Toxicity Clarification

**Low**- just below normal environmental range

**Medium**- just above normal environmental range

**High**- completely out with a normal environmental range

Expected Environmental Concentration (EEC)

**Vogiatzis & Loumbourdis 1998**

Location- Greece

Treatment- Cadmium

EEC: 0.1-1.1 ug/L (0.0001 - 0.0011 mg/L)

🡪 Karageorgis et al. 2003

Treatment used in experiment- 200 mg/L =HIGH

**Venturino et al. 2001**

Location- Argentina

Treatment- Malathion

EEC: 0-205 ug/L (0.205 mg/L)

🡪 Vasseghian et al 2021

Treatment used in experiment- 8 mg/L =HIGH

**Naab et al. 2001**

Location- Argentina

Treatment- Zinc

EEC: 1.36 – 210.76 g/L (1360000 – 210760000 ug/L)

🡪 Gárriz et al 2019

Treatment used in experiment- 4ug/L = LOW

**Anguiano et al. 2001**

Location- Argentina

Treatment- malathion, parathion, dieldrin, lindane

EEC: malathion- 0-205 ug/L (0.205 mg/L); parathion – 13.8-27.4 ug/L (0.0138-0.0274 mg/L); dieldrin - 0.0013-2 ng/L (1.3x10-9 – 2x10-6 mg/L); lindane - 0.17–860 ng/l (1.7 x 10-7- 0.00086 mg/L)

🡪 Vasseghian et al 2021; dos Santos Neto and Siqueira 2005; Silva‐Barni et al. 2019 and Gonzalez et al. 2012; Gao et al. 2008

Treatment used in experiment- = malathion 20 mg/L = HIGH ; parathion 2 mg/L = HIGH; dieldrin 2 mg/L = HIGH; lindane 2 mg/L = HIGH

**Papadimitriou & Loumbourdis 2002**

Location- Greece

Treatment- Copper

EEC: 0.5-13.2 ug/L (0.0005- 0.0132 mg/L)

🡪 Papafilippaki et al. 2008

Treatment used in experiment- 50 mg/L = HIGH; 100 mg/L = HIGH

**Czarniewska et al. 2003**

Location- Poland

Treatment- Paraquat, metoxychlor

EEC: paraquat- 30.69- 134.08 ug/L (30.69- 134.08 kg/mg) ; metoxychlor- 0-1.7 ug/L (1.7 kg/mg)

🡪 Thi Hue et al. 2018; Badach et al. 2000

Treatment used in experiment- paraquat 3kg/mg = HIGH; metoxychlor 3kg/mg = HIGH

**Kostaropoulos et al. 2004**

Location- Greece

Treatment- Chromium, Cadmium

EEC: chromium- 25-91 ug/L (0.025-0.091 ppm); cadmium- 0.1-1.1 ug/L (0.0001 - 0.0011 ppm)

🡪 🡪 Karageorgis et al. 2003; Dermatas et al. 2015, Kanellopoulos et al. 2015

Treatment used in experiment- chromium 10ppm = HIGH; cadmium 10ppm = HIGH

**Liu et al. 2006**

Location- China

Treatment- acetochlor

EEC: 17.9-1,054.9 ng/l (1.79x10-5-0.0010549 mg/L)

🡪 Fu et al. 2018, Tang et al. 2019

Treatment used in experiment- 0.017 mg/L = HIGH; 0.034 mg/L = HIGH; 0.068 mg/L = HIGH

**Loumbourdis 2006**

Location- Greece

Treatment- Copper

EEC: 0.5-13.2 ug/L (0.0005- 0.0132 mg/L)

🡪 Papafilippaki et al. 2008

Treatment used in experiment- 20 ppm = HIGH

**Huang et al. 2007**

Location- Missouri

Treatment- 3,3′,4,4′,5-pentachlorobiphenyl

EEC: 1.23 – 163.4 ng/L

🡪 Zhang et al. 2007, Ge et al. 2014, Zhang et al, 2011

Treatment used in experiment- 0.2 mg/kg = HIGH ; 0.7 mg/kg = HIGH; 2.3 mg/kg = HIGH; 7.8 mg/kg = HIGH

