

No.	Type		Sampling date	Location	DOC (mg·L ⁻¹)	UV ₂₅₄ (cm ⁻¹)	SUVA (L·(mg·m) ⁻¹)	Molecular weight	Hydrophobicity/hydrophilicity	Compositions	Index			Remark	References		
											FI	HIX	BIX				
1	Stormwater runoff/ Rainwater	Stormwater runoff	2022	Guangzhou, China	Mean: 88.6	1.78	2.009	Components of <1k Da predominate	More hydrophilic	More humic acid-like substances	1.82	6.34	0.80	1 sample from business district	This study		
2			2022	Guangzhou, China	Mean: 32.15	0.312	0.97	Components of <1k Da predominate	More hydrophilic	More humic acid-like substances	1.96	3.19	0.98	1 sample from village within a city	This study		
3			2023	Guangzhou, China	Mean: 13.324	0.323	2.424	Components of <1k Da predominate	More hydrophilic	More humic acid-like substances	1.82	4.02	0.96	1 sample from highways	This study		
4			2023	Guangzhou, China	Mean: 12.88	0.125	0.97	Components of <1k Da predominate	More hydrophilic	More humic acid-like substances	1.83	2.67	1.05	1 sample from residential	This study		
5			NA*	Shanghai, China	Range: 7.63 - 88.35	-	Range: 1.83 - 2.36	Molecular weight: campus > traffic > residential	-	Aromatic: residential < traffic < campus	Range: 1.03 - 1.06	Range: 6.66 - 14.02	Range: 0.57 - 0.74	9 samples from traffic	Liao et al., 2021		
6			NA	Shanghai, China	Range: 4.24 - 14.67	-	Range: 0.82 - 1.28		-		Range: 1.13 - 1.21	Range: 2.94 - 4.51	Range: 0.51 - 0.53	9 samples from residential			
7			NA	Shanghai, China	Range: 4.66 - 49.60	-	Range: 1.65 - 2.52		-		Range: 1.03 - 1.07	Range: 5.92 - 10.78	Range: 0.49 - 0.51	9 samples from Campus			
8			Rainwater	Rainwater	2021	Shenzhen, China	Range: 3.62 - 5.48	Around 0.11	2.52	Components of <1k Da predominate	More hydrophilic	More humic acid-like substances	2.03	2.42	1.08	Collected from a very busy arterial road	Lin et al., 2022
9					2021	Shenzhen, China			1.92	Components of <1k Da predominate	More hydrophilic	More humic acid-like substances	1.70	2.87	1.18	Collected from a secondary road with a moderate traffic volume	
10					2021	Shenzhen, China			0.02	0.5	Components of <1k Da predominate	More hydrophilic	More humic acid-like substances	3.72	0.73	1.82	
11					2018 - 2019	Nanjing, China	Range: 1.21 - 6.32 Mean: 2.49	-	Range: 0.91 - 4.44 Mean: 2.52 ±	-	-	More humic-like substances	Range: 1.45 - 1.82	Range: 2.1 - 7.39	Range: 0.50 - 0.87	40 rainwater samples	Li et al., 2020

