

Cacao powder supplementation attenuates oxidative stress, cholinergic impairment, and apoptosis in D-galactose-induced aging rat brain

Hyoeun Yoo and Hyun-Sook Kim

Supplementary Table S1. Composition of cacao powder.

Component	Unit	Cacao powder (g/100g)
Carbohydrate	g/100g	52.0
Protein	g/100g	26.5
Lipid	g/100g	11.8
Saturated Fatty acid	g/100g	6.87
Monounsaturated Fatty acid	g/100g	3.62
Polyunsaturated Fatty acid	g/100g	0.432
Fiber	g/100g	27.2
Water	g/100g	3.95
Total Flavonoids	mg/g	0.411

Supplementary Table S2. Composition of the experimental diets.

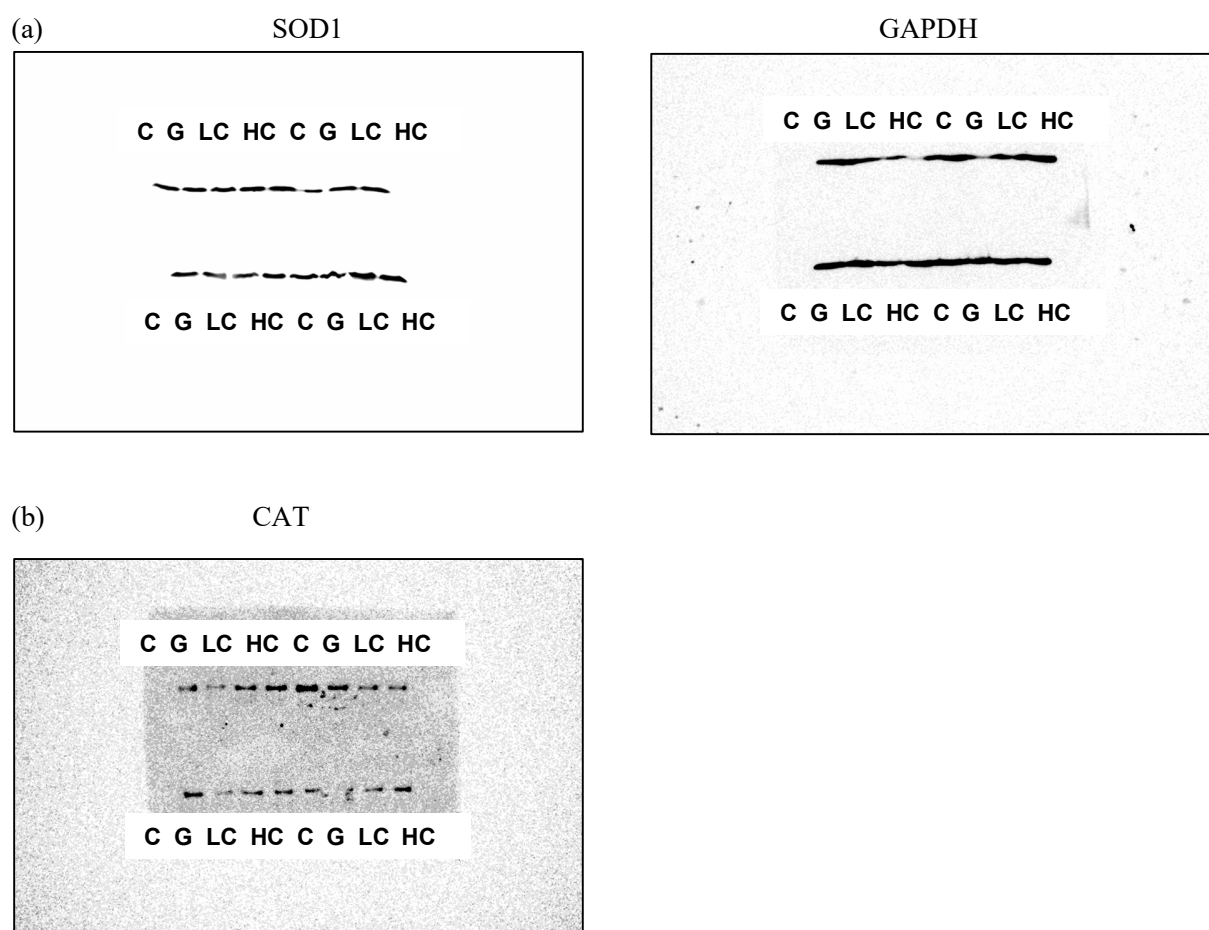
Composition	Normal Diet (for C)	Normal Diet (for G)	10% Cacao (for LC)	16% Cacao (for HC)
Macronutrient composition				
Carbohydrate, % of energy	75.92	75.92	75.92	75.92
Protein, % of energy	14.70	14.70	14.70	14.70
Fat, % of energy	9.35	9.35	9.35	9.35
Energy, kcal/kg	3850	3850	3921.80	3964.92
Nutrient Composition (g/kg)				
Casein	140.00	140.00	112.41	95.86
Sucrose	100.00	100.00	100.00	100.00
Maltodextrin	125.00	125.00	125.00	125.00
Corn Starch	495.692	495.692	463.892	444.804
Cellulose	50.00	50.00	21.68	4.69
Soybean Oil	40.00	40.00	27.71	20.34
Crude protein	141.80	141.80	141.80	141.80
Crude lipid	40.00	40.00	40.00	40.00
Crude fiber	50.00	50.00	50.00	50.00
Tertiary butylhydroquinone (TBHQ)	0.008	0.008	0.008	0.008
Mineral mix	35	35	35	35
Vitamin mix	10	10	10	10