**Costa et al. 2008**

Location- Brazil

Treatment- Roundup Original

EEC:

glyphosate Low (<0.1-2.5 μg/L); High (up to 1.7 mg/L)

🡪 Thorngren et al 2017; Van Bruggen et al. 2018; Guilherme et al 2010

Treatment used in experiment- 1mg/L = MEDIUM

**Gillardin et al. 2009**

Location- Belgium

Treatment- Aroclor 1254 (PBC)

EEC: : 1.23 – 163.4 ng/L

🡪 Zhang et al. 2007, Ge et al. 2014, Zhang et al, 2011

Treatment used in experiment- : 0.1 mg/l = HIGH; 1 mg/l = HIGH

**Ferrari et al. 2008**

Location- Argentina

Treatment- Malathion

EEC: 0-205 ug/L (0.205 mg/L)

🡪 Vasseghian et al 2021

Treatment used in experiment- 8 mg/l = HIGH; 20 mg/L = HIGH

**Wang & Jia 2009**

Location- China

Treatment- Lead

EEC: 1.44 - 1434.25ug/L (0.00144- 1.43425 mg/L)

🡪 Lian & Lee 2021

Treatment used in experiment- 0.1 mg/L = MEDIUM; 0.2 mg/L = HIGH ; 0.4 mg/L = HIGH; 0.8 mg/L = HIGH; 1.8 mg/L = HIGH

**Ferrari et al 2009**

Location- Argentina

Treatment- carbaryl and azinphos methyl

EEC: carbaryl- 11.21 - 45.7 ug/L (0.01121-0.0457 mg/L) ; azinphos methyl- 1.02 - 22.48 ug/L (0.00102-0.02248 mg/L)

🡪 Loewy et al. 2011, Macchi et al. 2018

Treatment used in experiment- carbaryl – 20 mg/L = HIGH; azinphos methyl – 9 mg/L = HIGH

**Mussi et al 2009**

Location- Argentina

Treatment- Paraquat

EEC: 0.10 to 0.70 mg/L

🡪 Peruzzo et al. 2008

Treatment used in experiment-

2.5 mg/L = HIGH

25 mg/L = HIGH

64 mg/L = HIGH

128 mg/L = HIGH

257 mg/L = HIGH

**Ezemonye & Tongo 2010**

Location- Nigeria

Treatment- endosulfan and diazinon

EEC: endosulfan 0.01–9.23 ug/L ; diazinon 0.01-3.64 ug/L

🡪 Ogbeide et al. 2015, Ezemonye et al. 2010; Tongo et al. 2012

Treatment used in experiment-

Endosulfan:

0.01 ug/L = LOW

0.02 ug/L = LOW

0.03 ug/L = LOW

0.04 ug/L = LOW

Diazinon:

0.01 ug/L = LOW

0.02 ug/L = LOW

0.03 ug/L = LOW

0.04 ug/L = LOW

**Jones et al. 2010**

Location- Texas

Treatment- Paraquat

EEC: 0.42–3.6 μg/L (0.00042- 0.0036 mg/L)

🡪 Sartori et al. 2018

Treatment used in experiment-

0.1 mg/L = HIGH

0.5 mg/L = HIGH

1 mg/L = HIGH

2 mg/L = HIGH

**Ferrari et al 2011**

Location- Argentina

Treatment- azinphos methyl and azinphos carbaryl

EEC: azinphos methyl- 1.02 - 22.48 ug/L (0.00102-0.02248 mg/L); carbaryl- 11.21 - 45.7 ug/L (0.01121-0.0457 mg/L)

🡪 Loewy et al. 2011, Macchi et al. 2018

Treatment used in experiment-

azinphos methyl:

3 mg/L = HIGH

6 mg/L = HIGH

azinphos carbaryl:

10 mg/L = HIGH

20 mg/L = HIGH

**Lajmanovich et al. 2011**

Location- Argentina

Treatment- Roundup Ultra-Max, Infosato, Glifoglex and C-K Yuyos FAV

EEC: Roundup Low (<0.1-2.5 μg/L); High (up to 1.7 mg/L); glyphosate 100- 700 ug/L (0.1-0.7 mg/l)

