

# Supplemental Information

## Characterization and variation of dissolved organic matters in composting: a critical review

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### Elaboration

Fig. 1 The raw data for Fig. 1 is collated from Fornes et al., 2012; He et al., 2014a; He et al., 2012; Li et al., 2017; Liu et al., 2020a; Lu et al., 2018; Shen et al., 2015; Wang et al., 2013a; Zhu et al., 2016; Zhu et al., 2018; Zhu et al., 2014.

Fig. 2 The raw data for Fig. 2 is collated from Chen et al., 2017; Guo et al., 2018; He et al., 2011; Li et al., 2014; Song et al., 2015; Wang et al., 2018.

Fig. 3 The original data for Fig. 3 is collated from Yang, et al. 2020; Wang et al. 2018; Song et al., 2015; He et al., 2012; He et al., 2011.

Fig. 4 The original data for Fig. 4 is collated from Chen et al., 2017; He et al., 2011; Shao et al., 2009; Wang et al., 2013a; Wang et al., 2018; Yang et al., 2020.

Fig. 5 The original data for Fig. 5 is collated from He et al., 2013; Lu et al., 2018; Song et al., 2015; Wang et al., 2013a; Wang et al., 2018; Wang et al., 2021; Xi et al., 2012; Yang et al., 2020; Zhu et al., 2020.

**Table S1** Characterizing fluorescent components from compost-derived DOM or DOM's fractions by EEM-PARAFAC

<b>DOM</b>	<b>or</b>	<b>Component 1</b>	<b>Component 2</b>	<b>Component 3</b>	<b>Component 4</b>	<b>Features</b>	<b>Ref.</b>
<b>DOM</b>		<b>(C1)</b>	<b>(C2)</b>	<b>(C3)</b>	<b>(C4)</b>		
<b>fractions</b>							
<b>DOM</b>		Ex/Em = (236, 315)/395	Ex/Em = (255, 359)/441	Ex/Em = (225, 277)/334		Fmax increased in C1 and C2, while decreased in C3 with composting	He et al., 2014
		Fulvic- and humic-like substances	Fulvic- and humic-like substances	Protin-like matter			
<b>MW &lt; 1 kDa</b>		Ex/Em = (220, 280)/372, between protein- and humic-like regions	Ex/Em = (240, 340)/430, terrestrial humic-like substances			Fmax in C1 > Fmax in C2, with statistically significant difference	Wei et al., 2016
<b>1&lt;MW&lt;5 kDa</b>		Ex/Em = (240, 320)/404, humic-like materials	Ex/Em = (260, 360)/458, terrestrial humic-like substances			Fmax in C1 > C2, with statistically significant difference	Wei et al., 2016
<b>MW &gt; 5 kDa</b>		Ex/Em = (240, 340)/420, humic-like materials	Ex/Em = (<200, 260, 380)/474, terrestrial humic-like substances	Ex/Em = (220, 280)/352, protein-like peaks		Fmax in C1 > C2 > C3, with no statistically significant difference between C1 and C2	Wei et al., 2016
<b>DOM and DOM fractions</b>		Ex/Em = (265, 360)/435, humic-like substances	Ex/Em = (235, 320)/405, humic- and fulvic-like substances	Ex/Em = (280, 395)/490, humic-like substances or quinone-like materials	Ex/Em = (225, 400)/495, soluble microbial byproducts-like and tryptophan-like substances	During the entire composting, C1(Fmax) in HA and FA increased; C1(Fmax) in HA and FA persistently increased; C3 (Fmax) in HA increased, with no significant change in FA; C4(Fmax) decreased in HA and FA	Huang et al., 2021
<b>DOM</b>		Ex/Em = (215, 265)/330, Proteinaceous substances	Ex/Em = (260-270)/420-425, humic acid-like substances				Li et al., 2021
<b>DOM</b>		Ex/Em = (240, 315)/410 nm, Fulvic acid-like	Should peak associated to low and high	Ex/Em = (210, 265, 365)/465 nm,	Ex/Em = 245/360 nm), protein-like substances	In the whole composting, C1 increased in fractions	Yang et al., 2017

	materials	excitation wavelength, protein- and humic acid-like substances	humic acid-like substances		< 1 kDa, 1 – 3 kDa and > 5 kDa; C3 increased in fraction < 1 kDa, 1 – 3 kDa, 3 – 5 kDa; C4 completely removed in all fractions; C2 increased in fraction (< 1 kDa), and reduced in fractions (1 – 3 kDa) and (> 5 kDa)	
<b>DOM</b>	Ex/Em = (224, 276)/338 nm, tryptophan-like materials	Ex/Em = (216, 239, 286, 318)/404 nm, short-wavelength humic acid- or fulvic acid-like materials	Ex/Em = (207, 265, 360)/459 nm, Long wavelength humic acid-like materials	Ex/Em = (222, 274)/305 nm, tyrosine-like materials	C1 and C4 decreased, but C2 and C3 increased in the whole composting	Song et al., 2015
<b>DOM-PA</b>	Ex/Em = (225, 280)/330 nm, tryptophan-like materials	Ex/Em = 265/410 nm, fulvic acid-like materials, short-wavelength humic acid-like compounds	Ex/Em = 245/450 nm, terrestrial humic acid-like compounds	Ex/Em = (270, 365)/460 nm, long-wavelength humic acid-like compounds	C1 significantly reduced, C3 and C4 increased throughout the whole composting	Chen et al., 2017
<b>DOM-PNA</b>	Ex/Em = (215, 275)/310 nm, tryptophan-like materials	Ex/Em = (225, 280)/340 nm, Mixed microbial products and humic acid-like materials	Ex/Em = (240, 320)/420 nm, terrestrial humic acid-like compounds	Ex/Em = (270, 360)/480 nm, long-wavelength humic acid-like compounds	C1 significantly reduced, C3 and C4 increased throughout the whole composting	Chen et al., 2017
<b>DOM</b>	Ex/Em = (230, 320)/395, Fulvic acid- and humic-acid-like fractions	Ex/Em = (270, 360)/450, humic acid-like compounds	Ex/Em = (225, 275)/340, soluble microbial byproducts-like and tryptophan components	Ex/Em = (215, 270)/300, tyrosine-like fractions	In HTC, C1 and C2 significantly increased, but C3 and C4 essentially reduced in the entire composting	Yu et al., 2019
	Ex/Em = (215, 215)/410, humic acid-like compounds	Ex/Em = (225, 275)/335, tryptophan- and soluble microbial byproducts-like substances	Ex/Em = (225, 360)/440, humic acid-like compounds	Ex/Em = (235, 310)/395, fulvic acid-like compounds	C1 and C3 increased while C2 significantly reduced during the composting.; C4 kept constant	Yuan et al., 2018

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