						0.91									
12		2023	Fujian, China	Mean: 2.87 ± 0.144	Range: 0.0002 ± 0.0003	Range: 0.01 ± 0.0002	The average MW of rainwater: HON < HOB < HOA < HIS	-	More humic-like substances	Range: 0.8 - 2.2	< 0.5	Range: 0.5 - 1.0		Yuan et al., 2024	
13	Drinking water	2021	Jintan, China	Range: 1.3 - 2.9	-	-	The DBPs produced during the disinfection process increased the molecular intensity	-	Both tryptophan-like and tyrosine-like substances	-	-	-		Wang et al., 2023	
14		2012	Shanghai, China	Range: 3 - 7	-	-	Components of <3k Da predominate	-	-	-	-	-	Collected from a DWTP, before chlorination	Wu et al., 2013	
15		2020	Anhui, China	1.89	0.02	0.85	The proportion of low-MW DOM increase continuously within the whole treatment process	Hydrophilic components increased		-	-	-	Collected from 2 DWTPs, before chlorination	Yang et al., 2023	
16		2020	Anhui, China	3.04	0.01	0.39				-	-	-			
17		2015	Shanghai, China	Range: 1.86 - 5.88	Range: 0.09 - 0.043	Range: 0.328 - 1.536	-	-	More soluble microbial byproduct-like substances	Range: 1.33 - 1.46	Range: 0.21 - 0.66	Range: 0.77 - 1.00	Collected from a DWTP in 4 seasons	Shen et al., 2016	
18	Reclaimed water	2020 - 2021	Shenzhen, China	Range: 6.02 - 10.8	Range: 0.07 - 0.12	Range: 1.11 - 1.24	Components of <1k Da predominate	More hydrophobic	More soluble microbial products (SMPs)-like and humic acid-like substances	2.50	1.33	1.30	Receive wastewater from a low population area	Lin et al., 2022	
19		2020 - 2021	Shenzhen, China				2.40	1.83		1.27	Receive wastewater from				
20		2020 - 2021	Shenzhen, China				2.42	1.83		1.36	high-density-population residential and commercial areas				
21	Wastewater	2019	Shenzhen, China	3.52	-	1.76	-	-	More protein-like substances	2.10	2.39	1.02		Ye et al., 2019	
22		2019	Shenzhen, China	10.59	-	1.20	-	-	-	2.13	2.20	1.02			
23		2019	14 cities in	Range:	-	-	Components of <1k	Hydrophilic and	More soluble microbial	-	-	-	14 municipal	Shi et	

			China	18.26 ± 0.81 - 80.30 ± 0.47 (TOC)			and >10k Da predominate	hydrophobic acid predominate	byproduct-like and humic acid-like substances				WWTPs samples	al., 2020	
24	Surface water	River water	2019	Shenzhen, China	Range: 4.0 ± 0.8	-	Range: 1.87 ± 0.16	Anthropogenic DOM had low MW	-	Lower relative abundances for humic-like; significantly higher relative abundances for tyrosine-like and tryptophan-like substances	Range: 2.08 ± 0.03	Range: 2.74 ± 0.59	Range: 1.03 ± 0.02	22 mainstream sites samples	Ye et al., 2019
25			2019	Shenzhen, China	Range: 6.9 ± 6.4	-	Range: 2.00 ± 0.51		-		Range: 1.98 ± 0.14	Range: 2.39 ± 0.59	Range: 0.98 ± 0.08	43 tributary sites samples	
26			2019	Shenzhen, China	Range: 12.0 ± 6.0	-	Range: 1.39 ± 0.41		-		Range: 1.85 ± 0.15	Range: 3.16 ± 0.61	Range: 0.91 ± 0.05	11 pond sites samples	
27			2019	Shenzhen, China	Range: 3.2 ± 1.0	-	Range: 2.01 ± 0.13		-		Range: 1.71 ± 0.06	Range: 3.98 ± 0.66	Range: 0.90 ± 0.01	6 reservoir sites samples	
28			NA	Jiujiang, China	Range: 1.08 - 2.67 Mean: 1.50	-	Range: 3.64 - 9.44 Mean: 7.06	-	-	More fulvic-like substances	Range: 1.82 - 2.14 Mean: 1.96	Range: 2.40 - 3.07 Mean: 2.91	Range: 0.85 - 1.06 Mean: 0.93		Yuan et al., 2023
29			NA	Guangzhou, China	Range: 4 - 48 (TOC)	Range: 0 - 0.52	Range: 0 - 3	-	More hydrophilic	More humic-like, fulvic-like and protein-like substances	-	-	-	The sampling site closes to drinking water supply plant	Zheng et al., 2016
30			2021	Guangdong, China	Range: 221 - 442 Mean: 311 ± 77.5 (µmol/L)	-	-	-	-	More humic-like substances	Mean: 2.5 ± 0.1	Mean: 6.8 ± 3.0	Mean: 0.79 ± 0.08	6 river water samples	Wang et al., 2022
31			NA	Ganjiang River, China	-	-	-	-	More hydrophobic	More humus-like organics and soluble microbial products				The sample was subjected to UF	Feng et al., 2021
32			2015	Tianjin, China	17.46		0.81			More alcohol and amine compounds	2.87	0.34	1.44		Ma et al., 2019
33			Stormwater	NA	Jiujiang,	Range: 1.01 -	-	Range: 5.64 -	Stormwater runoff	-	More tryptophan-like	Range:	Range:	Range:	Water samples

