Nutraceutical approach to improve elderly health: aging phenotypes characterization in *Caenorhabditis elegans*

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One of the main challenges of the 21st century is the aging of the population, since the ratio of elderly people is progressively increasing[1]. Aging is considered a huge problem because it consists in a gradual physiological decline and represents a risk factor for several pathologies[2]. Understanding the mechanisms underlying aging is fundamental to promote healthy aging, even if it is complicated by its multifactorial nature, in which environmental factors (e.g. nutrients) play an important role[3]. *Caenorhabditis elegans* is a validated model for aging research, thanks to its short life cycle, easy manipulation and evolutionarily conserved pathways[4].

In this work, the main aging phenotypes have been analyzed. Since *C. elegans* early adulthood, we observed a progressive decline of both movement and pumping rate during lifespan. Otherwise, the heat stress resistance decreases only in old age. This leads to suppose that the first two parameters could be modulated by the same pathways, unlike the heat stress resistance.

Given the important impact of diet on healthy aging, the effect of the *Cinnamomum cassia* buds extract (rich in polyphenols) on *C. elegans* lifespan has been evaluated. The most effective dose has been defined by heat stress test, pre-treating adult worms with a single dose for 48 hours. We observed that the treatment with the most effective dose during *C. elegans* development slightly increases median and maximum lifespan. The next step will be to analyze the effect of the extract on the healthspan parameters.

References:

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