

LONG TERM FOOD DEPRIVATION ENHANCES THE RESISTANT TO THE PARAQUAT INDUCED OXIDATIVE STRESS AND INCREASES THE LIFE SPAN IN C. ELEGANS

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Dietary restriction (DR) has been touted as the most reliable and reproducible method for decelerating aging processes and extending lifespan as demonstrated in a great variety of species, including the nematode, *Caenorhabditis elegans*. However, since the normal food for *C. elegans* is the living bacteria, *E. coli*, investigators have to deal with difficulties in applying meaningful DR without changing the normal laboratory environment of the worm. One of the main problems is controlling the amount of bacteria that the worms eat. To improve on methodological weaknesses, we have applied a radical approach DR, food deprivation (FD). Specifically, at age 0, 1, 3 and 7 days, we have deprived the worms of food by transferring them to a NGM agar environment (3.5 cm dish) without any bacteria (FD group). Control cultures were handled in the same fashion but transferred to the agar with a lawn of *E. coli* (ad libitum, AL). Both AL and FD cultures were also covered with 1.25mg/plate ampicillin (antibiotic) and 5-fluorodeoxyuridine (FUdR) in order to clean the residue of bacteria and eggs. Different dosages of paraquat, a free-radical generating pesticide, were also applied on the agar to evaluate resistance to oxidative stress resistance. We have found the FD worms survived well and indeed exhibited extension of lifespan and significantly enhanced resistance to paraquat.