Electronic Supplementary Material (ESI) for Food & Function.

Supplementary materials

Supplementary figures

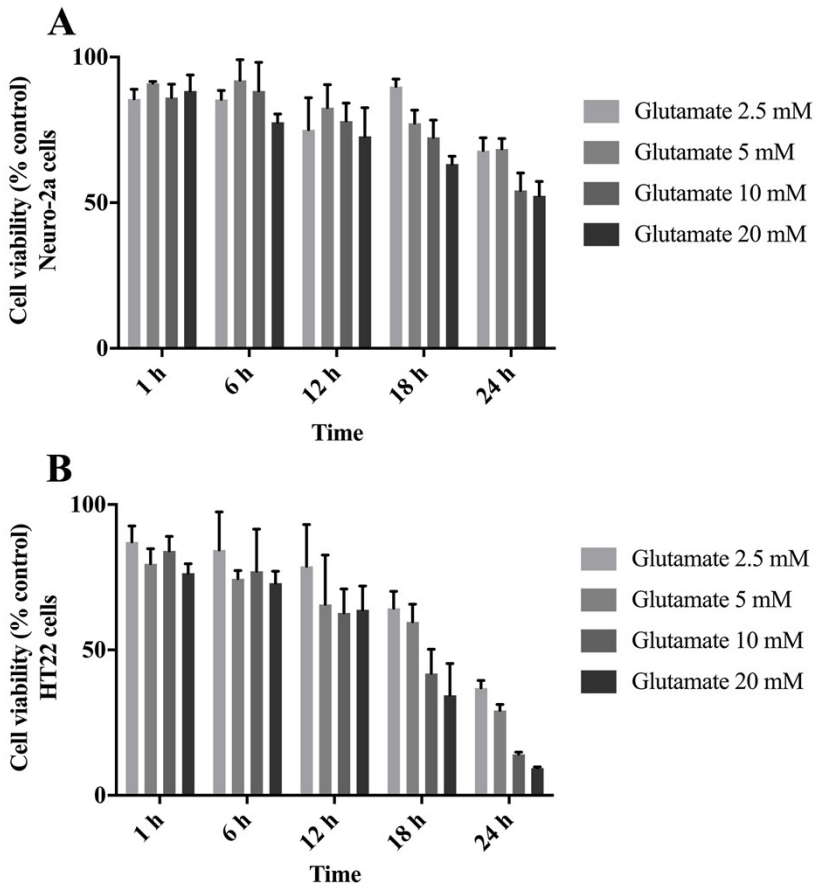

Figure S1 The effects of glutamate-induced toxicity on Neuro-2a and HT22 cells. Cell viability of Neuro-2a **(A)** and HT22 cells **(B)** after treatment with different concentrations of glutamate for different times. All data are presented as the mean ± SD of at least three independent experiments. $p < 0.001$ compared with the negative control by one-way ANOVA following Dunnett's *post hoc* test.

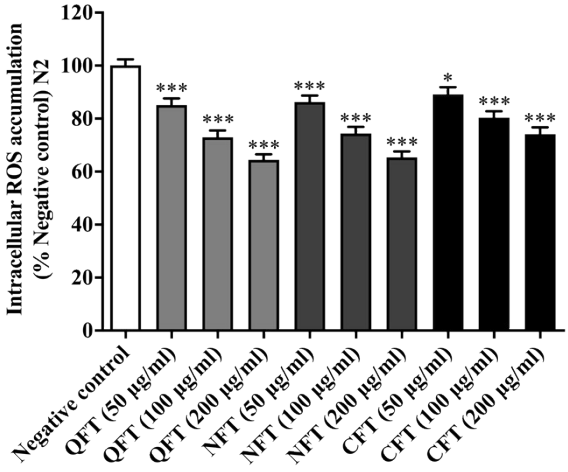

Figure S2 The intracellular ROS accumulation after treatment with different concentrations of oolong tea extracts in *C. elegans* (N2 strain). All data are presented as the mean ± SEM of at least three independent experiments. *$p < 0.05$, **$p < 0.01$ and ***$p < 0.001$, compared with the negative control group by one-way ANOVA followed by Dunnett's *post hoc* test.

