


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

[Home](#) > [Animal Cell Technology: Basic & Applied Aspects](#) > [Conference paper](#)

# Electrolyzed Reduced Water Prolongs *Caenorhabditis elegans*' Lifespan

[Hanxu Yan](#), [Huaize Tian](#), [Takeki Hamasaki](#), [Masumi Abe](#),  
[Noboru Nakamichi](#), [Kiichiro Teruya](#), [Yoshinori Katakura](#),  
[Shinkatsu Morisawa](#) & [Sanetaka Shirahata](#) 

Conference paper | [First Online: 01 January 2010](#)

**1048** Accesses

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

## Abstract

### Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

**Accept all cookies**

[Manage preferences](#)

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**

---

This is a preview of subscription content, [access via your institution.](#)

---

▼ Chapter

EUR 29.95

Price includes VAT (India)

- Available as PDF
- Read on any device
- Instant download
- Own it forever

Buy Chapter

## Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

[Learn about institutional subscriptions](#)

## 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  $\beta$ -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

## Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

---

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. Gerontol. 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.

---

## Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

---

---

(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 *Caenorhabditis 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*

## Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

---

**Department of Genetic Resources Technology,  
Kyushu University, Fukuoka, 812-8581, Japan**

Huaize Tian & Yoshinori Katakura

**Department of Genetic Resources Technology,  
Kyushu University, Fukuoka, Fukuoka, 812-  
8581, Japan**

Takeki Hamasaki, Masumi Abe & Shinkatsu

Morisawa

**Nihon Trim Co. Ltd., Osaka, 531-0076, Japan**

Noboru Nakamichi

**Functional Water Cell Analysis Center Co. Ltd.,  
Fukuoka, 812-0013, Japan**

Noboru Nakamichi

**Department of Genetic Resources Technology,  
Faculty of Agriculture, Kyushu University,  
Fukuoka, Fukuoka, 812-8581, Japan**

Kiichiro Teruya

**Graduate School of Bioresource and  
Bioenvironmental Sciences, Kyushu University,  
Fukuoka, Japan**

Kiichiro Teruya

## Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

**Fac. Engineering, Dept. Chemical Engineering,  
Kyushu University, Motooka 744, Fukuoka, 819-  
0395, Japan**

Masamichi Kamihira

**Fac. Agriculture, Kyushu University, Hakozaki 6-  
10-1, Fukuoka, 812-8581, Japan**

Yoshinori Katakura

**Fac. Engineering, Kyushu University, Fukuoka,  
819-0395, Japan**

Akira Ito

Rights and permissions

---

[Reprints and Permissions](#)

Copyright information

---

© 2010 Springer Science+Business Media B.V.

About this paper

Cite this paper

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

Masamichi, Yoshinori Katakura, Akira Ito, Yoshinori Katakura

Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

---

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

Online ISBN eBook Packages  
978-90-481- [Biomedical and](#)  
3892-0 [Life Sciences](#)  
[Biomedical and](#)  
[Life Sciences \(R0\).](#)

## Your Privacy

We use cookies to make sure that our website works properly, as well as some 'optional' cookies to personalise content and advertising, provide social media features and analyse how people use our site. By accepting some or all optional cookies you give consent to the processing of your personal data, including transfer to third parties, some in countries outside of the European Economic Area that do not offer the same data protection standards as the country where you live. You can decide which optional cookies to accept by clicking on 'Manage Settings', where you can also find more information about how your personal data is processed. Further information can be found in our privacy policy.

---