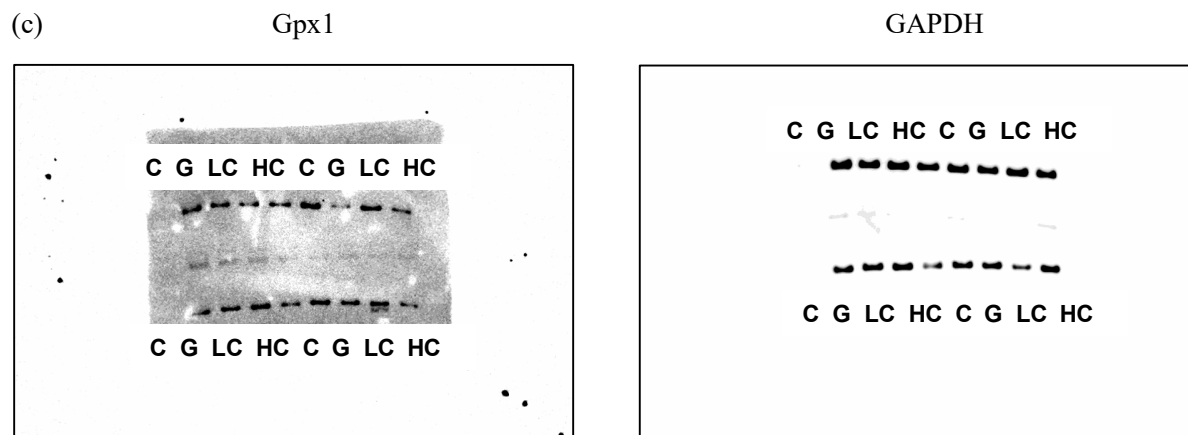
L-Cystine	1.8	1.8	1.8	1.8
Choline Bitartrate	2.5	2.5	2.5	2.5
cacao powder	0	0	100.00	160.00
Total	1000.0	1000.0	1000.0	1000.0

Supplementary Figure S1. Effect of cacao on protein expression levels of antioxidant enzymes.

(a) Western blot figures of SOD1, GAPDH; (b) CAT; (c) GPx1, GADPH.

C, control; G, D-galactose-induced aging; LC, D-galactose injection with 10% cacao powder mixed diet; HC, D-galactose injection with 16% cacao powder mixed diet.

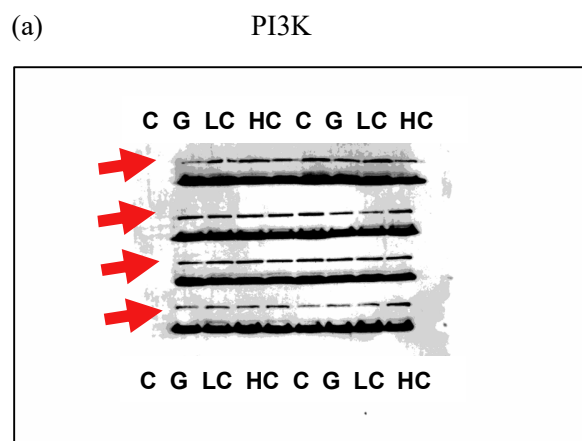




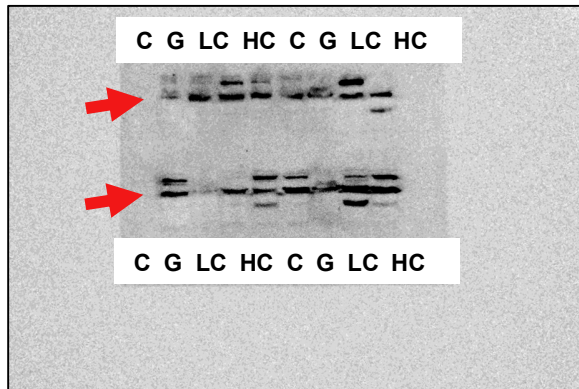
Supplementary Figure S2. Effect of cacao supplementation on protein expression levels of neuroprotective enzymes.

(a) Western blot figures of PI3K; (b) phospho-Akt/Akt; (c) procaspase-3.

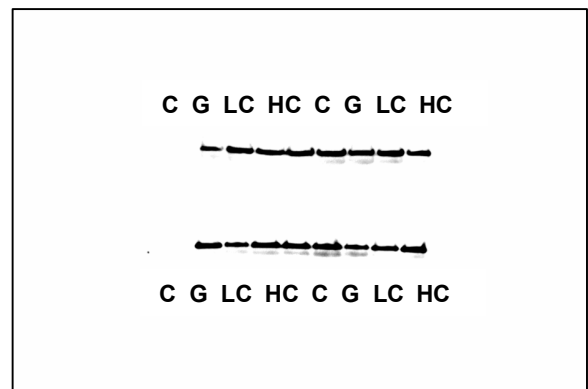
C, control; G, D-galactose-induced aging; LC, D-galactose injection with 10% cacao powder mixed diet; HC, D-galactose injection with 16% cacao powder mixed diet.



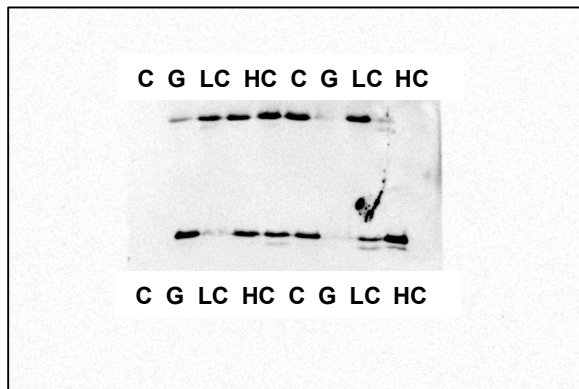
(b) phospho-Akt



Akt



(c) procaspase-3



GAPDH