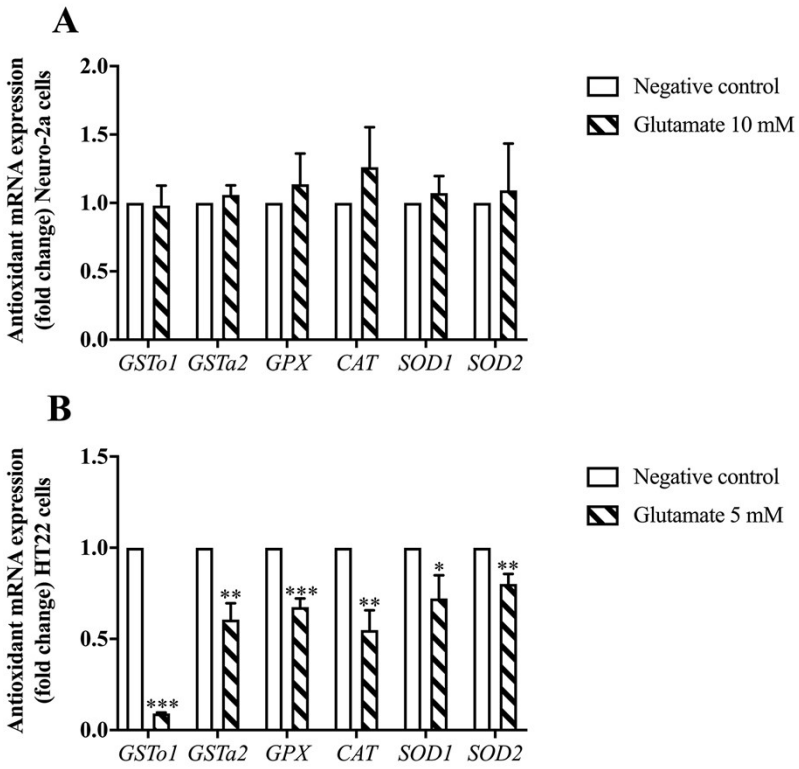

Figure S3 Effect of glutamate on endogenous antioxidant gene expression in Neuro-2a **(A)** and HT22 cells **(B)**. Neuro-2a cells treated with glutamate (10 mM) did not show significant differences in antioxidant gene expression. However, HT22 cells treated with glutamate (5 mM) significantly decreased antioxidant gene expression when compared to the negative control. *β-actin* was used as the internal control for the qRT-PCR assay. All data are presented as the mean ± SD of at least three independent experiments. *$p < 0.05$, **$p < 0.01$, and ***$p < 0.001$, compared with the negative control by Student's *t* test.

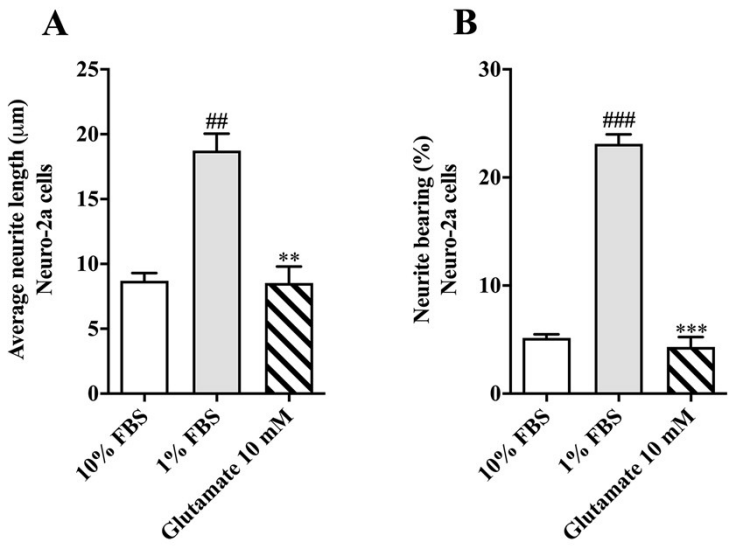

Figure S4 The average lengths of neurite **(A)** and the percentage of neurite-bearing cells **(B)** after treatment with glutamate (10 mM) in Neuro-2a cells. Neuro-2a cells treated with glutamate (10 mM) in 1% FBS (low-serum medium), significantly decreased neurite length and neurite bearing cells when compared to the 1% FBS control. All data were represented as the mean ± SD in at least three independent experiments. $^{**}p < 0.01$ and $^{***}p < 0.001$ compared to the 1% FBS control by Student's *t* test; $\#\#p < 0.01$, $\#\#\#p < 0.001$ compared to the 10% FBS control according to Student's *t* test.