🡪 Thorngren et al 2017, Van Bruggen et al. 2018, Guilherme et al 2010; Aparicio et al. 2013, Lutri et al. 2020, Peruzzo et al 2008

Treatment used in experiment-

Roundup:

1.85 mg ae/L = HIGH

3.75 mg ae/L= HIGH

Infosato:

1.85 mg ae/L = HIGH

3.75 mg ae/L = HIGH

7.5 mg ae/L = HIGH

15 mg ae/L = HIGH

30 mg ae/L = HIGH

60 mg ae/L = HIGH

Glifoglex:

1.85 mg ae/L = HIGH

3.75 mg ae/L = HIGH

7.5 mg ae/L = HIGH

15 mg ae/L = HIGH

30 mg ae/L = HIGH

60 mg ae/L = HIGH

120 mg ae/L = HIGH

C-K Yuyos FAV: = HIGH

1.85 mg ae/L = HIGH

3.75 mg ae/L = HIGH

7.5 mg ae/L = HIGH

15 mg ae/L = HIGH

30 mg ae/L = HIGH

60 mg ae/L = HIGH

120 mg ae/L = HIGH

**Isnas et al. 2011**

Location- Turkey

Treatment- omethoate

EEC: 32.3–56.5 ng/L (0.0000323- 0.0000565 mg/L)

🡪 Wang et al. 2021, Bhandari et al. 2020

Treatment used in experiment- 10 mg/L = HIGH ; 20 mg/L = HIGH

**Ozkol et al. 2011**

Location- Turkey

Treatment- omethoate

EEC: 32.3–56.5 ng/L (0.0000323- 0.0000565 mg/L)

🡪 Wang et al. 2021, Bhandari et al. 2020

Treatment used in experiment- 10 mg/L = HIGH ; 20 mg/L = HIGH

**Rosenbaum et al. 2012**

Location- Argentina

Treatment- azinphos methyl

EEC: azinphos methyl- 1.02 - 22.48 ug/L (0.00102-0.02248 mg/L)

🡪 Loewy et al. 2011, Macchi et al. 2018

Treatment used in experiment- 0.02 mg/L = MEDIUM ; 2 mg/L = HIGH

**Salvaterraa et al. 2012**

Location- Portugal

Treatment- titanium silicate

EEC: <5 - 15 µg/L

🡪 Kiser et al. 2009, Azimzada et al. 2021

Treatment used in experiment-

8.2 mg/L = HIGH

10.2 mg/L = HIGH

12.8 mg/L = HIGH

16 mg/L = HIGH

20 mg/L = HIGH

**Zhang et al. 2012**

Location- China

Treatment- Cadmium

EEC: 4-167 μg/ L (0.004- 0.167 mg/L)

🡪 Wu et al 2017

Treatment used in experiment-

2.5 mg/L = HIGH

5 mg/L = HIGH

7.5 mg/L = HIGH

10 mg/L = HIGH

**Kanter & Celik 2011**

Location- Turkey

Treatment- Fenthion

EEC: 0.147- 28.9 ng/L (0.000000147- 0.0000289 mg/L)

🡪 Xiao et al. 2021, Stamatis et al. 2013

Treatment used in experiment- 10 mg/L = HIGH; 20 mg/L = HIGH

**David et al. 2012**

Location- India

Treatment- cypermethrin

EEC: 0.11- 80.5 ug/L

🡪 Bhattacharjee et al. 2012, Hossain et al. 2015

Treatment used in experiment- 0.3 ug/L = LOW

**Marques et al 2013**

Location- Portugal

Treatment- Range of metals

EEC: N/A

Treatment used in experiment- MEDIUM

**Burraco et al. 2013**

Location- Spain

Treatment- glyphosate

EEC: Low (<0.1-2.5 μg/L (0.0001- 0.0025 mg/L)); High (up to 165 μg/L (0.165 mg/L))

