Supplementary material

Antifatigue and antihypoxia activities of oligosaccharides and polysaccharides

from Codonopsis pilosula in mice

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1. The determination of molecular weight of POL by HPGPC

Fig. S1 HPGPC analysis of POL.

2. The composition and contents of monosaccharides and fructo-oligosaccharides in different *C. pilosula* extracts and fractions by HPLC-CAD

Samples (0.1 g) and appropriate sugar standards were dissolved by ultrapure water and the volume was adjusted to 20 mL, respectively. The sample solutions were obtained after membrane treatment. HPLC analysis was carried out using Dionex Ultimate 3000 high performance liquid chromatograph equipped with corona CAD detector (Thermo Fisher Scientific Inc.,). The following parameters were used for the CAD detector: (i) nitrogen gas pressure: 55.0 pa; (ii)data collection rate: 10 Hz; and (iii) noise filter: 5.0 s. Data processing was carried out using Chromeleon 6.8 software.The separation was performed using a Waters XBridgeTM Amide column (4.6×250 mm, 3.5μ m, Waters Corp., Milford, MA, USA). The mobile phase consisted of acetonitrile (A) and 0.1% triethylamine aqueous solution (B). The column flow rate was 1.0 mL/min with gradient elution program of 0–30 min, 20–35% B; 30–45 min, 35% B. The injection volume was 10 µL with column temperature of

40 °C.



Fig. S2 The HPLC-CAD chemical chromatograms of standard mixtures (A) and

sample solutions. 1, D-fructose; 2, D-glucose; 3, sucrose; 4, 1-kestose; 5, nystose; 6,

GF4; 7, GF5; 8, GF6; 9, GF7.

	ETH	WAT	POL	INU	OLI
D-fructose	383.99 ± 2.35	148.36 ± 4.15	/	/	276.64 ± 2.83
D-glucose	191.85 ± 1.14	/	/	/	12.84 ± 0.65
sucrose	113.94 ± 1.77	115.48 ± 1.93	/	/	206.26 ± 2.94
1-kestose	24.14 ± 0.87	32.42 ± 0.80	/	/	51.77 ± 1.32
nystose	9.23 ± 0.26	20.03 ± 0.25	/	/	31.42 ± 0.93
GF4	/	20.22 ± 0.49	/	/	28.97 ± 0.58
GF5	/	16.21 ± 0.24	/	/	22.19 ± 0.46
GF6	/	/	/	/	20.42 ± 0.17
GF7	/	/	/	/	/

Table S1 The contents of target compounds in different *C. pilosula* extracts and fractions (µg/mL)

"/" means beyond the linear range.