

Purple Sweet Potato Anthocyanin Attenuates the Fat-Induced Mortality in *Drosophila Melanogaster*

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Abstract : A high-fat diet induces the accumulation of lipid hydroperoxides, accelerates the ageing process and causes a greater mortality in *Drosophila melanogaster*. The purple sweet potato is rich in antioxidant anthocyanin. The present study was to examine if supplementation of purple sweet potato anthocyanin (PSPA) could reduce the mortality of fruit flies fed a high-fat diet. Results showed that the mean lifespan of fruit fly was shortened from 56 to 35 days in a dose-dependent manner when lard in the diet increased from 0% to 20%. PSPA supplementation attenuated partially the lard-induced mortality. The maximum lifespan and 50% survival time were 49 and 27 days for the 10% lard control flies, in contrast, they increased to 57 and 30 days in the PSPA-supplemented fruit flies. PSPA-supplemented diet significantly up-regulated the mRNA of superoxide dismutase, catalase and Rpn11, compared with those in the control lard diet. In addition, PSPA supplementation could restore the climbing ability of fruit flies fed a 10% lard diet. It was concluded that the lifespan-prolonging activity of PSPA was most likely mediated by modulating the genes of SOD, CAT and Rpn11.

Keywords : purple sweet potato, anthocyanin, high-fat diet, oxidative stress

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