🡪 Van Bruggen et al. 2018

Treatment used in experiment- 0.5 mg/L = HIGH; 1 mg/L = HIGH

**Güngördü et al. 2013**

Location- Spain

Treatment- Textile dyes

EEC: 0.03- 1530 ug/L (0.00003-1.53 mg/L)

🡪 Tkaczyk et al. 2020

Treatment used in experiment- =

**Zocche et al. 2014**

Location- Brazil

Treatment- Metal Mixture

EEC: N/A

Treatment used in experiment- MEDIUM

**Saria et al. 2014**

Location- France

Treatment- Multiwalled Carbon NanoTubes

EEC: 0.23-0.36 ng/L

🡪 Mottier et al. 2017, Sun et al. 2016

Treatment used in experiment- 0.1 mg/L = HIGH; 1 mg/L = HIGH; 10 mg/L = HIGH

**Yin et al. 2014**

Location- China

Treatment- spirotetramat

EEC: 1.75 ug/l

🡪 Zhang et al. 2019

Treatment used in experiment-

0.03 mg/L = HIGH

0.06 mg/L = HIGH

0.13 mg/L = HIGH

0.65 mg/L = HIGH

3.23 mg/L = HIGH

**Santos et al 2015**

Location- Brazil

Treatment- Glyphosate, Acephate, Difenoconazole

EEC: N/A

Treatment used in experiment- MEDIUM

**Falfushynska et al. 2015**

Location- Ukraine

Treatment- Cobalt and Zinc

EEC: Cobalt: 1-62 ug/L; Zinc: 10.2–187.0 ug/L

🡪 Barrio-Parra et al. 2018; Linnik et al. 2015, Vystavna et al. 2014

Treatment used in experiment- Cobalt 50 ug/L = MEDIUM ; Zinc 100 ug/L = MEDIUM

**Lajmanovich et al 2015**

Location- Argentina

Treatment- chlorpyrifos, 2,4-D, glyphosate

EEC: chlorpyrifos 0.2 to 10.8 µg/L (0.0002-0.0108 mg/L); 2,4-D 0–1.53 ppb (0- 0.00153 mg/L); glyphosate 100- 700 ug/L (0.1-0.7 mg/l)

🡪 Marino & Ronco 2005; Suárez et al 2021; Van Bruggen et al. 2018, Aparicio et al. 2013, Lutri et al. 2020, Peruzzo et al 2008

Treatment used in experiment-

Chlorpyrifos - 10 mg/L = HIGH

2,4-D - 20 mg/L = HIGH

Glyphosate - 20 mg/L = HIGH

**Lajmanovich et al 2015**

Location- Argentina

Treatment- Bacillus thuringiensis var. israelensis

EEC: 8 to 40 mg/L

🡪 Farajollahi et al 2013

Treatment used in experiment-

5 mg/L = LOW; 10 mg/L = LOW; 20 mg/L = MEDIUM

**Sotomayor et al 2015**

Location- Argentina

Treatment- chlorpyrifos

EEC: 0.2 to 10.8 µg/L (0.0002-0.0108 mg/L)

🡪 Marino & Ronco 2005

Treatment used in experiment- 2 mg/L = HIGH; 8 mg/L = HIGH; 14 mg/L = HIGH

**Mardirosian et al 2015**

Location- Argentina

Treatment- Arsenic

EEC: 0.01 mg/L and 15 mg/L

🡪 Mardirosian et al 2015

Treatment used in experiment- 10 mg/L = MEDIUM; 20 mg/L = HIGH; 25 mg/L = HIGH

**Liendro et al 2015**

Location- Argentina

Treatment- Chlorpyrifos

EEC: 0.2 to 10.8 µg/L (0.0002-0.0108 mg/L)

🡪 Marino & Ronco 2005

Treatment used in experiment- 0.1 mg/L HIGH; 0.5 mg/L =HIGH

**Yologlu & Ozmen 2015**

Location- Turkey

Treatment- cadmium, lead and copper

EEC: cadmium- 0.23- 1.368 μg/L (0.00023-0.001368mg/L); lead- 0.342-0.48μg/L (0.000342-0.00048 mg/L); copper- 0.92-165 μg/L (0.00092-0.165mg/L)

