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Data Article

# Microbiological dataset of rural drinking water supplies in Zahedan, Iran

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ABSTRACT

The residual chlorine and microbial quality of drinking water in the Zahedan villages by a number of1221 samples from all 168 villages were collected between 2014–2015. Then the samples were evaluated using 9-tube fermentation methods and portable chlorine method test. Based on the microbial coliform and fecal coliform indices, the data indicated that the maximum and minimum controlling of the bacteria in the distribution network were in the winter (90.62%) and autumn (85.56%), respectively. Also in the reservoirs, the maximum and minimum controlling of the bacteria were in winter (93.49%) and autumn (87.35%), respectively. The residual chlorine was prepared in almost all of seasons.


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**Specifications Table**

| | |
|---|---|
| Subject area | Water microbiology |
| More specific subject area | Microbiology |
| Type of data | Tables, Figure |
| How data was acquired | Data was collected between 2014–2015, 1221 microbial samples were prepared from the water facilities installed in these villages, and the microbial test was performed by MPN, P-A or MF methods and turbidity, temperature, and HPC tests based on the standard method. |
| Data format | Raw, Analyzed |
| Experimental factors | The mentioned parameters were analyzed according to the standards for water and wastewater treatment handbook. |
| Experimental features | The levels *of* microbial parameters were determined. |
| Data source location | Zahedan, Sistan and Baluchistan province, Iran |
| Data accessibility | The data are available whit this article |
| Related research article | Yousefi et al. [5] |

**Value of the data**

- The water microbial controlling is very important for prepared the safe drinking water.
- The data are shown that the microbial water quality commonly prepared in Zahedan, Iran and they have consumed safe water.
- The reason for the higher percentage of desirable chlorine in the city of Zahedan in summer is that in the warm seasons, up to 1 mg/l of primary chlorine is due to the prevention of the prevalence of waterborne diseases.
- The data are indicated that the operator must more considerate to chlorination of drinking water in autumn season rather than other seasons.
- Is the data recommended to the reservoir and distribution of drinking water system need to be improving in the chlorination time.

## 1. Data

The residual chlorine and microbial quality of drinking water in the Zahedan villages by a number of1221 samples from all 168 villages were collected (Table 1) .Table 2 shows that the The Chlorometric data of drinking water resources of Zahedan villages, Table 3 shows that The Turbidity data in drinking water sources of Zahedan villages. Data indicated that the maximum and minimum controlling of the bacteria in the distribution network were in the winter and autumn respectively (Table 4). Also in the reservoirs, the maximum and minimum controlling of the bacteria were in winter and autumn respectively (Table 4). And Table 5 shows that the data of HPC microbial population count in reservoirs of Zahedan villages, Table 6 Comparison of desirable microbial index and free chlorine.

**Table 1**
The microbial data of drinking water resources of Zahedan villages.

| Season | Number of villages covered | Number of Turbidity tests | Number of chlorometric tests | Number of microbial tests | Number of HPC tests | Number of temperature tests |
|---|---|---|---|---|---|---|
| Spring | 168 | 320 | 36,207 | 296 | 75 | 320 |
| Summer | 168 | 370 | 37,046 | 339 | 90 | 370 |
| Fall | 168 | 340 | 36,870 | 303 | 90 | 340 |
| Winter | 168 | 310 | 36,440 | 283 | 100 | 310 |

**Table 2**
The Chlorometric data of drinking water resources of Zahedan villages.

| Season | Total number of chlorometric tests | Desirable percentage |
|---|---|---|
| Spring | 36,207 | 97.4 |
| Summer | 37,046 | 92 |
| Fall | 36,870 | 96.68 |
| Winter | 36,440 | 99.29 |
| Total | 146,563 | 96.34 |

**Table 3**
The Turbidity data in drinking water sources of Zahedan villages.

| Season | Total number of tests | > 1NTU | 1-5,NTU | 5 < NTU | Desirable percentage from a health perspective | Desirable percentage from an aesthetic |
|---|---|---|---|---|---|---|
| Spring | 320 | 280 | 32 | 8 | 87.5 | 97.5 |
| Summer | 370 | 317 | 41 | 12 | 85.6 | 96.75 |
| Fall | 340 | 290 | 36 | 14 | 85.27 | 95.5 |
| Winter | 310 | 275 | 29 | 6 | 88.7 | 98 |
| Total | 1340 | 1162 | 138 | 40 | – | – |

**Table 4**
The microbial data of distribution network of Zahedan villages.

| **Season** | Microbiological test of network | | | | | Microbiological test of reservoirs | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total number | Clean number | Coliform | Fecal coliform | Desirable percentage | Total number | Clean number | Coliform | Fecal coliform | Desirable percentage |
| Spring | 204 | 180 | 21 | 3 | 88.23 | 92 | 84 | 6 | 2 | 91.3 |
| Summer | 236 | 206 | 27 | 3 | 87.28 | 103 | 93 | 8 | 2 | 90.29 |
| Fall | 216 | 185 | 26 | 5 | 85.56 | 87 | 76 | 8 | 3 | 87.35 |
| Winter | 160 | 145 | 13 | 2 | 90.62 | 123 | 115 | 7 | 1 | 93.49 |
| Total | 816 | 716 | 87 | 13 | – | 405 | 368 | 29 | 8 | – |

