



ELSEVIER

Contents lists available at ScienceDirect

## Data in Brief

journal homepage: [www.elsevier.com/locate/dib](http://www.elsevier.com/locate/dib)

## Data Article

# Data on daily fluoride intake based on drinking water consumption prepared by household desalinators working by reverse osmosis process



Vahid Noroozi Karbasdehi <sup>a</sup>, Sina Dobaradaran <sup>a,b,c,\*</sup>,  
Abdolhamid Esmaili <sup>b</sup>, Roghayeh Mirahmadi <sup>a</sup>,  
Fatemeh Faraji Ghasemi <sup>a</sup>, Mozghan Keshtkar <sup>a</sup>

<sup>a</sup> Department of Environmental Health Engineering, Faculty of Health, Bushehr University of Medical Sciences, Bushehr, Iran

<sup>b</sup> The Persian Gulf Marine Biotechnology Research Center, The Persian Gulf Biomedical Sciences Research Institute, Bushehr University of Medical Sciences, Bushehr, Iran

<sup>c</sup> Systems Environmental Health, Oil, Gas and Energy Research Center, The Persian Gulf Biomedical Sciences Research Institute, Bushehr University of Medical Sciences, Bushehr, Iran

## ARTICLE INFO

## Article history:

Received 13 April 2016

Received in revised form

18 June 2016

Accepted 27 June 2016

Available online 2 July 2016

## Keywords:

Bushehr

Daily fluoride intake

Household desalinators

Reverse osmosis

## ABSTRACT

In this data article, we evaluated the daily fluoride contents in 20 household desalinators working by reverse osmosis (RO)<sup>1</sup> process in Bushehr, Iran. The concentration levels of fluoride in inlet and outlet waters were determined by the standard SPADNS method using a spectrophotometer (M501 Single Beam Scanning UV/VIS, UK). The fluoride content in outlet waters were compared with EPA and WHO guidelines for drinking water.

© 2016 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

## Specifications Table

Subject area	Chemistry
More specific subject area	Daily fluoride intake

\* Corresponding author at: The Persian Gulf Marine Biotechnology Research Center, Boostan 19 Alley, Imam Khomeini Street, Bushehr, Iran. Fax: +98 7514763448

E-mail address: [s.dobaradaran@bpums.ac.ir](mailto:s.dobaradaran@bpums.ac.ir) (S. Dobaradaran).

<sup>1</sup> Reverse Osmosis.

Type of data	Table
How data was acquired	Spectrophotometer (M501 Single Beam Scanning UV/VIS, UK)
Data format	Raw, analyzed
Experimental factors	All water samples in plastic bottles were stored in a dark place at room temperature in their plastic containers until the fluoride analysis.
Experimental features	Evaluate the fluoride content in inlet and outlet water of household desalinators working by RO process
Data source location	Bushehr, Iran
Data accessibility	Data is with this article.

### Value of the data

- Data can be used as a base-line data for the fluoride content in drinking water prepared by household desalinators.
- Data shown here will be informative in computing fluoride daily intake by drinking water as well as food consumption.
- Data shown here can be useful for health policy makers by assigning prevention measures against adverse health effects of fluoride with considering fluoride intake by different sources.

**Table 1**

Mean concentration levels of fluoride (mg/l) in inlet and outlet waters, removal percentage of fluoride by household desalinators, comparison with EPA and WHO guidelines for drinking water, and daily fluoride intakes.

Different areas	Inlet	Outlet	Removal rate (%)	Daily intake (mg/day)
Bagh Zahra	0.61	0.41	32.8	0.82
Helali	0.45	0	100	0
Shekari	0.63	0.31	50.8	0.62
Khajeha	0.49	0	100	0
Bahonar	0.51	0.07	86.3	0.14
Solh-Abad	0.50	0.06	88	0.12
Sartol	0.60	0.08	86.7	0.16
Jabri	0.47	0.42	10.7	0.84
Rishehr	0.51	0.16	68.6	0.32
Sangi	0.45	0	100	0
Jofreh	0.39	0.44	11.37	0.88
Modares	0.38	0	100	0
City center	0.47	0.48	2.1	0.96
Davas	0.53	0.41	22.7	0.82
Ashouri	0.45	0	100	0
Emam Reza	0.57	0.31	45.6	0.62
Sabz Abad	0.37	0.34	8.1	0.68
Tangak	0.33	0.03	90.1	0.06
Bandargah	0.32	0.03	90.6	0.06
Bahmani	0.33	0.07	78.8	0.14
Minimum value	0.32	0	2.1	0
Maximum value	0.63	0.48	100	0.96
Mean value	0.47	0.18	63.7	0.36
Std. deviation	0.092	0.178	36.6	0.37
EPA standard	–	2	–	–
WHO standard	–	1.5	–	–

Based on 2 liters daily drinking water consumption and concentration levels of fluoride in outlet waters.

## 1. Data

In the data, as shown in Table 1, the mean concentration levels of fluoride in inlet and outlet waters were 0.47 and 0.18 with a range of 0.32–0.63 and 0–0.47 mg/l respectively. The mean removal percent of fluoride by household desalinators was 63.7 with a range of 2.1–100%. As seen in Table 1, it shows that the mean value daily intakes of fluoride based on 2 liters daily drinking water consumption [1] reached 0.36 mg/day with a range of 0–0.96 mg/day.

## 2. Experimental design, materials and methods

This cross-sectional descriptive study was carried out using random sampling (In different areas of Bushehr). Samples were taken from inlet and outlet waters of household desalinators working by RO process between February and March 2016. A total number of 40 samples (Inlet and outlet waters) were taken from 20 household desalinators and analyzed for fluoride contents. For sampling, we used plastic containers. All bottles were stored in a dark place at room temperature until the fluoride analysis was made by the standard SPADNS method [2–15] using a Spectrophotometer (M501 Single Beam Scanning UV/VIS, UK). The fluoride amounts of inlet and outlet waters were compared with EPA and WHO guidelines for drinking water. Finally daily fluoride intakes were calculated based on 2 liters daily drinking water consumption and concentration levels of fluoride in outlet waters.

## Acknowledgements

The authors are grateful to the Bushehr University of Medical Sciences (Grant no. 1974) for their financial support and the laboratory staff of the Environmental Health Engineering Department for their cooperation. The funder had no role in study design, data collection and analysis, or preparation of the manuscript.

## Transparency document. Supporting information

Transparency data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.dib.2016.06.048>.

## 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 (2012) 138.
- [4] M. Shams, M. Qasemi, S. Dobaradaran, A.H. Mahvi, Evaluation of waste aluminum filing in removal of fluoride from aqueous solution, *Fresenius 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, *Fresenius 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.* (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. Barafrahshtehpour, 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 (2009) 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.