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Data Article

Data on fluoride concentration level in villages of Asara (Alborz, Iran) and daily fluoride intake based on drinking water consumption



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ABSTRACT

In the present data article, fluoride concentration levels of drinking water (with spring or groundwater sources) in 10 villages of Asara area located in Alborz province were determined by the standard SPADNS method using a spectrophotometer (DR/2000 Spectrophotometer, USA). Daily fluoride intakes were also calculated based on daily drinking water consumption. The fluoride content were compared with EPA and WHO guidelines for drinking water.

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Specifications Table

Subject area	Chemistry
More specific subject area	Daily fluoride intake
Type of data	Table and figure

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How data was acquired	Spectrophotometer (DR/2000 Spectrophotometer, USA)
Data format	Raw, analyzed
Experimental factors	All water samples in polyethylene bottles were stored in a dark place at room temperature until the fluoride analysis.
Experimental features	Determine the concentration levels of fluoride
Data source location	Asara area, Alborz, Iran
Data accessibility	Data are included in this article

Value of the data

- Data can be used as a base-line data for concentration levels of the fluoride in spring and groundwater.
- The data shown here will be informative for health policy makers by assigning interception actions against adverse health effects of fluoride with considering fluoride intake by drinking water and food.
- Data shown here may serve as benchmarks for other groups working in the field of water, food, and toxicology to compute organic and inorganic daily intakes by drinking water as well as food consumption.

1. Data

In the Asara area of Alborz province the concentration levels of fluoride in their drinking water sources (spring and groundwater) ranged from 0.1–3.19 mg/L (Mean 0.763). As seen in Table 1, it shows that the average daily intakes of fluoride based on 2 liter daily drinking water consumption [1] reached 1.52 with a range of 1.02–2.7 mg/day. As shown in Table 1, the mean concentration levels of fluoride in drinking water of all villages were below than the EPA, and WHO drinking water guidelines.

Table 1

Mean concentration levels of fluoride (mg/l) in drinking water of the Asara area of Alborz province, comparison with EPA and WHO guidelines for drinking water, and daily fluoride intakes.

Village	Source	Fluoride concentration (mg/L)		Daily intake (mg/day)
		Range	Mean	
Sorkhedar	Spring	0.19–1.53	0.73 ± 0.51	1.46
Sarvedar	Spring	0.15–1.48	0.7 ± 0.52	1.4
Khor	Spring	0.14–1.54	0.55 ± 0.54	1.1
Kondor	Spring	0.15–1.28	0.54 ± 0.44	1.08
Moroud	Spring	0.16–1.09	0.51 ± 0.33	1.02
Nashtroud	Spring	0.15–1.28	0.55 ± 0.5	1.1
Abharak	Spring	0.1–3.19	0.73 ± 1.2	1.46
Shahrestanak	Groundwater	0.2–3.11	0.99 ± 1.06	1.98
Rey Zamin	Groundwater	0.75–2.68	1.35 ± 0.71	2.7
Koshke Bala	Spring	0.23–2.13	0.98 ± 0.71	1.96
Minimum value	–	0.1	0.51	1.02
Maximum value	–	3.19	1.35	2.7
Average value	–	–	0.763	1.52
EPA standard	–	2	–	–
WHO standard	–	1.5	–	–

*Based on 2 liter daily drinking water consumption and concentration levels of fluoride in drinking waters.

2. Experimental design, materials and methods

2.1. Study area description

Ten villages of Asara (Alborz, Iran) were selected as sampling points including Sorkhedar, Sarvedar, Khor, Kondor, Moroud, Nashtroud, Abharak, Shahrestanak, Rey Zamin, and Koshke Bala (Fig. 1).

