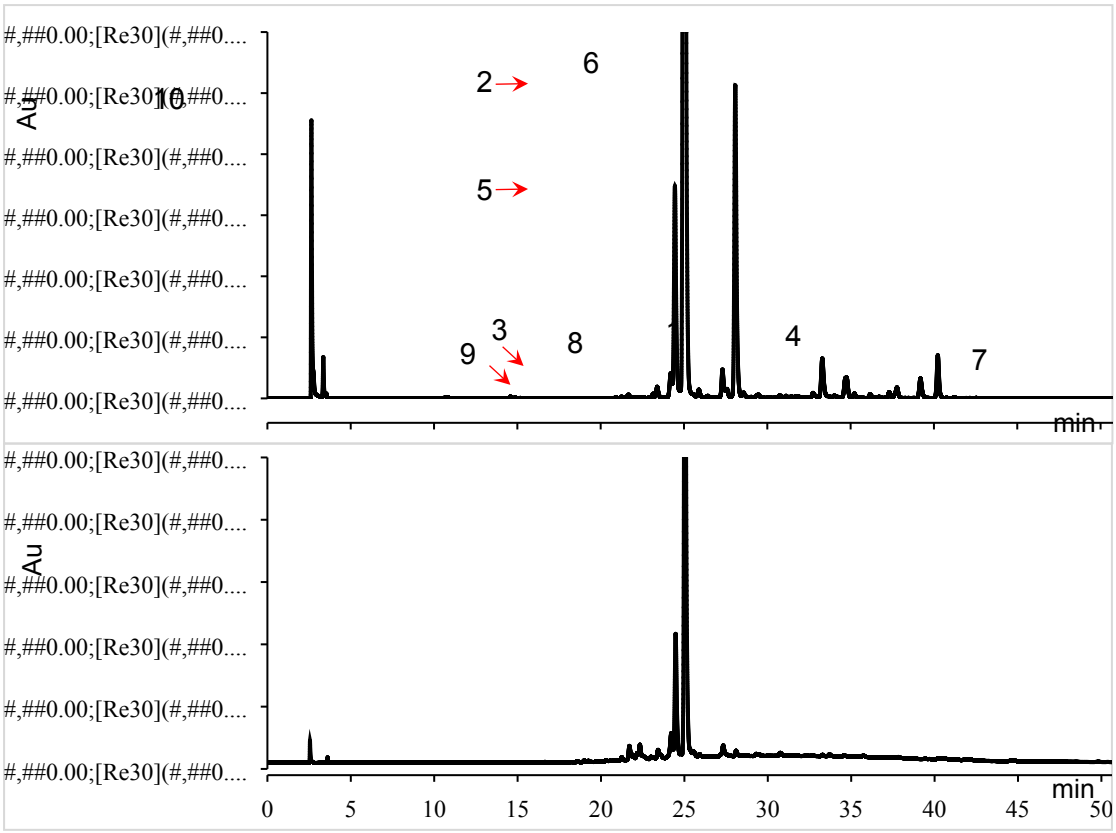


Figure S1. HPLC-UV chemical profile of the E50M60 subfraction from *P. chinense*. (From top to bottom, mixed solution of compound **1**) quercetin; **2**) quercetin-3-*O*-L-rhamnopyranoside; **3**) quercetin-3-*O*-L-arabinofuranoside; **4**) kaempferol; **5**) kaempferol-3-*O*-L-rhamnopyranoside; **6**) kaempferol-3-*O*-L-arabinofuranoside; **7**) pinocembrin; **8**) pinocembrin-7-*O*-D-glucoside; **9**) 5-methoxy-pinocembrin-7-*O*-D-glucoside and **10**) 3,5-dihydroxy-benzoic acid and chromatogram of E50M60 subfraction).

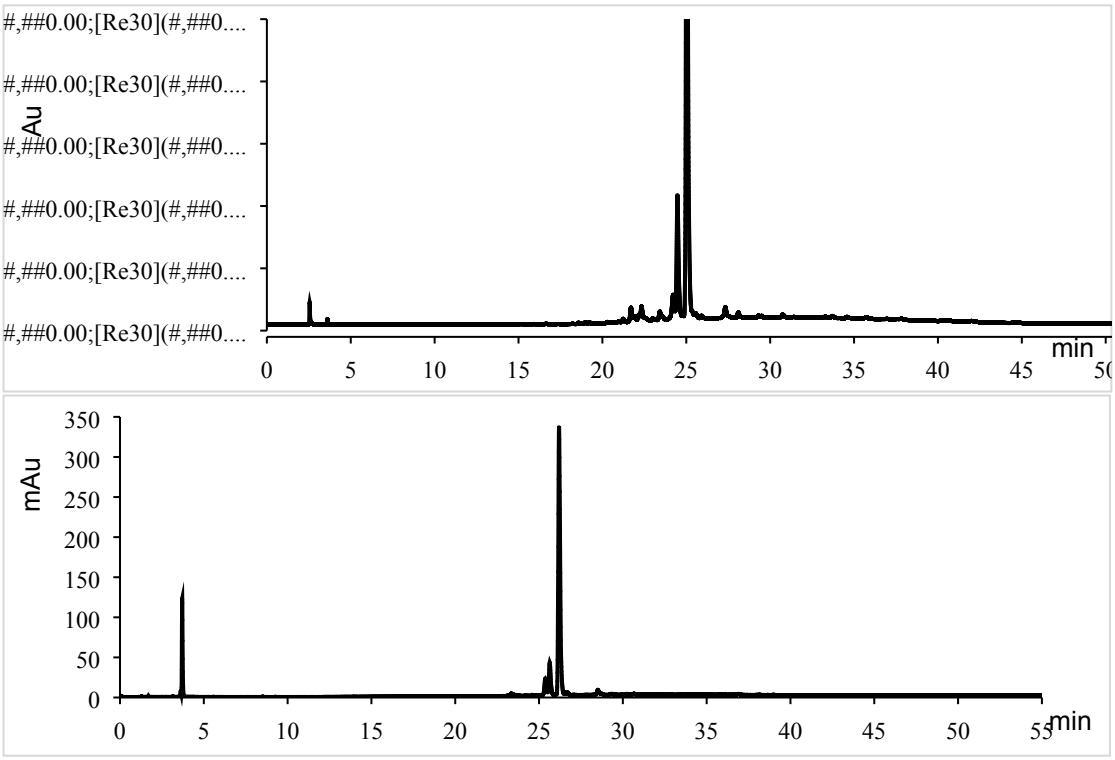


Figure S2. Chemical profile of E50M60 subfraction from *P. chinense* (From top to bottom, HPLC-UV chromatogram at 254 nm and HPLC-ELSD chromatogram).