



IF: 1.634

Asian Pacific Journal of Tropical Medicine

journal homepage: www.apjtm.org



doi: 10.4103/1995-7645.243106

©2018 by the Asian Pacific Journal of Tropical Medicine. All rights reserved.

Correlation between quality of drinking water sources and meteorological factors in 2013–2017, Haikou, South China

Gao-yao Hu¹, Feng Liang¹, Ji-zhen Wu¹, Hui Kuang², Zhi-ming Zhang², Wen-fang Long^{1,✉}

¹School of Public Health, Hainan Medical University, NO.3 Xueyuan Road, Longhua District, Haikou, 571199 China

²Haikou Center for Disease Control and Prevention, Haikou China

ABSTRACT Objective: With the increasing attention to health influence by ecology environment and climate changes, it is important to explore the characters of drinking water quality and meteorological factors at tropical areas of South China. This study aims to study the water quality of municipal source water and to elucidate the relationship between water quality changes and climatic factors at Haikou. **Methods:** By analyzing the data of water quality indexes of source water in the past five years from July 2013 to April 2017, the representative indexes as following were analyzed: Fecal coliforms (FC), ammonia nitrogen (NH₄⁺), Nitrate(NO₃⁻), iron(Fe), permanganate Index(COD_{Mn}), fluoride(F), arsenic(As), chloride (Cl⁻). The methods of normal test, rank test and rank correlation were used to explore the water quality and the influence by precipitation, temperature and sunshine. **Results:** Only the COD_{Mn} was normal distribution for the above indexes. For the five years, Mean of FC was of 110 MPN/L, NH₄⁺ was 0.18 mg/L, Fe was 1.07 mg/L, COD_{Mn} was 1.67 mg/L, F was 0.14 mg/L, As was 0.0020 mg/L, NO₃⁻ was 1.12 mg/L, Cl⁻ was 7.10mg/L. By the rank correlation test, COD_{Mn}, NH₄⁺ and Fe was positive correlated with temperature, it was respectively ($r=0.483$, $P=0.049$), ($r=0.310$, $P=0.045$), ($r=0.423$, $P=0.039$). There is negative correlation for nitrate and chloride between temperature, it is respectively ($r=-0.577$, $P=0.003$) ($r=-0.317$, $P=0.042$); the indicators are not related to other two climatic factors. **Conclusion:** The source water has a higher concentration of iron. The temperature is an important factor that affects the local source water quality of Haikou. It is necessary to strengthen removing COD_{Mn}, NH₄⁺ and Fe at the torrid period for drinking.

Keywords: Water quality indexes; Municipal water source; Climatic factors

Article history:

Received 10 September 2018

Received in revised form 16 September 2018

Accepted 23 September 2018

Available online 15 October 2018

First author: Gaoyao Hu, School of Public Health, Hainan Medical University, NO.3 Xueyuan Road, Longhua District, Haikou, China 571199.

✉Corresponding author: Wen-fang Long, School of Public Health, Hainan Medical University, NO.3 Xueyuan Road, Longhua District, Haikou, China, 571199.

E-mail: hnsea2013@126.com

Foundation project: This work was supported by National Natural Science Foundation of China (grant No. 81460487) and Science Foundation of Hainan province(grant No. 813200).

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-Share Alike 3.0 License, which allows others to remix, tweak and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

©2018 Asian Pacific Journal of Tropical Medicine Produced by Wolters Kluwer- Medknow

How to cite this article: Hu GY, Ling F, Wu JZ, Kuang H, Zhang ZM, Long WF. Correlation between quality of drinking water sources and meteorological factors in 2013-2017, Haikou, South China. Asian Pac J Trop Med 2018; 11(10 suppl):38.