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## *Oxyresveratrol Supplementation In Hyper-Branched Cyclodextrin Based Nanosponges As Antiaging Enhancer in Caenorhabditis Elegans*

Chaired by **DR. ANDREA ERXLEBEN** and **PROF. DR. ELISABETTA GAVINI**



pharmaceutics



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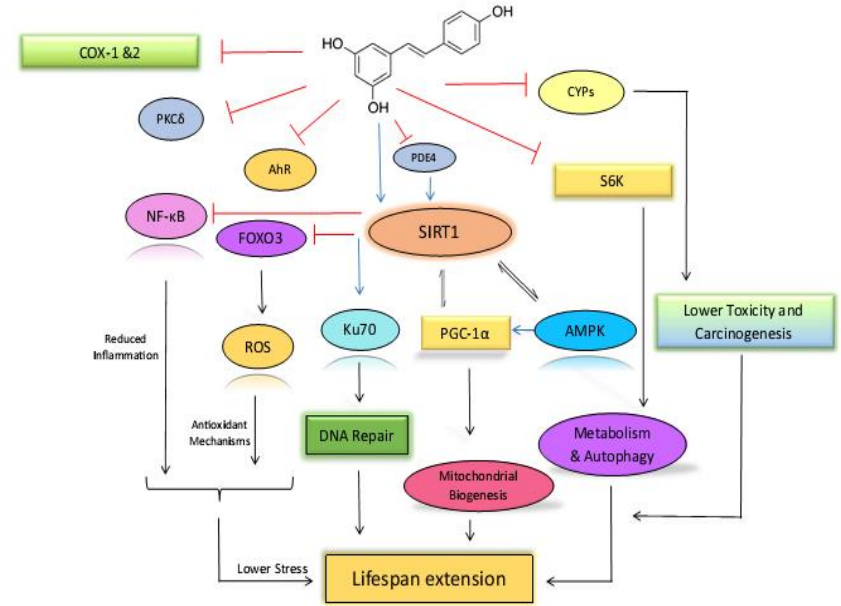
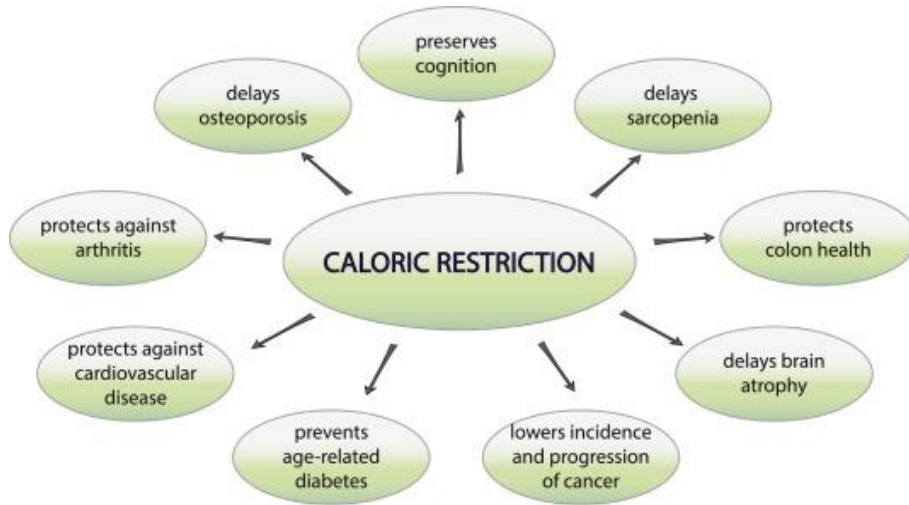
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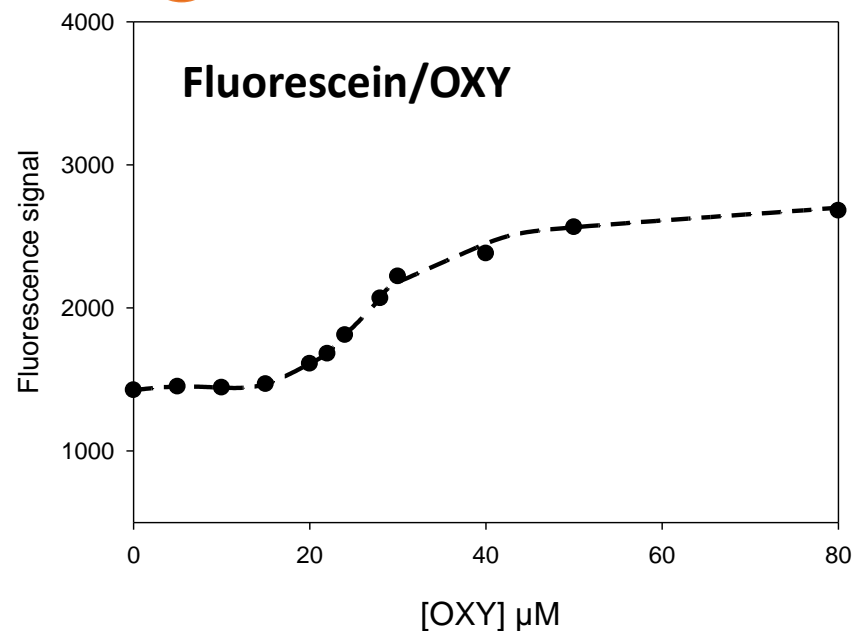
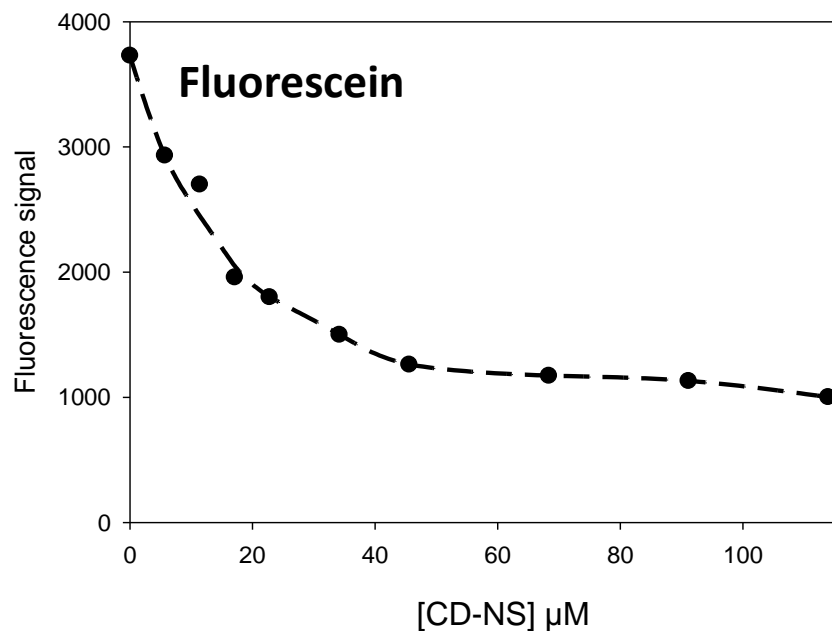
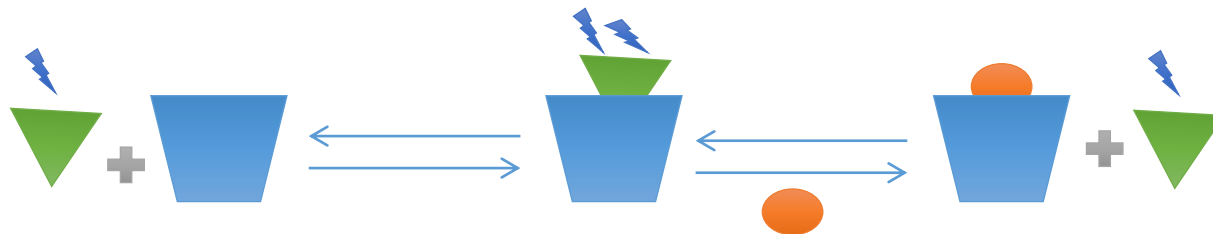
**Abstract:** 1) background: The desire to live longer lives demands novel strategies to perform this target. For that reason, in this work [1] the increase of the *Caenorhabditis elegans* (*C.elegans*) lifespan extension using hyper-branched cyclodextrin-based nanosponges (CD-NS) complexing oxyresveratrol (OXY) was evaluated. 2) Methods: The titration displacement of fluorescein was used to calculate the apparent complexation constant ( $K_f$ ) between CD-NS and OXY. Moreover, PDE4 was expressed, purified and refolded in presence of cyclodextrins (CDs) to study its possible inhibition as pharmacological target of OXY. 3) Results: The effect of OXY on PDE4 displayed a competitive *in vitro* inhibition corroborated *in silico*. A maximum increase of the *in vivo* life expectancy of about 9.6% of using OXY/CD-NS complexes in comparison with the control was obtained without toxicity. 4) Conclusions: These results as a whole represent new opportunities to use OXY and CD-NS in lifespan products.