🡪 Varol & Şen 2012; Cengiz et al 2017

Treatment used in experiment-

Cadmium:

0.005mg/L = HIGH

0.518 mg/L = HIGH

2.59 mg/L = HIGH

Lead:

0.01 mg/L = HIGH

12.3 mg/L = HIGH

61.53 mg/L = HIGH

Copper:

0.01 mg/L = LOW

0.085 mg/L = MEDIUM

0.425 mg/L = HIGH

**Dornelles & Oliveira 2016**

Location- Brazil

Treatment- atrazine, glyphosate, quinclorac

EEC: atrazine: 0.004-7 ug/L; glyphosate: Low (<0.1-2.5 μg/L, High up to 165 μg/L; quinclorac: 0.48-6.60 μg/L

🡪 Brovini et al. 2021; Van Bruggen et al. 2018; Marchesan et al 2007

Treatment used in experiment-

Atrazine: 2.5 μg/L = LOW

Glyphosate: 18 μg/L = MEDIUM

Quinclorac: 0.025 μg/L =LOW

**Melvin 2016**

Location- Australia

Treatment- diclofenac, naproxen, atenolol and gemfibrozil mixture

EEC: Naproxen and diclofenac- 0.4 μg/L and 1.2 μg/L; atenolol and gemfibrozil- 0.3 μg/L and 0.5 μg/L

=0.3-1.2 μg/L

🡪 Melvin 2016

Treatment used in experiment- 0.1 μg/L = LOW; 10 μg/L = HIGH; 1000 μg/L = HIGH

**Borković-Mitić et al 2016**

Location- Serbia

Treatment- heavy metals

EEC: N/A

🡪 Borković-Mitić et aLl 2016

Treatment used in experiment- Site 1 (PO) = LOW; Site 2 (DTD) = HIGH

**Attademo et al. 2016**

Location- Argentina

Treatment- metaldehyde

EEC: 9-4200 ng/L (0.000009- 0.0042 mg/L)

🡪 Castle et al. 2019, Castle et al. 2018, Kay & Grayson 2014

Treatment used in experiment- 0.25 mg/L = HIGH ; 0.50 mg/L = HIGH

**Burraco & Gomez-Mestre 2016**

Location- Spain

Treatment- Glyphosate (world’s most widely used pesticide)

EEC in Europe- Low (<0.1-2.5 μg/L (0.0001- 0.0025 mg/L)); High (up to 165 μg/L (0.165 mg/L))

🡪 Van Bruggen et al. 2018

Treatment used in experiment- 1 mg/L =HIGH; 2mg/L = HIGH

**Wu et al 2017**

Location- China

Treatment- Cadmium

EEC in China: 4-167 μg/ L

🡪 Wu et al 2017

Treatment used in experiment- 5 μg/L = LOW; 100 μg/L =MEDIUM; 500 μg/L = HIGH

**Radovanović et al 2017**

Location- Serbia

Treatment- deltamethrin

EEC: 0.73 ng/L to 24 μg/L

🡪 Allinson et al. 2015, Feo et al. 2010, Jijie et al. 2020

Treatment used in experiment- 8 mg/kg = HIGH; 16 mg/kg = HIGH; 32 mg/kg = HIGH

**Martins et al 2017**

Location- Portugal

Treatment- 4-MBC and triclosan

EEC: 4-MBC-1.14 μg/l- 6.5 μg/l (0.00114 mg/L- 0.0065 mg/L) ;triclosan- 48 ng/l- 2.7 μg/l (0.000048 mg/L- 0.0027mg/L)

🡪 Martins et al 2017

Treatment used in experiment-

4-MBC- 0.00013 mg/L = LOW; 0.013 mg/L = HIGH; 1.3 mg/L = HIGH

Triclosan-

0.25 mg L−1 = HIGH

0.44 mg L−1 = HIGH

0.79 mg L−1 = HIGH

1.4 mg L−1 = HIGH

2.50 mg L−1 = HIGH

**Freitas et al 2017**

Location- Brazil

Treatment- sulfentrazone

EEC: (0.056–25.3 μg/l) (0.000056- 0.0253 mg/L)

