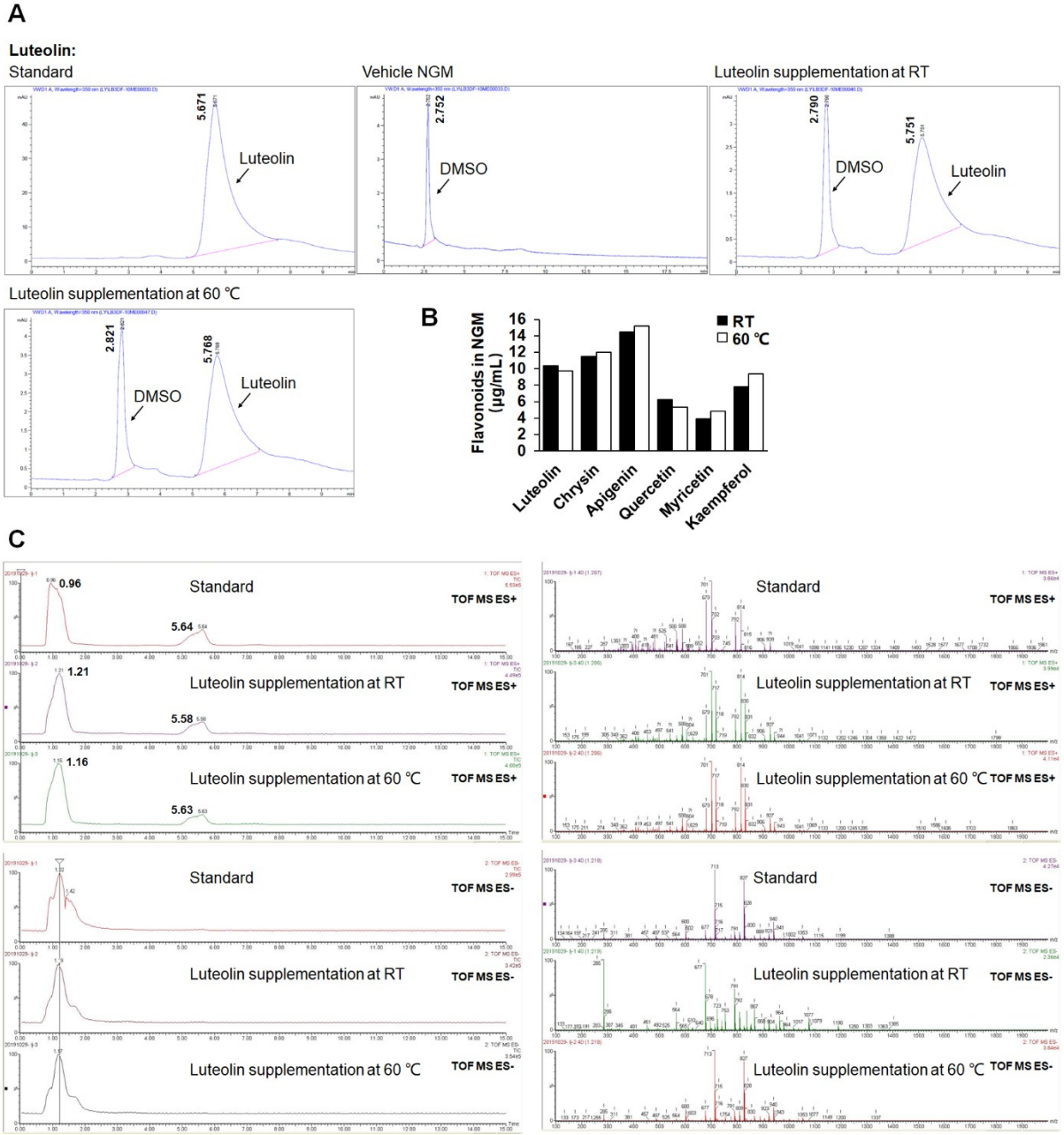
1 **Supplementary Figure S1**



2 **Supplementary Figure S1. The concentration and structure of the flavonoids**

3 **under the treatment of room temperature (RT) and 60 ℃.**

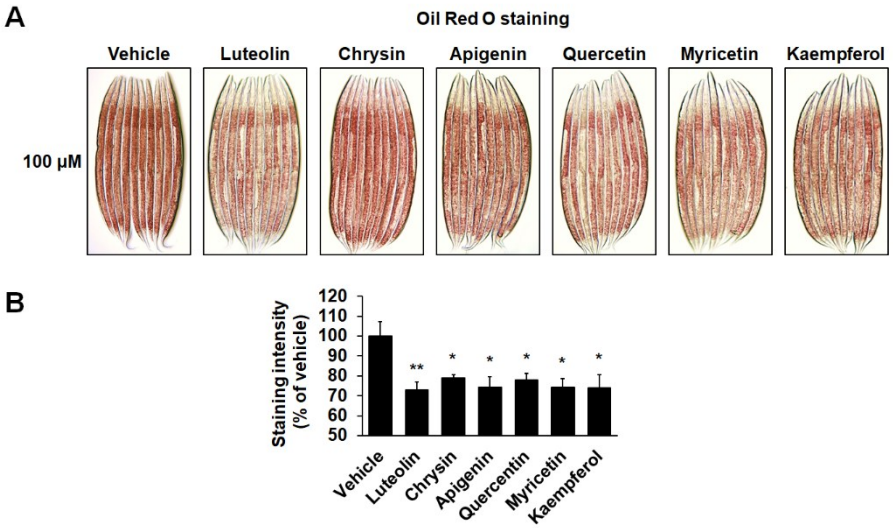
4 (A) HPLC chromatogram of luteolin extracted from NGM plates under the treatment

5 of RT and 60 ℃. (B) The concentration of the flavonoids extracted from NGM plates

6 under the treatment of RT and 60 ℃. (C) UPLC-MS chromatogram of luteolin extracted

7 from NGM plates under the treatment of RT and 60 ℃.

Supplementary Figure S2



Supplementary Figure S2. Diet-supplementation of flavonoids reduced the fat accumulation in *C. elegans* fed with dead OP50.

(A and B) Representative images (A) and quantification of Oil Red O staining (B) in N2 fed with flavonoids fed with dead OP50. The data in (B) are presented as mean±SEM. $^{*}p<0.05$; $^{**}p<0.01$ by one-way ANOVA.

Supplementary Table S1. Primers for quantitative real-time PCR analysis in *C. elegans*.

***C. elegans* genes**	**Forward sequences (5' to 3')**	**Reverse sequences (5' to 3')**
gpd-2	GGAGTCTTCACCACCATCGA	CGTGGTTGACTCCGACGACG
tph-1	TGACGCTGCCGATTCTCCAG	GCATGTTGCAACTCGCCAGC
mod-1	GGATGTGTGGATGCTTGGATGC	TTACGCTGTTCTGACAACGGGA
ser-1	TCACACGCGACGAGACTCGT	CCATTGGTTCTGGCGACTGG
ser-4	CCACAGCGACTGCCTTCTAC	TTACGGTACGTCGGTCGCGT
ser-6	CTGCTCCCTACTTCTGGCTGTC	GACGGGAGAGATGTGGGTTGAC