		runoff mixes with river water		China	3.03 Mean: 1.70		12.17 Mean: 7.46	increases the relative molecular mass of river water		substances	1.83 - 2.05 Mean: 1.97	2.08 - 3.34 Mean: 2.54	0.83 -1.09 Mean: 0.97	collected after rainfall	al., 2023
34		Rivers and reservoirs	2008 - 2009	13 locations in China	Range: 0.9 - 4.5	Range: 0.024 - 0.126	Range: 1.5 - 3.5	low molecular weight DOM fractions	High percentage of hydrophilic	-	-	-	-	29 typical source waters	Wang et al., 2013
35		Lake water	NA	Baiyangdian Lake, China	Range: 4.32 - 90.14	-	Range: 0.03 - 1.91	-	-	Increased humic-like and fullerene-like substances	-	-	-	11 samples	Yuan et al., 2020
36		Coastal water	2017	Chongming Island, China	Range: 73 - 125 Mean: 91	-	Most of them >5	-	-	More humic-like substances	-	Range: 2.58 ± 0.11	Range: 0.90 ± 0.05	9 coastal surface water samples	He et al., 2022
37		Seawater	2017	Chongming Island, China	82	-	-	-	-	-	-	-	-		
38	Groundwater		2021	Guangdong, China	Range: 29 - 190 Mean: 93.6 ± 62.3 (µmol/L)	-	-	-	-	More humic-like substances	Mean: 2.9 ± 0.2	Mean: 2.9 ± 2.7	Mean: 1.05 ± 0.15	9 groundwater samples	Wang et al., 2022
39			2015	Tianjin, China	Range: 4.31 - 12.23 Mean: 6.80	-	Range: 0.28 - 1.68	Mainly composed of unstable small molecular components	-	More protein-like and humic-like substances	Range: 2.1 - 2.87	Range: 0.41 - 0.94	Range: 1.14 - 1.39	15 groundwater samples	Ma et al., 2019
40			2017	Chongming Island, China	Range: 61 - 494(µmol/L)			Most of them >5			More humic-like substances	Range: 3.62 ± 1.28	Range: 0.79 ± 0.16	17 submarine groundwater samples	He et al., 2022

*Sampling time was not available in the reference.

