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MEETING ABSTRACT

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Fluoride content of bottled waters commercially available in Zagreb, Croatia

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Background: The role of fluoride in the prevention of dental caries is well known. Optimal daily intake of fluoride should be 0.05–0.07 mg F/kg body weight. On the other hand, excessive fluoride intake can cause dental fluorosis and hypomineralisation of enamel characterized by greater surface porosity. To avoid the risk of dental fluorosis daily intake should not exceed a daily level of 0.10 mg F/kg body weight. Current studies showed that fluoride content in water may be highly variable, and water is considered as main source of fluoride. The aim of this study was to determine the fluoride content in bottled waters commercially available in Zagreb, Croatia.

Methods: Thirty brands of bottled water were obtained from three supermarkets in Zagreb, Croatia. Bottled waters were divided in three groups: carbonated water, non-carbonated water and flavoured water. Following calibration, two tests were conducted on each bottle using a combination fluoride ion-selective electrode (Orion, 96-09-00, MA, USA). The average reading for each brand was calculated and also compared with the fluoride content printed on the label, if available.

Results: The mean (\pm SD) fluoride content of the carbonated bottled water samples were 0.338 ± 0.328 mg F/l with a range from 0.014 to 1.150 mg F/l. The fluoride content of the non-carbonated bottled water samples were 0.083 ± 0.097 mg F/l with a range from 0.015 to 0.301 mg F/l. The fluoride content of the flavoured bottled water samples were 0.225 ± 0.348 mg F/l with a range from 0.023 to 0.927 mg F/l. Out of the brands tested, 43% ($n = 13$) mention the fluoride content on the label.

Discussion: Even though the fluoride concentrations in the tested samples were in the safe range it is recommended to list fluoride content on labels of all bottled waters. The decision about fluoridation treatment should be designed having in mind the amount of fluoride intake from beverages and their possible cumulative influence, so the optimal caries-preventive effect can be obtained and the risk of dental fluorosis reduced.

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