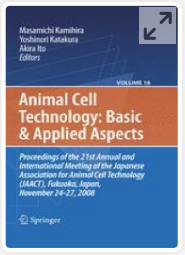

Animal Cell Technology: Basic & Applied Aspects pp 289–293

Electrolyzed Reduced Water Prolongs *Caenorhabditis elegans'* Lifespan

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Conference paper | First Online: 01 January 2010

Part of the Animal Cell Technology: Basic & Applied Aspects book series (ANICELLTECH,volume 16)

Abstract

and alleviated the ROS Level in nematode in water medium, but not in conventional S-medium. These results suggested that the nematode lifespan was elongated at least in part by ROS-scavenging action of ERW.

Keywords

C. Elegans **Electrolyzed reduced water**

Lifespan **Nematode**

Reactive oxygen species

References

1. Li, Y.P., Nishimura, T., Teruya, K., Tei, M., Komatsu, T., Hamasaki, T., Kashiwagi, T., Kabayama, S., Shim, S.-Y., Katakura, Y., Osada, K., Kawahara, T., Otsubo, K., Morisawa, S., Ishii, Y., Gadek, Z., and Shirahata, S. (2002) Protective mechanism of reduced water against alloxan-induced pancreatic *β*-cell damage: Scavenging effect against reactive oxygen species. *Cytotechnology* **40**: 139–140.

2. Kim, M.-J., Jung, K.H., Uhm, Y.K., Leem, K.-H., and Kim, H.K. (2007) Preservative effect of electrolyzed reduced water on pancreatic beta–cell mass in diabetic *db/db* mice. *Biol. Pharm. Bull*. **30**: 234–236.

3. Huang, K.-C., Yang, C.-C., Hsu, S.-P., Lee, K.-T., Kiu, H. W., Morisawa, S., Otsubo, K., and Chen, C.-T. (2006) Electrolyzed-reduced water

active oxygen species and protects DNA from oxidative damage. *Biochem. Biophys. Res. Commun*. **234**: 269–274.

5. Harrington, L.A. and Harley, C.B. (1988) Effects of vitamin E on lifespan and reproduction in *Caenorhabditis elegans*. *Mech. Ageing Dev*. **43**: 71–78.

6. Adachi, H. and Ishii, N. (2000) Effects of tocotrienols on life span and protein carbonylation in *Caenorhabditis elegans*. *J. Gerontrol. A Biol. Sci*. **55**: B280–B285.

7. Wu, Z., Smith, J.V., Paramasivam, V., Butko, P., Khan, I., Cypser, J.R., and Luo, Y. (2002) *Ginkgo biloba* extract EGB 761 increases stress resistance and extends lifespan of *Caenorhabditis elegans*. *Cell. Mol. Biol*. **48**: 725–731.

(2008) Effects of a potent antioxidant, platinum nanoparticle, on the lifespan of *Caenorhabditis elegans*. *Mech. Ageing Dev*. **129**: 322–331.

10. Brenner, S. (1974) The genetics of *Caenorhabditis elegans*. *Genetics* **77**: 71–94.

11. Emmons, S.W., Klass, M.R., and Hirsh, D. (1979) Analysis of the constancy of DNA sequenced during development and evolution of the nematode *Caenorhabditis elegans*. *Proc. Natl. Acad. Sci. USA* **76**: 1333–1337.

12. Sulston, J.E. and Brenner, S. (1974) The DNA of *Caennorhabditis elegans*. *Genetics* **77**: 95–104.

13. Houthoofd, K., Braeckman, B.P., Johnson, T.E., and Vanfleteren, J.R. (2003) Life extension via dietary restriction is independent of the Ins/IGF-1 signalling pathway in *Caenorhabditis*

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About this paper

Cite this paper

Yan, H. *et al.* (2010). Electrolyzed Reduced Water Prolongs *Caenorhabditis elegans'* Lifespan. In: Kamihira,

03 March 2010	Springer, Dordrecht	978-90-481-3891-3

Online ISBN	eBook Packages
978-90-481-3892-0	Biomedical and Life Sciences Biomedical and Life Sciences (R0)