🡪 Thorngren et al 2017

Treatment used in experiment-

0.01 mg/L = MEDIUM; 0.05 mg/L = HIGH; 0.1 mg/L = HIGH

**Xua & Huang 2017**

Location- China

Treatment- α-cypermethrin enantiomers

EEC: 0.01–9.8 µg/ L

🡪 Xu & Huang 2017

Treatment used in experiment- 0.05 µg/ L = LOW

**Trachantong et al. 2017**

Location- Thailand

Treatment- Methomyl

EEC: 0.2 ug/L – 8.3 ug/L

🡪 Arnnok et al. 2017, Saad et al. 2017

Treatment used in experiment- 0.144 mg/L = HIGH

**Li et al. 2017**

Location- China

Treatment- trichlorfon

EEC: 0.00004433- 0.179 mg/L

🡪 Baldissera et al. 2019, Sun et al. 2006, Xu et al. 2019

Treatment used in experiment- 0.01 mg/L = LOW; 0.1 mg/L = MEDIUM; 1 mg/L = HIGH

**Falfushynskaa et al 2017**

Location- Ukraine

Treatment- zinc oxide; nifedipine

EEC: zinc oxide 100–500 ng/L (0.1-0.5 μg/L); nifedipine 1004.27 μg/L

🡪 Dumont et al 2015; Benotti & Brownawell 2007

Treatment used in experiment-

zinc oxide - 252.276 μg/L = HIGH

nifedipine - 3463 μg/L = HIGH

**Chai et al 2017**

Location- China

Treatment- Copper

EEC: 0.00066 - 0.1533 mg/L (0.66-153.3 ug/L)

🡪 Zhang et al. 2017, Hua et al. 2016

Treatment used in experiment-

1 μg/L = LOW

6.4 μg/L = LOW

32 μg/L = LOW

64 μg/L = MEDIUM

**Coltro et al 2017**

Location- Brazil

Treatment- quinclorac

EEC: 0.48-6.60 μg/L

🡪 Marchesan et al 2007

Treatment used in experiment- 0.05 μg/L = LOW; 0.2 μg/L LOW; 0.4 μg/L =LOW

**Cheng et al 2017**

Location- China

Treatment- (-)myclobutanil and (+)myclobutanil

EEC: (-)myclobutanil – 3.5-14.8 ng/L (0.0000035-0.0000148 mg/L); (+)myclobutanil - 3.3-15.2 ng/L (0.0000033-0.0000152 mg/L)

🡪 Zhao et al 2018

Treatment used in experiment-

(-)myclobutanil- 7,8,9 mg/L = HIGH

(+)myclobutanil - 7,8,9 mg/L = HIGH

**Freitas et al 2017**

Location- Brazil

Treatment- clomazone

EEC: 0.2–0.4 mg/L

🡪 Zanella et al 2002

Treatment used in experiment-

0.01 mg/L = LOW

0.05 mg/L = LOW

0.1 mg/L = MEDIUM

**Li et al 2018a**

Location- China

Treatment- Chromium

EEC: 0.000107- 28.13 ug/L

🡪 Zeng et al. 2015, He & Li 2020, Xiao et al. 2019

Treatment used in experiment-

13 μg/L = : MEDIUM

52 μg/L = HIGH

104 μg/L = HIGH

208 μg/L = HIGH

416 μg/L = HIGH

**Lajmanovich et al 2018a**

Location- Argentina

Treatment- Silicon dioxide

EEC: 3.62- 21.35 mg/L

🡪 Vélez-Agudelo et al. 2021

Treatment used in experiment- 0.001 mg/L = LOW

**Zhang et al 2018a**

Location- China

Treatment- cyproconazole

EEC: 49.054 μg/L (0.049054 mg/L)

