Desalination and Water Treatment
www.deswater.com

6 (2009) 1–4
June

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doi: 10.5004/dwt.2009.498

Characterization of NOM and THM formation potential in reservoir source water

Zhi-sheng Liu[a]*, Jun Yin[b], Li Liu[c], Yu-juan Yu[b]

[a]*School of Municipal and Environmental Engineering, Harbin Institute of Technology, 202 Haihe Road, Harbin 150090, PR China*
Tel. 0451-86282104; Fax: 0451-86282100; 86283006; email: lzs008@sohu.com
[b]*Department of Environmental Engineering, Jilin Architectural and Civil Engineering Institute, 1129 Hongqi Street, Changchun 130021, PR China*
[c]*Changchun Water (Group) Co., Ltd., 919 Dajing Road, Changchun 130041, PR China*

Received 30 July 2007; Accepted 14 September 2007

ABSTRACT

Resin adsorption technique with XAD-8 and XAD-4 was used to characterize the raw water from the Erlong reservoir in Jilin province, China. The NOM chemical composition sequences of the four organic fractions in the raw water, from high to low, are fulvic acid (FA) fraction, hydrophilic non-acid (HPINA) fraction, hydrophilic acid fraction(HPIA) fraction, and humic acid (HA) fraction. The experimental results show that FA is the main precursor of THMFP among the four organic fractions. However, HA or hydrophobic acid exhibits the highest chlorination activity in forming THMs. It is also found that the value of FI/DOC or SUVA and the specific THMFP have better positive correlation. Compared with former results, a part of these findings are different from some reports. It is implied that certain source water has a unique nature of NOM and DBPs.

Keywords: Natural organic matter; Disinfection by-products; THMFP; Chlorination activity; Fraction

* Corresponding author.

Presented at IWA Efficient 2007, May 20–23, 2007, Jeju, Korea.