**Table 5**
The data of HPC microbial population count in reservoirs of Zahedan villages.

| Season | Number | ≤ 100 | > 100- ≤ 200 | > 200- ≤ 250 | > 250- ≤ 500 | > 500 | Mean | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| Spring | 75 | 54 | 12 | 9 | – | – | 76.72 | < 1 | 237 |
| Summer | 100 | 77 | 13 | 8 | 2 | – | 87.36 | < 1 | 329 |
| Fall | 90 | 69 | 10 | 8 | 2 | 1 | 95.72 | < 1 | 623 |
| Winter | 100 | 90 | 5 | 5 | – | – | 70.49 | < 1 | 226 |

**Table 6**
Comparison of desirable microbial index and free chlorine.

| Season | The desirability of chlorine | The desirability of microbial |
|---|---|---|
| Spring | 99.24 | 98.31 |
| Summer | 99.45 | 98.52 |
| Fall | 99.4 | 97.35 |
| Winter | 99.31 | 98.93 |
| Mean | 99.35 | 98.27 |

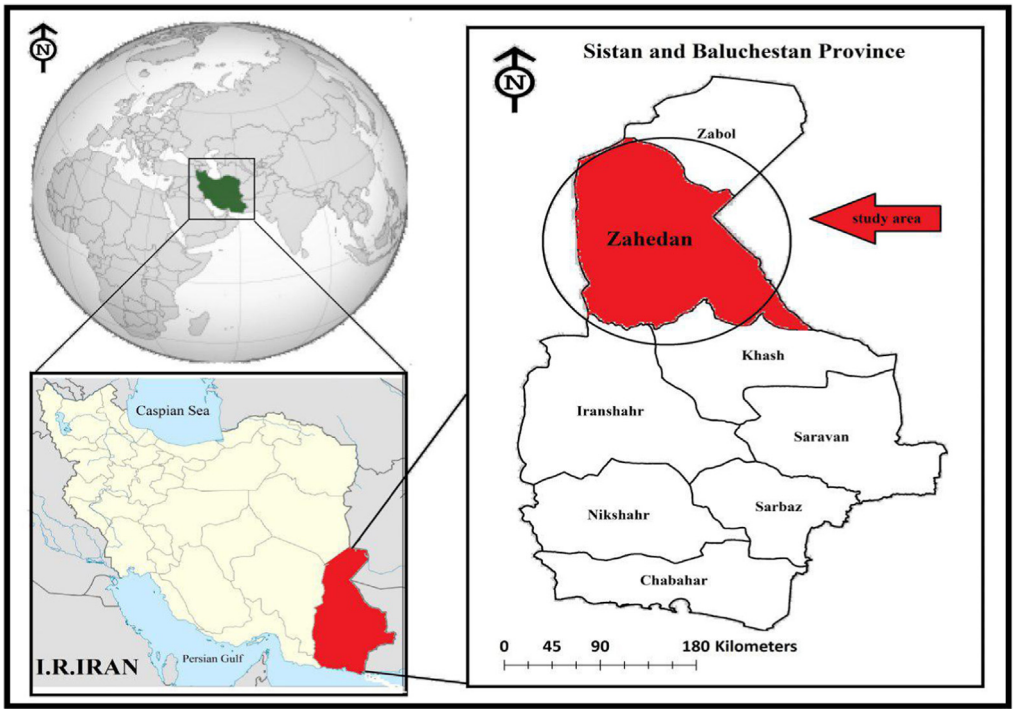


**Fig. 1.** Geographical map of the site study.

## 2. Experimental design, materials and methods

### 2.1. Study area description

Zahedan city is located in Sistan and Baluchistan province of Iran encompassing an area of about 55.7 $km^2$ (Fig. 1) and its aquifers are located in South-East Iran between the latitudes 29° 30′ 45″ N and longitudes 60° 51′ 25″ E [1,2]. The subjected study area is a semi-flat plain region with a gentle slope toward the south has a warm, temperate climate with an annual average of 18.3 °C in which the highest and lowest temperatures are 42.5 °C and −12.6 °C, respectively [3,4].

### 2.2. Determination of microbial contamination in drinking water

In order to evaluate the microbial quality of drinking water in villages of Zahedan city, 168 villages were selected as a comprehensive sample of all villages in this city. Between 2014–2015, 1221 microbial samples were prepared from the water facilities installed in these villages, and the microbial test was performed by MPN, P-A or MF methods and turbidity, temperature, and HPC tests based on the standard method [5–17].

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## 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.2018.08.049.

## References


[1] A. Abbasnia, N. Yousefi, A.H. Mahvi, R. Nabizadeh, M. Radfard, M. Yousefi, M. Alimohammadi, Evaluation of groundwater quality using water quality index and its suitability for assessing water for drinking and irrigation purposes; case study of Sistan and Baluchistan province (Iran), Hum. Ecol. Risk Assess.: Int. J. (2018), https://doi.org/10.1080/10807039.2018.1458596.

