

zazoli49@yahoo.com:

// : // :

(Disinfection By-Products) (DBPs)

DOC. SUVA DOC EC ()UV₂₅₄ pH
DOC UV₂₅₄ SUVA. TOC UV₂₅₄
/ / / ± / SUVA / ± /

SUVA

(DOC)

(DBPs)

(NOMs)

(DBPs)

.(Krasner et al. 1989)

.(Zazouli et al. 2007a)

(USEPA 1999)		Trihalomethanes (THMs)		Haloacetic Acids (HAAs)	
(DOC)	(TOC)	USEPA	I		
		$\mu\text{g/L}$			
Specific UV Absorbance (SUVA)					$\mu\text{g/L}$
	(Crittenden et al. 2005)	$\mu\text{g/L}$	$\mu\text{g/L}$		
	CO ₂	NOMS			
TOC				DBPS	
		NOMS	(THMs)		NOM
		NOM _S	Crittenden)	(HAAs)	
			DBPs	(et al. 2005)	
DOC	TOC	NOM _S			
TOC					
	(Crittenden et al. 2005)			(Kim and Yu. 2005a)	
/ nm					
			(Huang et al. 2004)		
UV					
DOC					
UV		UV ₂₅₄			
UV	L/mg.m	(SUVA)		(Croue et al. 1993; Owen et al. 1995)	
DOC	(m ⁻¹)				
SUVA		(mg/L)			
(Hydrophilicity)		(Hydrophobicity)			(Karnik et al. 2005)
				(Zazouli et al. 2007a)	
Edzwald)					
		(and Tobiason 1999)			

(Tampere) (Rusko)
TOC

/ mg/l /
/ / UV₂₅₄ .

(Matilainen et al. 2005)

TOC

/ / UV₂₅₄ / mg/L /
TOC %

(Karnik et al. 2005)

(Korea) (Han)

()

TFE-Lined
TOC

HAAs
(Krasner et al. 1996)

THMs

TFE

SUVA UV₂₅₄

°C

pH ≤

DOC EC pH

DOC.

TOC 5310B

TOC-VCSH (Shimadzu)

Sparge with)

(Zero air

Inorganic (IC)

Carbon

/ ± / SUVA

()

()

(CO₂)

()

CO₂

Total Carbon(TC)

UV

.(P> /)

Lambda 25 UV/Vis

spectrophotometer

DOC 1/m UV₂₅₄ (SUVA)
mg/L
(APHP 2000) (L/mg.m)

/

/ /

(One-way ANOVA)

TOC

DOC

(Crittenden et al. 2005)

TOC

)

TOC

(

TOC

(SUVA) UV

(THMFP)

