

SUPPORTING INFORMATION

Do free-living amoebae in treated drinking water systems present an emerging health risk?

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Table S1. The detection of FLA in drinking water treatment plants.

Treatment steps sampled	% positive (# samples)	Density (amoeba.L ⁻¹)	Log removal ^a	Diversity (# genera)	FLA genera identified (in order of frequency)
FRANCE -1 treatment plant (13)					
River source water (Seine River)	100 % (4)	10-100	-	7	<i>Acanthamoeba</i> , <i>Naegleria</i> , <i>Hartmannella</i> , <i>Vannella</i> , <i>Echinamoeba</i> , <i>Glaeseria</i> , <i>Platyamoeba</i>
Sand biofilm	-	-	-	5	<i>Naegleria</i> , <i>Echinamoeba</i> , <i>Acanthamoeba</i> , <i>Hartmannella</i> , <i>Vannella</i>
Clarification; Rapid sand filtration	75 % (4)	<5-46	0-2	1	<i>Hartmannella</i>
Ozonation	25 % (4)	<5	-	2	<i>Echinamoeba</i> , <i>Hartmannella</i>
Carbon biofilm	-	-	-	4	<i>Echinamoeba</i> , <i>Naegleria</i> , <i>Vannella</i>
GAC* - filtered	25 % (4)	<5	0-2	2	<i>Echinamoeba</i> , <i>Hartmannella</i>
Chlorinated finished water	50 % (4)	<5 – 110	-	-	
FRANCE AND SPAIN - 4 treatment plants (data listed per treatment plant) (36)					
Surface source water	100 % (4)	15-153	-	-	-
Sludge blanket, sand filtration	100 % (4)	<1-46	0->2.2	-	-
Surface water source	100 % (1)	93	-	-	-
Sludge blanket GAC* filtration	100 % (1)	3.9	1.4	-	-
Surface source water	100 % (2)	48-92	-	-	-
Sludge recirculation, biolite filtration	100 % (2)	<0.3	>2.2- >2.5	-	-
Surface source water	100 % (8)	210 – 4600	-	-	-
Static settling, sand filtration	100 % (8)	< 0.3 – 4.2	2.1 – 3.4	-	-
SPAIN - 3 treatment plants (data combined) (14)					
Surface and ground source water	(29)	15-4600	-	3	<i>Naegleria</i> , <i>Acanthamoeba</i> , <i>Hartmannella</i>

Filtration/clarification biofilm	(5)	-	-	1	<i>Naegleria</i>
Clarification sludge	(7)	> 1100	-	> 2	<i>Naegleria, Hartmannella</i>
Sand/GAC filtered water	(33)	0.6-1.7	0.9 - 3.9	-	-
Finished water	(12)	-	-	1	<i>Hartmannella</i>
SPAIN – 1 treatment plant (17) (also included in the above data (14))					
River source water	75 % (8)	210 - 4600	-	4	<i>Acanthamoeba, Echinamoeba, Naegleria, Vannella</i>
Ground source water	0 % (8)	-	-	-	
Post sand filtration	25 % (8)	>1 - 5	1.6 – 3.7	2	<i>Echinamoeba, Hartmannella</i>
Ozonation	0 % (1)	< 1	-	-	
GAC filtration	13 % (8)	<10 - 30	-1 – -1.7	1	<i>Vannella</i>
Chlorinated finished water	0 % (8)	< 1	1 – 1.4	-	
GERMANY – 6 treatment plants (data broken into two treatment plant types) (16)					
Reservoir source water	100 % (15)	2-3000	-	11	<i>Acanthamoeba, Naegleria</i>
Coagulation, filtration	40 % (15)	0-300	0.3 – 3.5	6	-
River source water	100 % (11)	200-90000	-	17	<i>Naegleria, Acanthamoeba</i>
Coagulation, sedimentation,	100 % (6)	2 – 4000	1.3 – 4.6	8	<i>Naegleria, Acanthamoeba</i>
Groundwater infiltrate	82 % (11)	0-3000	-	5	<i>Naegleria, Acanthamoeba</i>
Filtration	80 % (10)	0-400	0–3.5	6	<i>Naegleria, Acanthamoeba</i>
Chlorinated finished water	33 % (21)	0-100	0–2.6	4	<i>Hartmannella</i>
KOREA – 3 treatment plants (data combined) (97)					
Source water	100 % (3)	-	-	>2	<i>Acanthamoeba</i>
Precipitation	100 % (3)	-	-	>2	<i>Acanthamoeba</i>
Sand filtration	66 % (3)	-	-	>2	<i>Acanthamoeba</i>
Carbon filtration	0 % (3)	-	-	-	-
Finished water	0 % (3)	-	-	-	-

^a Calculation used; log removal = -log(conc_{out}/conc_{in}) (103).

* Granular activated carbon (GAC)

[^] Chlorination data is aggregated for all water treatment plants in the study.