[2] M. Radfard, M. Yunesian, R. Nabizadeh Nodehi, H. Biglari, M. Hadi, N. Yosefi, M. Yousefi, A. Abbasnia, A.H. Mahvi, Drinking water quality and arsenic health risk assessment in Sistan-and-Baluchestan, Southeastern province Iran, Hum. Ecol. Risk Assess.: Int. J. (2018), https://doi.org/10.1080/10807039.2018.1458210.

[3] M. Mirzabeygi, A. Abbasnia, M. Yunesian, R.N. Nodehi, N. Yousefi, M. Hadi, et al., Heavy metal contamination and health risk assessment in drinking water of Sistan and Baluchistan, Southeastern Iran, Hum. Ecol. Risk Assess.: Int. J. 23 (2017) 1893–1905.

[4] A. Abbasnia, M. Alimohammadi, A.H. Mahvi, R. Nabizadeh, M. Yousefi, A.A. Mohammadi, H. Pasalari, H. ,M. Mirzabeigi, , Assessment of groundwater quality and evaluation of scaling and corrosiveness potential of drinking water samples in villages of Chabahr city, Sistan and Baluchistan province in Iran, Data Brief 16 (2018) 182–192.

[5] M. Yousefi, H. Najafi Saleh, M. Yaseri, A.H. Mahvi, H. Soleimani, Z. Saeedi, S. Zohdi, A.A. Mohammadi, Data on microbiological quality assessment of rural drinking water supplies in Poldasht County, Data Brief 17 (2018) 763–769.

[6] F.B. Asghari, J. Jaafari, M. Yousefi, A.A. Mohammadi, R. Dehghanzadeh, Evaluation of water corrosion, scaling extent and heterotrophic plate count bacteria in asbestos and polyethylene pipes in drinking water distribution system, Hum. Ecol. Risk Assess.: Int. J. 24 (2018) 1138–1149.

[7] M. Mirzabeygi, N. Yousefi, A. Abbasnia, H. Youzi, M. Alikhani, A.H. Mahvi, Evaluation of groundwater quality and assessment of scaling potential and corrosiveness of water supply networks, Iran, J. Water Supply: Res. Technol.-Aqua jws2 (2017).

[8] M. Yousefi, M. Ghoochani, A.H. Mahvi, Health risk assessment to fluoride in drinking water of rural residents living in the Poldasht city, Northwest of Iran, Ecotoxicol. Environ. Saf. 148 (2018) 426–430.

[9] H. Soleimani, A. Abbasnia, M. Yousefi, A.A. Mohammadi, F.C. Khorasgani, Data on assessment of groundwater quality for drinking and irrigation in rural area Sarpol-e Zahab city, Kermanshah province, Iran, Data Brief 17 (2018) 148–156.

[10] M. Yousefi, H. Najafi Saleh, A.A. Mohammad, A.H. Mahvi, M. Ghadrpoori, H. Suleimani, Data on water quality index for the groundwater in rural area Neyshabur County, Razavi province, Iran, Data Brief 15 (2017) 901–907.

[11] M. Yousefi, M. Yaseri, R. Nabizadeh, E. Hooshmand, M. Jalilzadeh, A.H. Mahvi, A.A. Mohammadi, Association of hypertension, body mass index and waist circumference with fluoride intake; water drinking in residents of fluoride endemic areas, Iran, Biol. Trace Elem. Res. (2018).

[12] H.N. Saleh, M.H. Dehghani, R. Nabizadeh, A.H. Mahvi, F. Hossein, M. Ghaderpoori, et al., Data on the acid black 1 dye adsorbtion from aqueous solutions by low-cost adsorbent-Cerastoderma lamarcki shell collected from the northern coast of Caspian Sea, Data Brief 2018 (17) (2018) 774–780.

[13] A.A. Mohammadi, H. Najafi Saleh, A.H. Mahvi, M. Alimohammadi, R. Nabizadeh, M. Yousefi, Data on corrosion and scaling potential of drinking water resources using stability indices in Jolfa, East Azerbaijan, Iran. Data Brief 16 (2018) 724–731.

[14] M. Yousefi, M.H. Dehghani, S.M. Nasab, V. Taghavimanesh, S. Nazmara, A.A. Mohammadi, Data on trend changes of drinking groundwater resources quality: a case study in Abhar, Data Brief 17 (2018) 424–430.

[15] F.B. Asghari, A.A. Mohammadi, M.H. Dehghani, Data on assessment of groundwater quality with application of ArcGIS in Zanjan, Iran, **D**ata Brief 18 (2018) **3**75–379.

[16] M. Yousefi, A.A. Mohammadi, M. Yaseri, A.H. Mahvi, Epidemiology of drinking water fluoride and its contribution to fertility, infertility, and abortion: an ecological study in West Azerbaijan Province, Poldasht County, Iran, Fluoride 50 (2017) 343–353.

[17] A.A. Mohammadi, M. Yousefi, M. Yaseri, M. Jalilzadeh, A.H. Mahvi, Skeletal fluorosis in relation to drinking water in rural areas of West Azerbaijan, Iran, Sci. Rep. 7 (2017) 17300.