

FLUORIDE CONTENT OF BOTTLED DRINKING WATER AVAILABLE IN IRAN

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SUMMARY: The fluoride concentrations of 17 brands of bottled drinking water sold in Iran were determined and compared with the values on the labels. The mean fluoride content of the samples was 0.3 mg/L with a range of 0.00 to 0.59 mg/L.

Keywords: Bottled water; Fluoride content; Iran.

INTRODUCTION

For many, bottled drinking water is frequently used in place of tap water and for many has even become a status symbol. Because it is often a significant part of the water consumed by the public, it has been urged that bottled water should meet the same standards for fluoride levels and other contents as tap water.¹ In a study in England the fluoride content of bottled waters was in the range from 0.01–0.37 mg/L.² In another study in Ohio, most of the bottled water samples tested had less than 0.74 mg F/L,¹ and in a study in Greece, the mean fluoride concentration of the bottled water was 0.35 mg F/L, and only 4 brands tested mention the fluoride concentration on the label.³ In a 1991 survey, Weinberger found the accuracy of the fluoride concentration on the label to be doubtful in 16 of 17 bottles.⁴ Three years later, Toumba et al. reported that the fluoride content of only 3 of 7 brands were in agreement with the figure on the labels.⁵

MATERIALS AND METHODS

In this study, 17 commercial brands of bottled drinking water were analyzed for their fluoride content. Three bottles of each brand, prepared in different cities of Iran, were purchased during March 2007 from supermarkets, grocery stores, and health shops in the Tehran. All bottles were stored in a dark place at room temperature in their original sealed plastic containers until the fluoride analysis was made. The standard SPADNS method was used by using a Spectrophotometer DR/2000s (HACH Company, USA).

RESULTS AND DISCUSSION

The fluoride content of the bottled waters, as measured and as given on the labels, is shown in the table. The concentration of fluoride was found to vary widely between 0.00 and 0.59 mg F/L, which is generally consistent with previous studies.¹⁻³ In 6 of 17 brands, our determinations agreed with the fluoride concentration on the labels. Owing to high tea consumption and the relatively modest fluoride content of tea sold in Iran,^{6,7} the relatively low levels of fluoride found in these bottled waters should not generally cause a significant increase in fluoride intake. Finally, in view of increasing awareness of toxic effects of elevated fluoride intake, especially in children,^{8,9} it is important that the fluoride

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content of bottled drinking water be monitored closely to prevent adverse reactions to fluoride from that source.

Table. Labeled and measured fluoride concentrations of 17 commercial bottled waters available in Iran (mg F/L)

Bottled water brand	Labeled F concentration (NL=not labeled)	Measured F concentration (±0.02 mg/L)
Aghegh	0.04	0.47
Aqua	NL	0.19
Caristal	NL	0.46
Dalahoo	0.50	0.55
Damash	<0.20	0.00
Damavand	0.20	0.20
Dasani	0.6-1.1	0.40
Gerino	NL	0.00
Kohrang	0.23	0.36
Paris	0.72	0.46
Parsab	0.30	0.29
Pelure	0.07	0.12
Sara	NL	0.59
Sheshpeer	0.17	0.21
Solar	0.37	0.35
Valozi	0.05	0.37
Vata	0.11	0.13

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