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Antioxidant properties of aqueous media with molecular hydrogen used in tnviromental medicine

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Abstract

The article presents the results of the biotechnological study of aquatic environments with molecular hydrogen by antioxidant activity. Molecular hydrogen has selective antioxidant activity against dangerous free radicals. It has anti-inflammatory, anti-apoptotic, anti-allergic effects and stimulates energy metabolism. The problem is urgent nowadays because of the great interest to molecular hydrogen as an antioxidant over the past ten years, but its quantitative metabolic parameters have not been estimated yet. The total antioxidant activity of aquatic systems saturated by hydrogen have been studied using coulometric analysis. It was shown that their antioxidant activity of aquatic systems increase of 8-10 times depending on the operating conditions and time of the "H2 Inhaler" device and 3 times when using a mineral generator active Hydrogen "Aquaspectr Mineral". The effect of molecular hydrogen have been studied by changing the antioxidant status of the human body, which was determined by changing the total antioxidant activity of urine and oral fluid during inhalation of hydrogen and oral administration of hydrogen-saturated water. The synergistic effects has been revealed in determining the total antioxidant activity of the oral fluid in the range from 14.02 to 17.59% rel. and synergism/antagonism of urine in the range from 37.17 to 27.62% rel., compared with control measurements. The total antioxidant activity was determined using electro-generated bromine, the samples were analyzed on an Expert-006 coulometer (Econix-Expert LLC, Russia) according to our certified method.

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