**Keywords:** lifespan; *Caenorhabditis elegans*; oxyresveratrol

# Introduction

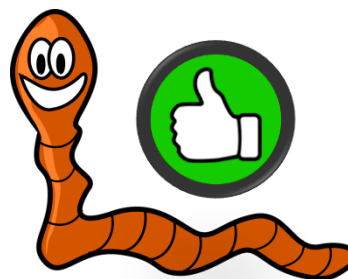
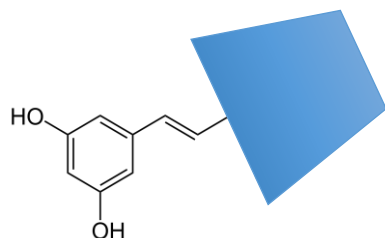
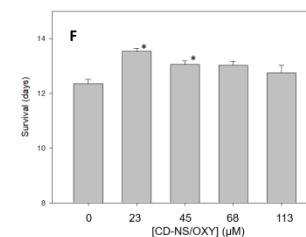
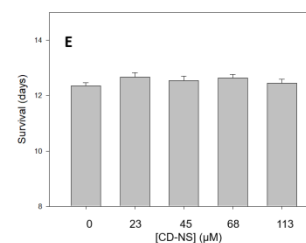
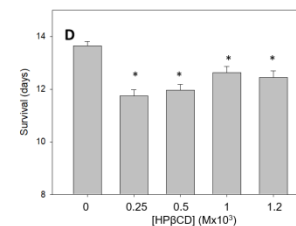
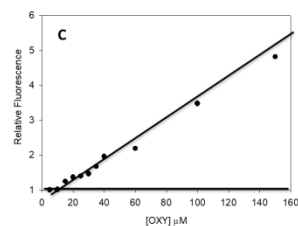
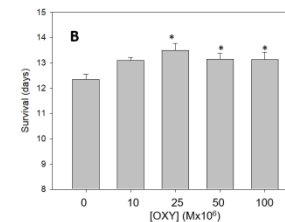
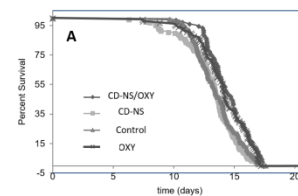
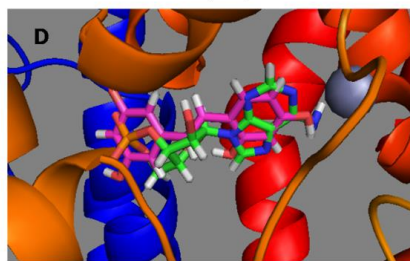
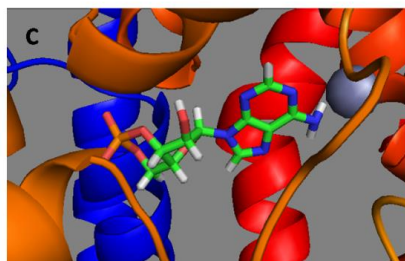
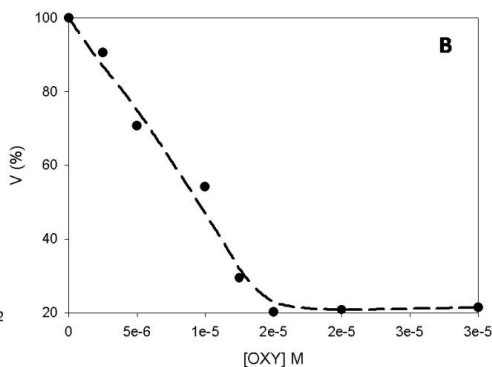
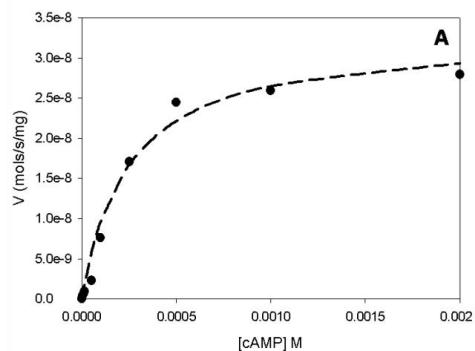


