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Biological toxicity of acid electrolyzed functional water: effect of oral administration on mouse digestive tract and changes in body weight

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Abstract

Objective: Acid electrolyzed functional water has been used in a variety of ways because of its antiseptic action. In the present study, we investigated both the systemic and gastrointestinal effects of ingesting acid electrolyzed functional water, from the perspective of its use in mouthwash.

Materials and methods: Seventeen mice (three weeks old) were used in the experiment. Three of the mice (three-week-old group) were euthanized before having been given solid food, whilst the remaining 14 were divided into two groups, one given free access to acid electrolyzed functional water as drinking water (test group) and the other given free access to tap water as drinking water (control group). Changes in body weight, visual inspections of the oral cavity, histopathological tests, and measurements of surface enamel roughness and observations of enamel morphology were recorded after eight weeks.

Results: The results showed no significant difference in changes in body weight between the test and control groups. No abnormal findings or measurements were observed for the test group in terms of visual inspections of the oral cavity, histopathological tests, or measurements of surface enamel roughness. In terms of enamel morphology, attrition was seen in the test group.

Conclusions: These findings suggest that the use of acid electrolyzed functional water has no systemic effect and is safe for use in mouthwash.

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