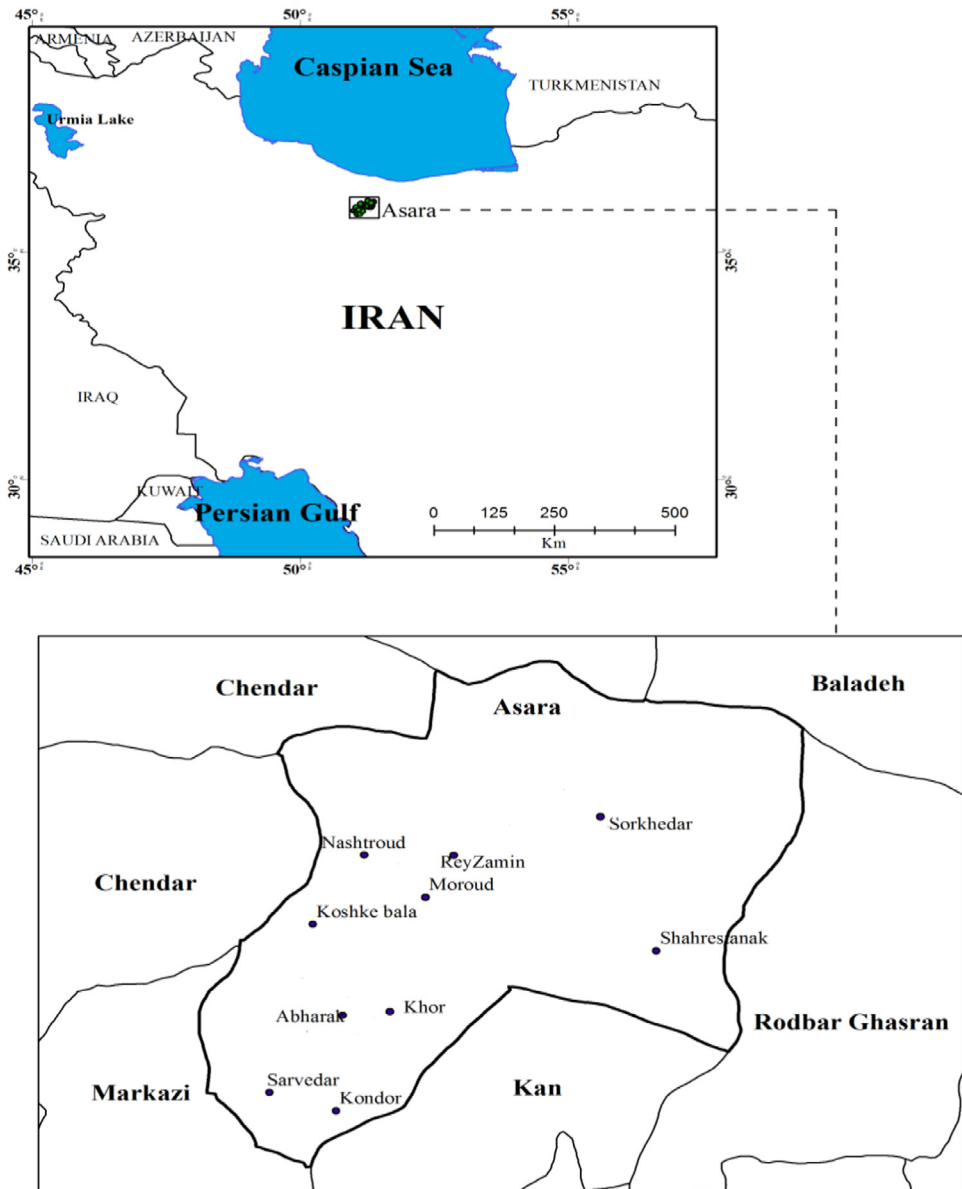


Fig. 1. The map and locations of sampling villages.

2.2. Sample collection and analytical procedures

Sixty samples were collected from 10 villages (6 samples from each village) of the Asara area of Alborz province. Water samples were collected by using 200 mL polyethylene bottles that were washed three times with deionized water; prior to collecting each sample, then bottles were labeled with the sample number and location for identification. After transferring to the laboratory, all samples were stored in a dark place at room temperature in polyethylene containers until the fluoride analysis was made by the standard SPADNS method [2–16] using a Spectrophotometer (DR/2000 Spectrophotometer, USA). The concentration levels of fluoride in waters were compared with EPA and WHO guidelines for drinking water. Eventually daily fluoride intakes were estimated based on 2 l daily drinking water consumption and concentration levels of fluoride in waters.

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Transparency document. Supporting material

Transparency data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.dib.2016.09.050>.

