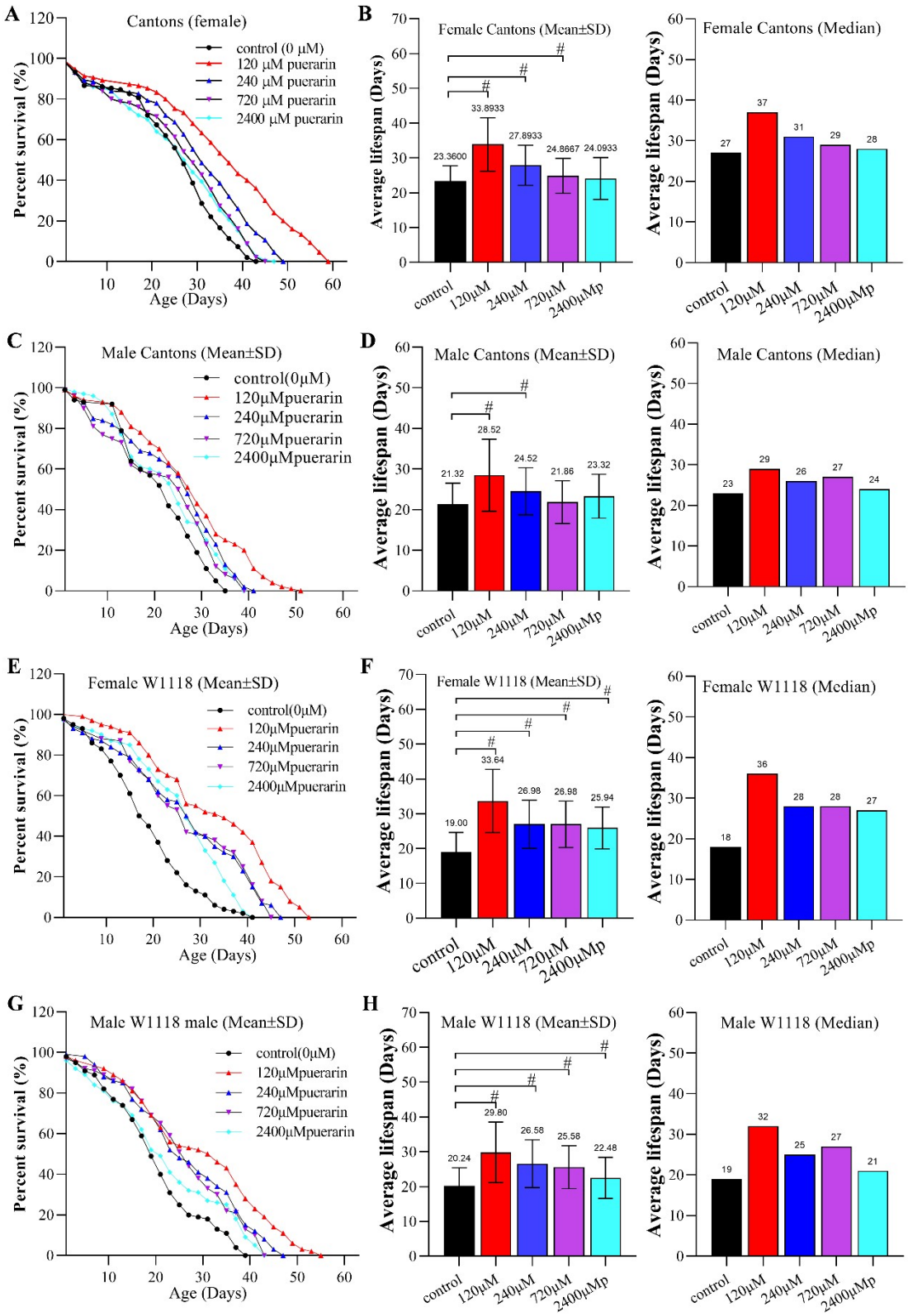
Electronic Supplementary Material (ESI) for Food & Function.

Supplementary Figure 1. Puerarin extends lifespan of *D. melanogaster*.

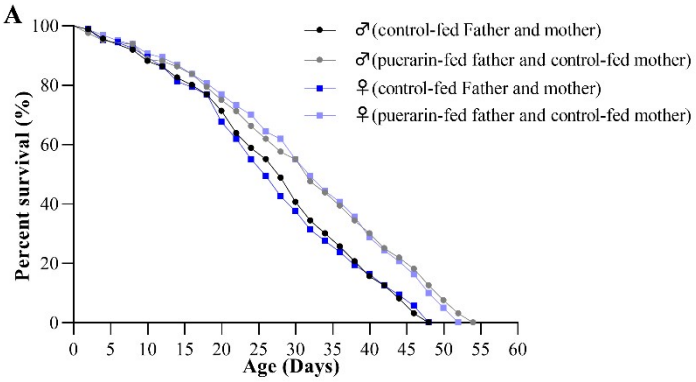
The flies were fed with or without puerarin-contained diet. Then, the lifespan of these male flies was recorded. (**A**) The effects of various concentrations of puerarin on lifespan of female Canton-S flies (n = 120 flies for each group). (**B**) The mean and median of lifespan in (A), #p<0.01 *versus* control (0 puerarin). (**C**) The effects of puerarin on lifespan of male Canton-S flies (n = 120 flies for each group). (**D**) The mean and median of lifespan in (C), #p<0.01 *versus* control. (**E**) The effects of puerarin on lifespan of female W1118 flies (n = 120 flies for each group). (**F**) The mean and median of lifespan in (E), #p<0.01 *versus* control. (**G**) The effects of puerarin on lifespan of male W1118 flies (n = 120 flies for each group). (**H**) The mean and median of lifespan in (G), #p<0.01 *versus* control.



Supplementary Figure 2. Puerarin-induced longevity of male flies (F0 generation) may not be passed on to the descendants (F1 generation).

To determine whether puerarin-induced longevity of male flies can be passed on to the descendants, the male Canton-S flies were fed with 120 μM puerarin supplementation

for 25 days. These virgin male flies were used to mate with virgin female Canton-S flies for 2 days in 10 vials, and 3 male flies and 3 female flies were placed in a vial. Then, the parent flies were removed. Next, the male and female descents of each group were collected. Finally, the lifespan of these descents was calculated (**A**).



Supplementary Figure 3. Puerarin increases the number of lysosomes in the gut of male *D. melanogaster* (Canton-S).

In the LysoTracker-staining experiment, the midguts were dissected from wild-type flies that reared on control or puerarin diets for 10 days or 25 days. Each gut was dissected in phosphate buffer, and stained with 1 μM LysoTracker Red for 3 min. They were captured under an inverted fluorescence microscope (Zeiss, Oberkochen, Germany).