μgTHMFP/mgC

TOC

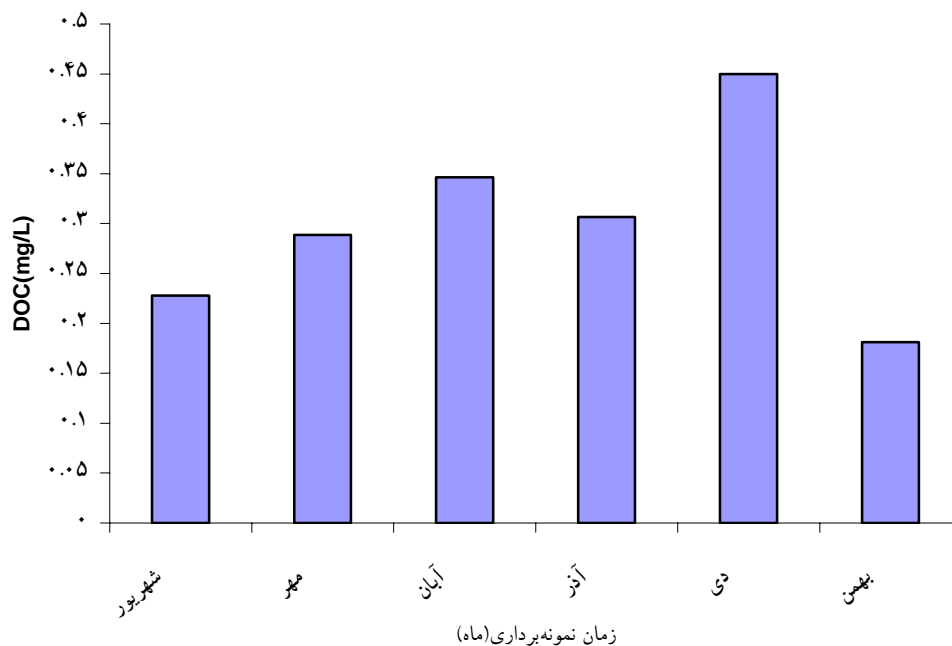
/ /

/ ± /

	$\mu\text{gTHMFP}/\text{mgC}$ (Krasner et al.1996)	TOC (Speitel)
SUVA ₂₅₄	Kim and Yu (2005a)	Kim and Yu (2005b)
HAA ₅	Kim and Yu. 2005a; Kim and Yu. 2005b	(Krasner)
THM ₅		
	$\mu\text{gTHM}/\text{mgDOC}$	$\mu\text{gTHM}/\text{mgDOC}$
		(Krasner et al. 1996)
		(Croue)
	Croue et al. (1993)	$\mu\text{gTHM}/\text{mgDOC}$
		HAA ₅ THMS
()	Kim and Yu (2005a; Panyapiyopol et al. 2005)	
NOMs	TOC	
		(Zazouli et al. 2007b)
		\pm
		(Zazouli et al. 2007b)
	USEPA	
	$\mu\text{g}/\text{L}$	(THMs) EPA
	$\mu\text{g}/\text{L}$	(HAAs)
	$\mu\text{g}/\text{L}$	$\mu\text{g}/\text{L}$

TOC

USEPA



References

- APHA, AWWA, WEF., 2000. Standard Methods for the Examination of Water and Wastewater, 21th Edition, APHA/AWWA/WEF, Washington, DC, USA
- Crittenden, J.C., Rhodes, T.R. and Hand, D.W., Howe, K.J. and Tchobanoglous, G., 2005. Water Treatment: Principles and design. 2nd edition. *John Wiley & Sons Inc.*
- Croue, J.P., Lefebvre, E., Martin, B. and Legube, B., 1993. Removal of dissolved hydrophobic and hydrophilic organic substances during coagulation/flocculation of surface waters. *Water Sci. Technol.* **27** (11), pp. 143–152.
- Edzwald, J.K. and Tobiasson, J.E., 1999. Enhanced Coagulation: US requirements and a broader view. *Water, Science and Technology*, **40**(9), pp. 63-70.
- Huang, WJ., Chen, LY. and Peng, HS., 2004. Effect of NOM characteristics on brominated organics formation by ozonation. *Environment International*. **29**, pp. 1049– 1055.
- Karnik, BS., Davies, SH., Baumann, MJ., and Masten, SJ., 2005. The effects of combined ozonation and filtration on disinfection by-product formation. *Water Research*, **39**, pp. 2839–2850.
- Kim, HC. and Yu, MJ., 2005a. Characterization of natural organic matter in conventional water treatment processes for selection of treatment processes focused on DBPs control. *Water Research*. **39**, 4779–4789.
- Kim, MH., and Yu, MJ., 2005b. Characterization of NOM in the Han River and evaluation of treatability using UF–NF membrane. *Environmental Research*. **97**, pp. 116–123.
- Korshin, GV., Li, CW., and Benjamin, MM., 1997. Monitoring the properties of natural organic matter through UV spectroscopy: a consistent theory, *Water Res.* **31**(7), pp. 1787–1795.
- Krasner, SW., Croué, JP., Buffle, J. and Perdue, EM., 1996. Three Approaches for Characterizing NOM. *Journal of the American Water Works Association*. **88**(6), pp. 66-79.

- Krasner, SW., McGuire, MJ., Jacangelo, JG., Patania, NL., Reagan, KM. and Aieta, EM., 1989. The occurrence of disinfection by-products in US drinking water. *J. Am. Water Works Assoc*, **81**(8), pp. 41–53.
- Matilainen, A., Lindqvist, N., Korhonen, S. and Tuhkanen, T., 2005. Removal of NOM in the different stages of the water treatment process. *Environment International*. **28**, pp. 457–465.
- Owen, D.M., Amy, G.L., Chowdhury, Z.K., Paode, R., McCoy, G. and Viscosil, K., 1995. NOM characterization and treatability. *J Amer Water Works Assoc*. **87**, pp. 46–56.
- Panyapinyopol, B., Marhaba, TF., Kanokkantung, V. and Pavasant, P., 2005. Characterization of precursors to trihalomethanes formation in Bangkok source water. *Journal of Hazardous Materials*. B120, pp. 229–236.
- USEPA., 1999. Enhanced coagulation and enhanced precipitative softening guidance manual , EPA 815- R-99 – 012 , Office of water , washington.D.C.
- Zazouli, MA., Nasser, S., Mahvi, A.H., Mesdaghinia, AR., Younecian, M. and Gholami., 2007a. Survey of Natural Organic Matter fractions in Water Sources of Tehran. *Pakistan Journal of biological sciences*. **10**(10), pp. 1718-1722.
- Zazouli, MA., Nasser, S., Mahvi, AH., Mesdaghinia, AR., Younecian, M., and Gholami., 2007b. Determination of Hydrophobic and Hydrophilic fractions of Natural Organic Matter in Drinking Water Sources of Tehran. *Journal of applied sciences*, **6**(18), pp. 2651-2655.