atgl-1	CTGGCCTAGATCGACCGATG	CGTATGCATGGAGCCAATCC
acs-2	GCAGCCTCGCTCTACACTCT	GACTCCTGCAAATGCACATGC
cpt-1	TATGAACCAGCATCAGCTCG	GACGATCGACTCCTTGCCC
hacd	CAGGACTTATGGATACTCCAC	GGCATGCGGAGTGCTCCG
fat-6	TCGGACTCTACCAGCTCATC	TGAGCTCCGGCGGTTATTCC
fat-7	TTGGTGCATCAACAGCGCTG	ACCAACGGCTACAACTGTGG
sbp-1	GATTGCTCGCTGGAAGTGCG	CCGAGTGCTAGTTCCATCCG
daf-19	GATCCGTCTTCCACAACCTC	TGAGGCTGTGGATGCTGCAT

Supplementary Table S2. The effect of flavonoids supplementation on developmental rate in N2 worms.

Flavonoids supplementation	Proportion					
	L4 (%)		Adult (%)		Gravid adult (%)	
	mean ± SEM	*p.* value	mean ± SEM	*p.* value	mean ± SEM	*p.* value
Vehicle	6.67±1.92		75.56±1.11		17.78±2.94	
Luteolin	12.22±2.94	0.7182	73.3±1.92	0.9977	14.44±4.00	0.9585
Chrysin	12.22±4.00	0.7182	75.56±5.88	0.9999	12.22±5.56	0.7402
Apigenin	12.22±5.56	0.7182	77.78±5.88	0.9977	10±1.92	0.4503
Quercetin	11.11±2.94	0.8574	77.78±6.19	0.9977	11.11±4.00	0.5918
Myricetin	12.22±2.94	0.7182	80±1.92	0.9375	7.78±2.22	0.2337
Kaempferol	13.33±1.92	0.5651	75.56±2.94	0.9999	11.11±2.22	0.5918

The worms were grown on NGM plates with flavonoids since L1 stage of larvae. After 50 h, worms were washed from the NGM plates and mounted on agarose pads and examined on a compound microscope. The numbers of L4, adult and gravid adult worms were distinguished by the development of the vulva. For each condition at least 30 worms were scored and each analysis was repeated at least 3 times.