References

- Feng G Z, Huang L, Yang Y. Characteristics of dissolved organic matter in surface water and fouling mechanisms during the ultrafiltration. *Desalination and Water Treatment*, 2021, 238: 53-66.
- He T R, Zhang F F, Wang Y L, Chen X G, Du J Z. Characterization of dissolved organic matter in submarine groundwater from a salt marsh in Chongming Island, China. *Journal of Oceanology and Limnology*, 2022, 40(1): 128-141.
- Li S D, Fan R, Luo D, Xue Q G, Li L, Yu X H, Huang T, Yang H, Huang C C. Variation in quantity and quality of rainwater dissolved organic matter (DOM) in a peri-urban region: Implications for the effect of seasonal patterns on DOM fates. *Atmospheric Environment*, 2020, 239: 117769.
- Liao Z L, Chu J Y, Luo C J, Chen H. Revealing the characteristics of dissolved organic matter in urban runoff at three typical regions via optical indices and molecular composition. *Journal of Environmental Sciences*, 2021, 108: 8-21.
- Lin S F, Chu W H, Liu A. Characteristics of dissolved organic matter in two alternative water sources: A comparative study between reclaimed water and stormwater. *Science of the Total Environment*, 2022, 851: 158235.
- Ma Y, Liu Z H, Xi B D, He X S, Li Q L, Qi Y J, Jin M Y, Guo Y. Characteristics of groundwater pollution in a vegetable cultivation area of typical facility agriculture in a developed city. *Ecological Indicators*, 2019, 105: 709-716.
- Shen H, Chen X, Zhang D, Chen H B. Generation of soluble microbial products by bio-activated carbon filter during drinking water advanced treatment and its influence on spectral characteristics. *Science of the Total Environment*, 2016, 569: 1289-1298.
- Shi Y F, Li S N, Wang L Y, Li J C, Shen G C, Wu G, Xu K, Ren H Q, Geng J J. Characteristics of DOM in 14 AAO processes of municipal wastewater treatment plants. *Science of the Total Environment*, 2020, 742: 140654.
- Wang C, Hu X Y, Liu Y L, Jin G Z. Sources, spectral characteristics, and fluxes of dissolved organic matter in coastal groundwater and river water in western Guangdong, China. *Frontiers in Environmental Science*, 2022, 10: 995190.
- Wang D S, Zhao Y M, Xie J K, Chow CWK, van Leeuwen J. Characterizing DOM and removal by enhanced coagulation: A survey with typical Chinese source waters. *Separation and Purification Technology*, 2013, 110: 188-195.
- Wang Y T, Huang Z H, Zhang Q, Guo Y B, Ding M M, Gao L, Zhu X Y, Xu H. Molecular characterization of DOM: A full-scale case study of an advanced DWTP from Jintan, China. *Journal of Water Process Engineering*, 2023, 55: 104130.
- Wu Y F, Zhu G C, Lu X W. Characteristics of DOM and removal of DBPs precursors across O₃-BAC integrated treatment for the micro-polluted raw water of the Huangpu River. *Water*, 2013, 5(4): 1472-1486.
- Yang X, Ding S K, Xiao R, Wang P, Du Z Q, Zhang R H, Chu W H. Identification of key precursors contributing to the formation of CX₃R-type disinfection by-products along the typical full-scale drinking water treatment processes. *Journal of Environmental Sciences*, 2023, 128: 81-92.
- Ye Q H, Zhang Z T, Liu Y C, Wang Y H, Zhang S, He C, Shi Q, Zeng H X, Wang J J. Spectroscopic and molecular-level characteristics of dissolved organic matter in a highly polluted urban river in South China. *Acs Earth and Space Chemistry*, 2019, 3(9): 2033-2044.
- Yuan D H, Zhao Y X, Guo X J, Zhai L X, Wang X Y, Wang J Z, Cui Y Q, He L S, Yan C L, Kou Y Y. Impact of hydrophyte decomposition on the changes and characteristics of dissolved organic matter in lake water. *Ecological Indicators*, 2020, 116: 106482.
- Yuan K T, Wan Q, Chai B B, Lei X H, Kang A Q, Chen J H, Chen X, Shi H W, He L X, Li M. Characterizing the effects of stormwater runoff on dissolved organic matter in an urban river (Jiujiang, Jiangxi province, China) using spectral analysis. *Environmental Science and Pollution Research*, 2023, 30(17): 50649-50660.
- Yuan Y J, Li Q S, Deng J, Ma X Y, Liao X B, Zou J, Li G X, Chen G Y, Dai H L. Rainwater extracting characteristics and its potential impact on DBPs generation: A case study. *Science of the Total Environment*, 2024, 906: 167282.
- Zheng L C, Song Z F, Meng P P, Fang Z Q. Seasonal characterization and identification of dissolved organic matter (DOM) in the Pearl River, China. *Environmental Science and Pollution Research*, 2016, 23(8): 7462-7469.