🡪 Wightwick et al 2012, Saraiva et al. 2018

Treatment used in experiment-

cyproconazole - 15 mg/L = HIGH; 17 mg/L = HIGH; 19 mg/L = HIGH

**Lajmanovich et al 2018b**

Location- Argentina

Treatment- chlorpyrifos

EEC: 0.2 to 10.8 µg/L (0.0002-0.0108 mg/L)

🡪 Marino & Ronco 2005

Treatment used in experiment- 5 mg/L = HIGH; 10 mg/L = HIGH

**Li et al. 2018b**

Location- China

Treatment- octylphenol

EEC: 85.5 to 15,700 ng/L (0.000855-0.0157 mg/L)

🡪 Zhong et al. 2017, Chen et al. 2014

Treatment used in experiment- 0.0020623 mg/L = MEDIUM; 0.020623 mg/L = HIGH; 0.20623 mg/L = HIGH

**Shi et al 2018**

Location- China

Treatment- Mercury

EEC: 5.616- 44.92 ng/L (0.005616-0.04492 ug/L)

🡪 Wang et al. 2019, Liu et al. 2012

Treatment used in experiment-

6 μg/L = HIGH

12 μg/L = HIGH

18 μg/L = HIGH

24 μg/L = HIGH

30 μg/L = HIGH

**Zhang et al 2018b**

Location- China

Treatment- triadimefon and triadimenol

EEC: Triadimefon 0.00152- 5.22 µg/L (0.00000152-0.00522 mg/L) ; triadimenol (0.0000043-0.0000208 mg/L)

🡪 Liu et al 2018; Xie et al 2019

Treatment used in experiment-

Triadimefon- 20 mg/L = HIGH; 23 mg/L = HIGH; 25 mg/L = HIGH

Triadimenol- 20 mg/L = HIGH ; 30 mg/L = HIGH; 38 mg/L = HIGH

**Pal et al 2018**

Location- India

Treatment- sodium fluoride

EEC: 96.8 mg/L

🡪 Pal et al 2018

Treatment used in experiment-

64.7 mg/L = MEDIUM

129 mg/L = HIGH

194 mg/L = HIGH

259 mg/L = HIGH

324 mg/L = HIGH

388 mg/L = HIGH

453 mg/L = HIGH

518 mg/L = HIGH

**Tang et al 2018**

Location- China

Treatment- polyfluoroalkyl chemicals (PFCs)

EEC: 0.85–260 ng/L

🡪 So et al. 2007

Treatment used in experiment-

0.01 mg/L = HIGH

0.1 mg/L = HIGH

0.5 mg/L = HIGH

1 mg/L = HIGH

**Nasia et al 2018**

Location- Serbia

Treatment- deltamethrin

EEC: 0.73 ng/L to 24 μg/L

🡪 Allinson et al. 2015, Feo et al. 2010, Jijie et al. 2020

Treatment used in experiment-

2.5 g/mL = HIGH

**Ejilibe et al 2018**

Location- Nigeria

Treatment- butaforce

EEC- 0.1-1.4 μg/L

🡪 Zhu et al 2014

Treatment used in experiment- 7 μg/L = HIGH; 9 μg/L = HIGH; 11 μg/L = HIGH

**Wilkens et al 2018**

Location- Brazil

Treatment- sulfentrazone and glyphosate

EEC: sulfentrazone (0.056–25.3 μg/l) (0.000056- 0.0253 mg/L); glyphosate Low (<0.1-2.5 μg/L (0.0001- 0.0025 mg/L)); High (up to 165 μg/L (0.165 mg/L))

🡪 Thorngren et al 2017; Van Bruggen et al. 2018

Treatment used in experiment-

sulfentrazone - 130 μg/L = HIGH

glyphosate - 234 μg/L = HIGH

**Xie et al 2019**

Location- China

Treatment- nitrate

EEC: 1.3 to 35.7 mg/L

🡪 Xue et al 2016

Treatment used in experiment- 5 mg/L = LOW; 50 mg/L = HIGH; 200 mg/L = HIGH

**Peltzer et al 2019**

Location- Argentina

Treatment- diclofenac

EEC: 2 ng/L –100 μg/L

🡪 Pereira et al. 2015, Lonappan et al. 2016

Treatment used in experiment-

125 μg L-1 = HIGH

250 μg L-1 = HIGH

500 μg L-1 = HIGH

1000 μg L-1 = HIGH

2000 μg L-1 = HIGH

**Zhang et al 2019a**

Location- China

Treatment- cyproconazole

EEC: 49.054 μg/L (0.049054 mg/L)

