



Title	Mechanism of the toxicity induced by natural humic acid on human vascular endothelial cells
Author(s)	Kihara, Yusuke; Yustiawati; Tanaka, Masato et al.
Citation	Environmental Toxicology, 29(8), 916-925 https://doi.org/10.1002/tox.21819
Issue Date	2014-08
Doc URL	https://hdl.handle.net/2115/53585
Rights	This is the pre-peer reviewed version of the following article: Kihara, Y., Yustiawati, , Tanaka, M., Gumiri, S., Ardianor, , Hosokawa, T., Tanaka, S., Saito, T. and Kurasaki, M. (2014), Mechanism of the toxicity induced by natural humic acid on human vascular endothelial cells. Environ. Toxicol, 29: 916-925., which has been published in final form at https://doi.org/10.1002/tox.21819 .
Type	journal article
File Information	Table 2.pdf, 表2



TABLE II. Elemental composition of HAs normalized to 100% of organic components and functional group analysis of HAs

Type	Site	Date	Elemental analysis					Functional group analysis			
			C	H	N	O	Total acid	Carb oxyl	Phenol	Carb onyl	
			[%]					[mmol/g]			
Soil	NF	Dec	2009	52.04	4.74	1.78	41.44	7.18	3.76	3.42	2.2
Soil	NF	Aug	2010	54.83	4.68	1.79	38.70	-	-	-	-
Soil	CF	Dec	2009	52.31	4.83	1.77	41.09	7.54	4.39	3.15	4.4
Soil	CD	Dec	2009	55.98	4.21	0.97	38.84	7.76	4.20	3.56	3.2
Soil	CD	Aug	2010	57.92	4.57	1.22	36.29	-	-	-	-
Water	S1	Dec	2009	51.92	4.45	1.47	42.16	-	-	-	-
Water	S1	Aug	2010	53.25	3.94	1.00	41.81	-	-	-	-
Water	C6	Dec	2009	52.35	5.34	2.64	39.67	-	-	-	-
Sigma-Aldrich (commercial HA)											
				61.47	3.47	1.29	33.77	6.13	4.73	1.40	7.2

Note: Ash was not detected in HA.