Supplementary tables

Table S1 Primer sequences for qRT-PCR

Gene name	Primer sequence
GSTo1	Forward: 5′-CAGCGATGTCGGGAGAAT-3′
	Reverse: 5′-GGCAGAACCTCATGCTGTAGA-3′
GSTa2	Forward: 5′-TCTGACCCCTTTCCCTCTG-3′
	Reverse: 5′-GCTGCCAGGATGTAGGAACT-3′
GPx	Forward: 5′-ACAGTCCACCGTGTATGCCTTC-3′
	Reverse: 5′-CTCTTCATTCTTGCCATTCTCCTG-3′
CAT	Forward: 5′-CAGCGACCAGATGAAGCA-3′
	Reverse: 5′-CTCCGGTGGTCAGGACAT-3′
SOD1	Forward: 5′-CAGGACCTCATTTTAATCCTCAC-3′
	Reverse: 5′-CCCAGGTCTCCAACATGC-3′
SOD2	Forward: 5′-CTGGACAAACCTGAGCCCTA-3′
	Reverse: 5′-TGATAGCCTCCAGCAACTCTC-3′
GAP43	Forward: 5′-AGCCTAAACAAGCCGATGTG-3′
	Reverse: 5′-GGTTTGGCTTCGTCTACAGC-3′
Ten-4	Forward: 5′-GTGGACAAGTTTGGGCTCAT-3′
	Reverse: 5′-GGGTTGATGGCTAAGTCTGT-3′
β-actin	Forward: 5′-GGCTGTATTCCCCTCCATCG-3′
	Reverse: 5′-CCAGTTGGTAACAATGCCATGT-3′

Table S2 The effects of glutamate-induced toxicity in HT22 and Neuro-2a cells

Cell line	Concentration (mM)	Incubation time (h)	% Cell viability (Mean ± SD)	Significance
HT22	2.5	1	88.57 ± 3.96	**
	5	1	81.00 ± 3.55	***
	10	1	85.44 ± 3.04	***
	20	1	77.72 ± 1.32	***
	2.5	6	84.73 ± 12.45	n.s.
	5	6	74.86 ± 3.31	*
	10	6	77.50 ± 15.01	*
	20	6	73.33 ± 3.89	*
	2.5	12	77.56 ± 13.18	n.s.
	5	12	65.26 ± 16.40	*
	10	12	62.41 ± 8.06	**
	20	12	65.53 ± 8.13	*
	2.5	18	90.21 ± 0.04	***
	5	18	53.91 ± 0.05	***
	10	18	15.19 ± 0.13	***
	20	18	12.83 ± 0.17	***
	2.5	24	37.55 ± 3.19	***
	5	24	29.60 ± 1.44	***
	10	24	14.32 ± 0.67	***
	20	24	9.52 ± 0.57	***
Neuro-2a	2.5	1	85.62 ± 3.36	**
	5	1	91.04 ± 0.59	*
	10	1	86.07 ± 4.56	**
	20	1	88.36 ± 5.53	**
	2.5	6	85.47 ± 3.03	*
	5	6	92.03 ± 7.06	n.s.
	10	6	88.28 ± 9.87	n.s.
	20	6	77.58 ± 2.84	**
	2.5	12	75.00 ± 11.06	*
	5	12	82.63 ± 7.94	n.s.
	10	12	77.96 ± 6.14	*
	20	12	72.79 ± 9.82	**
	2.5	18	89.91 ± 2.58	*
	5	18	77.30 ± 4.46	***
	10	18	72.38 ± 5.92	***
	2.5	18	63.30 ± 2.65	***
	2.5	24	68.55 ±3.56	***
	5	24	69.23 ± 4.94	***
	10	24	54.74 ± 5.98	***
	20	24	52.94 ± 5.03	***

Note: All data are shown as the mean ± SEM of at least three independent experiments. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, compared to negative control by one-way ANOVA following Dunnett's *post hoc* method. n.s. = no significance.