References

- [1] H. Valtin, "Drink at least eight glasses of water a day." Really? Is there scientific evidence for "8 × 8"? *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 283 (2002) R993–R1004.
- [2] I. Nabipour, S. Dobaradaran, Fluoride concentrations of bottled drinking water available in Bushehr, Iran, *Fluoride* 46 (2013) 63–64.
- [3] M. Shams, S. Dobaradaran, S. Mazloomi, M. Afsharnia, M. Ghasemi, M. Bahreinie, Drinking water in Gonabad, Iran: fluoride levels in bottled, distribution network, point of use desalinator, and decentralized municipal desalination plant water, *Fluoride*, 45, 138.
- [4] M. Shams, M. Qasemi, S. Dobaradaran, A.H. Mahvi, Evaluation of waste aluminum filing in removal of fluoride from aqueous solution, *Fresen Environ. Bull.* 22 (2013) 2604–2609.
- [5] S. Dobaradaran, M. Kakuee, A.R. Pazira, M. Keshtkar, M. Khorsand, Fluoride removal from aqueous solutions using *Moringa oleifera* seed ash as an environmental friendly and cheap biosorbent, *Fresen Environ. Bull.* 24 (2015) 1269–1274.
- [6] S. Dobaradaran, M.A. Zazuli, M. Keshtkar, S. Noshadi, M. Khorsand, F. Faraji Ghasemi, V. Noroozi Karbasdehi, L. Amiri, F. Soleimani, Biosorption of fluoride from aqueous phase onto *Padina sanctae crucis* algae: evaluation of biosorption kinetics and isotherms. *Desalination Water Treat.* <http://dx.doi.org/10.1080/19443994.2016.1182081>.
- [7] S. Dobaradaran, A.H. Mahvi, S. Dehdashti, Fluoride content of bottled drinking water available in Iran, *Fluoride* 41 (2008) 93–94.
- [8] M. Rahmani Boldaji, A.H. Mahvi, S. Dobaradaran, S.S. Hosseini, Evaluating the effectiveness of a hybrid sorbent resin in removing fluoride from water, *Int. J. Environ. Sci. Tech.* 6 (2009) 629–632.
- [9] M.A. Zazouli, A.H. Mahvi, S. Dobaradaran, M. Barafrahshehpour, Y. Mahdavi, D. Balarak, Adsorption of fluoride from aqueous solution by modified *Azolla filiculoides*, *Fluoride* 47 (2014) 349–358.
- [10] S. Dobaradaran, A.H. Mahvi, S. Dehdashti, S. Dobaradaran, R. Shoara, Correlation of fluoride with some inorganic constituents in groundwater of Dashtestan, Iran, *Fluoride*, 42, 50–53.
- [11] S. Dobaradaran, I. Nabipour, A.H. Mahvi, M. Keshtkar, F. Elmi, F. Amanollahzade, M. Khorsand, Fluoride removal from aqueous solutions using shrimp shell waste as a cheap biosorbent, *Fluoride* 47 (2014) 253–257.
- [12] I. Nabipour, S. Dobaradaran, Fluoride and chloride levels in the Bushehr coastal seawater of the Persian Gulf, *Fluoride* 46 (2013) 204–207.
- [13] S. Dobaradaran, A.H. Mahvi, S. Dehdashti, D.R. Abadi, Drinking water fluoride and child dental caries in Dashtestan, Iran, *Fluoride* 41 (2008) 220–226.
- [14] A. Rahmani, K. Rahmani, S. Dobaradaran, A.H. Mahvi, R. Mohamadjani, H. Rahmani, Child dental caries in relation to fluoride and some inorganic constituents in drinking water in Arsanjan, Iran, *Fluoride* 43 (2010) 179–186.
- [15] A. Ostovar, S. Dobaradaran, M. Ravanipour, A.M. Khajeian, Correlation between fluoride level in drinking water and the prevalence of hypertension: an ecological correlation study, *Int. J. Occup. Environ. Med.* 4 (2013) 259–216.
- [16] V. Noroozi Karbasdehi, S. Dobaradaran, A. Esmaili, R. Mirahmadi, F. Faraji Ghasemi, M. Keshtkar, Data on daily fluoride intake based on drinking water consumption prepared by household desalinators working by reverse osmosis process, *Data Brief* 8 (2016) 867–870.