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Data on fluoride contents in groundwater of Bushehr province, Iran

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ABSTRACT

In this article, we measured the levels of fluoride in groundwater. The samples were taken from groundwater in Bushehr's province, Iran. After the collection of samples, the concentration levels of fluoride were determined by the standard SPADNS method using spectrometer. The mean concentration levels of fluoride in water of all stations were higher than the WHO drinking water guideline. Microsoft Office Excel 2016 was used for calculation of mean values. The mean concentration level of fluoride instatement were in the range of 1.52 to 3.64 mg l^{-1}.

Specifications Table

Subject area	*Environment*
More specific subject area	*Fluoride*

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Type of data	*Table, figure*
How data was acquired	*Spectrophotometer*
Data format	*Raw, analyzed*
Experimental factors	*All water samples in polyethylene were stored in a dark place at* room *temperature until the fluoride analysis.*
Experimental features	*Determine the concentration levels of fluoride*
Data source location	*Bushehr province, Iran*
Data accessibility	*Data is available within this article.*

Value of the data

- The maximum and minimum daily intake of fluoride based on 2 l daily water on consumption reached 3.04 and 7.88 mg day^{-1} respectively.
- The data presented here showed the Removal of high concentration of fluoride (F) from drinking water is necessary in this region and measures should be taken to supply water after removal of fluoride for the betterment of the livelihood in the area.
- Data shown here may serve as benchmarks for other groups working or studying in the field of pollution control, aquatic ecosystem.

1. Data

In the data, as shown in Table 1, the mean ± SD concentration levels of fluoride in groundwater samples in all station samples were 2.08 ± 0.7 mg l^{-1}. The lowest and highest F concentration levels were 1.52 mg l^{-1} and 3.94 mg l^{-1} in samples S_{19} (Kangan) and S_4 (Tange eram) respectively. As shown in Table 2, the concentration levels of fluoride in water of all stations were higher than the WHO and USA, UK, Canada drinking water guidelines for fluoride. As seen Table 1, it shows that the mean value daily intakes of fluoride based on 2 l daily drinking water consumption reach 0.36 mg $day^{-1}$with a range of 0–0.96 mg day^{-1}.

2. Experimental design, materials and methods

2.1. Study area description

Nine town in Bushehr province, Iran were selected as sampling points including Anarestan, Bushkan, Tange eram, Khormouj, Dayyer, Shonbe, Kaki, Kalame and Kangan (Fig. 1).

2.2. Sample collection and analytical procedures

Water samples were collected by using 200 mL polyethylene bottles that were washed three times with deionized water; prior to collecting each sample, and then bottles were labeled with the sample number and location for identification. All samples were stored in a dark place at room temperature until analysis. After that, for the fluoride analyses, the SPADNS colorimetric method was used with a spectrometer [4–12]. Daily fluoride intakes were calculated based on 2 l daily drinking water consumption and concentration levels of fluoride in waters. Microsoft Office Excel 2016 was used for calculation of mean values.

Table 1
Concentrations of fluoride (mg l^{-1}) in groundwater samples of measured stations (maximum values are expressed as bold italics; minimum values as bold underlined).

Station	**Location**	**Fluoride concentration (mg l^{-1})**	**Daily intake (mg day^{-1})**	**X**	**Y**
S_1	Anarestan	2.1	4.2	605,849	3,101,575
S_2	Bushkan	3.18	6.36	569,098	3,189,677
S_3	Tange eram	3.66	7.32	550,690	3,225,304
S_4	Tange eram	*3.94*	*7.88*	550,744	3,252,570
S_5	Khormooj	1.83	3.66	537,788	3,168,812
S_6	Khormooj	1.76	3.52	538,788	3,169,065
S_7	Khormooj	2.44	4.88	538,661	3,169,531
S_8	Khormooj	2.44	4.88	540,084	3,173,759
S_9	Khormooj	1.71	3.42	538,650	3,169,533
S_{10}	Dayyer	1.54	3.08	595,733	3,088,740
S_{11}	Shonbe	1.84	3.68	575,367	3,141,132
S_{12}	Shonbe	1.72	3.44	575,297	3,141,223
S_{13}	Kaki	1.63	3.26	552,561	3,136,027
S_{14}	Kaki	1.61	3.22	552,876	3,136,136
S_{15}	Kaki	1.62	3.24	552,719	3,135,654
S_{16}	Kaki	1.63	3.26	552,845	3,135,284
S_{17}	Kalame	1.72	3.44	546,346	3,197,877
S_{18}	Kangan	1.53	3.06	601,058	3,084,484
S_{19}	Kangan	**1.52**	**3.04**	604,915	3,080,492
S_{20}	Kangan	1.62	3.24	602,845	3,087,254
S_{21}	Kangan	2.74	5.48	604,010	3,081,587
Mean ± SD		**2.08 ± 0.7**	**4.16 ± 1.4**		
Median		**1.72**	**3.44**		

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

Table 2
Different drinking water quality guidelines for fluoride.

Drinking water quality guidelines	**Fluoride (mg l^{-1})**	**Reference**
WHO	0.5–1.5	[1]
USA	0.7–1.2	[2]
Canada	0.8–1.0	[3]
UK	0.3–0.7	[3]

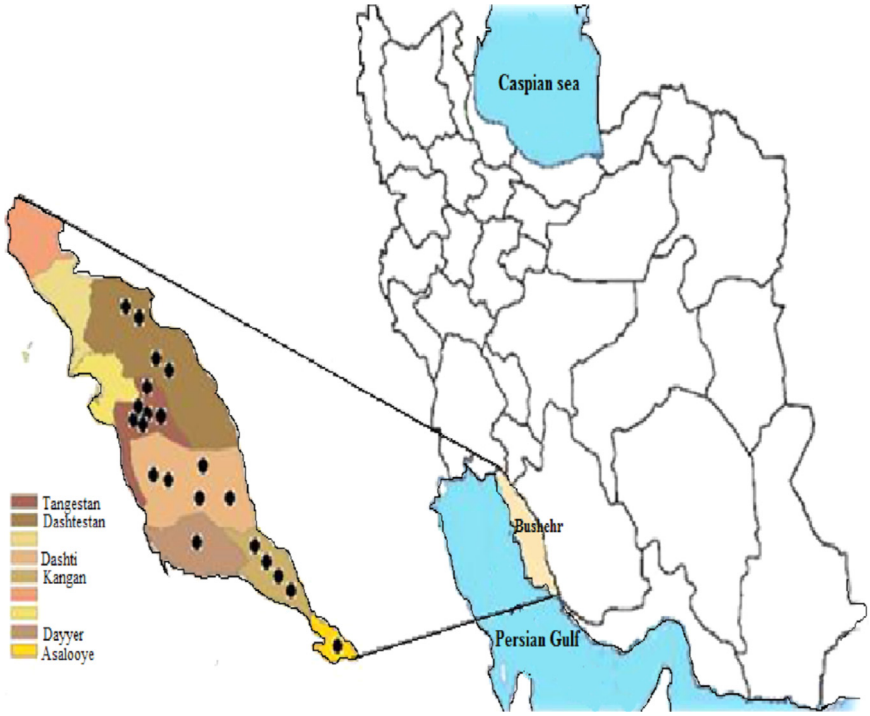

Fig. 1. Locations of groundwater sample stations.

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Transparency document. Supporting information

Transparency data associated with this article can be found in the online version at https://doi.org/10.1016/j.dib.2018.02.016.

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