# Results and Discussion 1: $K_F$ for Oxyresveratrol/NSs



$$K_F = 1.20 \times 10^5 \text{M}^{-1} \pm 1.23 \times 10^4 \text{M}^{-1}$$

# Results and Discussion 2: Effect of OXY against PDE4 and in *in vivo* lifespan



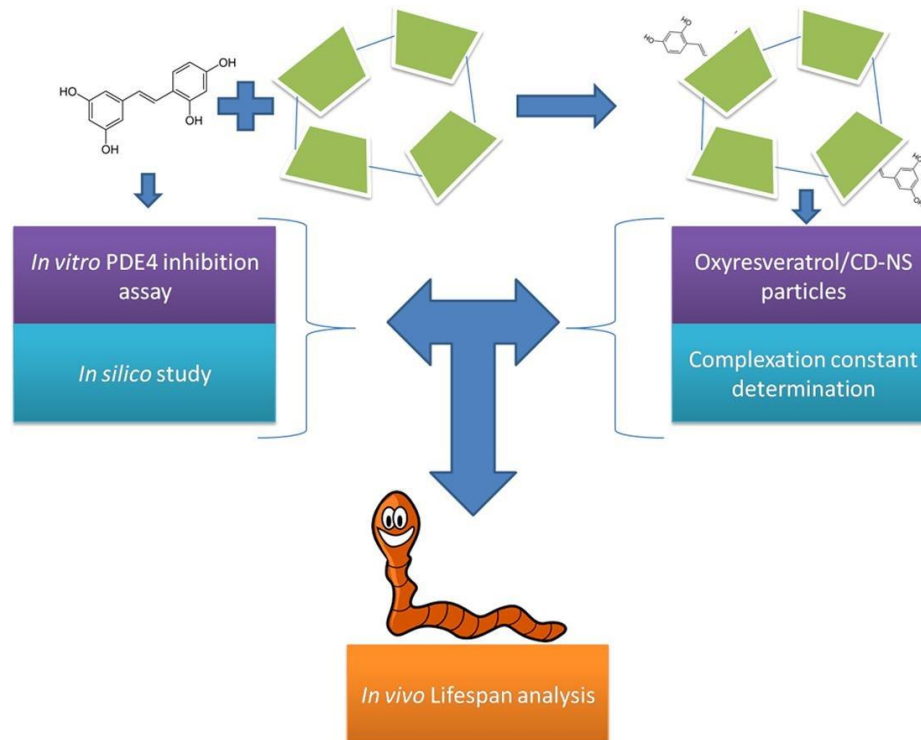
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# Supplementary Materials

Original article with the complete information:

Matencio, A., Guerrero-Rubio, M. A., Caldera, F., Cecone, C., Trotta, F., García-Carmona, F., & López-Nicolás, J. M. (2020). Lifespan extension in *Caenorhabditis elegans* by oxyresveratrol supplementation in hyper-branched cyclodextrin-based nanosponges. *International Journal of Pharmaceutics*, 589, 119862 - <https://www.sciencedirect.com/science/article/pii/S0378517320308474?via%3Dihub>



# Acknowledgments



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*Thanks for your attention*

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