

Electrolyzed-reduced water confers increased resistance to environmental stresses

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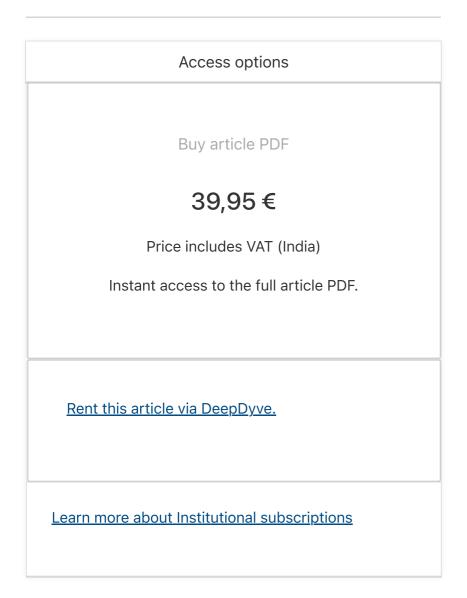
Molecular & Cellular Toxicology 8, 241–247 (2012)

344 Accesses | 12 Citations | Metrics

Abstract

Electrolysis of water produces reduced water at the cathode and oxidized water at the anode. Electrolyzed-reduced water (ERW) has an extremely negative oxidation-reduction potential. ERW scavenges cellular reactive oxygen species (ROS) and suppresses single-strand breaks of plasmid DNA in bacteria. Here, we examined the effect of ERW on resistance to oxidative stress both *in vitro* and *in vivo*. Oxidative DNA damage in human lymphocytes was significantly alleviated by ERW by reducing cellular ROS levels. *Caenorhabditis elegans* grown in media prepared with ERW had increased resistance to oxidative stress caused by paraquat. We observed a significant effect of ERW on response to other stressors, including heat shock and UV-irradiation in *C. elegans*. These data indicate that the powerful anti-oxidant activity of ERW is due to its radicalscavenging activity and show, for the first time, that ERW could increase thermotolerance and resistance to UV-irradiation. These results suggest that ERW aids resistance to various environmental stresses.

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Cite this article

Park, SK., Kim, JJ., Yu, A.R. *et al.* Electrolyzed-reduced water confers increased resistance to environmental stresses. *Mol. Cell. Toxicol.* **8**, 241–247 (2012). https://doi.org/10.1007/s13273-012-0029-1

ReceivedAcceptedPublished14 February 201224 April 201201 October 2012

Issue Date September 2012

DOI

https://doi.org/10.1007/s13273-012-0029-1

Keywords

Electrolyzed-reduced water Oxidative stress

Thermotolerance Ultraviolet-resistance

Caenorhabditis elegans