🡪 Wightwick et al 2012

Treatment used in experiment-

cyproconazole - 1 mg/L = HIGH; 10 mg/L = HIGH

**Jiang et al 2019**

Location- China

Treatment- lambda-cyhalothrin

EEC in China- 0.21-29.72 μg/L

🡪 Tang et al 2018

Treatment used in experiment- (0.4 μg/L, 10 μg/L, 250 μg/L)

0.4 μg/L = LOW; 10 μg/L = MEDIUM; 250 μg/L = HIGH

**Awadalla et al 2019**

Location- Egypt

Treatment- Cadmium

EEC: 0.5-48 ug/L

🡪 Bayomy et al. 2015, Goher et al. 2014, Salman et al. 2019, Salem et al. 2001

Treatment used in experiment- 250 µL = HIGH

**Zhang et al 2019**

Location- China

Treatment- rac-cis-bifenthrin, R-cis-bifenthrin, S-cis-bifenthrin

EEC: cis-bifenthrin: 0.2 – 37.3 ng/L (0.0002- 0.0373 ug/L)

🡪 Budd et al. 2009, Weston et al. 2012

Treatment used in experiment- 0.001ug/L =LOW ; 0.1ug/L = HIGH

**Silva et al 2020**

Location- Brazil

Treatment- sulfentrazone and glyphosate

EEC: sulfentrazone (0.056–25.3 μg/l) (0.000056- 0.0253 mg/L); glyphosate Low (<0.1-2.5 μg/L (0.0001- 0.0025 mg/L)); High (up to 165 μg/L (0.165 mg/L))

🡪 Thorngren et al 2017; Van Bruggen et al. 2018

Treatment used in experiment-

sulfentrazone - 130 μg/L = HIGH; 980 μg/L = HIGH

glyphosate - 234 μg/L = HIGH; 2340 μg/L = HIGH

**Peluso et al 2020**

Location- Argentina

Treatment- Pesticides (Glyphosate, AMPA and permethrine) and Metals (Cu, As, Cr)

Treatment used in experiment- MEDIUM

**Rutkoski et al 2020**

Location- Brazil

Treatment- chlorpyrifos

EEC: 0.2 to 10.8 µg/L

🡪 Marino & Ronco 2005

Treatment used in experiment- 11 μg/L = MEDIUM; 90 μg/L = HIGH; 500 μg/L = HIGH

**Bhuyan et al 2020**

Location- India

Treatment- Phenanthrene (one of the most abundant PAHs found in aquatic environments)

EEC- Low- 887 ng/L and 435 ng/L (0.000887mg/L-0.000435mg/L) ;Highest reported- 1.46 mg/L

🡪 Peng et al. 2019

Treatment used in experiment- 0.61mg.L =MEDIUM; 1.22 mg/L =MEDIUM

**Svartz et al 2020**

Location- Argentina

Treatment- Ni-Al nanoceramics

EEC: 2x10^-7 - 0.00001 mg/L

🡪 Tiede et al 2009

Treatment used in experiment- 5 mg/L = HIGH; 25 mg/L = HIGH

**Carvalhoa et al 2020**

Location- Brazil

Treatment- zinc, copper, cadmium

EEC in Brazil: Zinc - 44–122 μg/L; Copper - 4–85 μg/L; Cadmium 1–5 μg/L

🡪 Chiba et al 2011

Treatment used in experiment- zinc 1 μg/L = LOW; copper 1 μg/L = LOW; cadmium 1 μg/L = LOW

**Barreto et al 2020**

Location- Argentina

Treatment- Chlorpyrifos

EEC: 0.2 to 10.8 µg/L (0.0002-0.0108 mg/L)

🡪 Marino & Ronco 2005

Treatment used in experiment- 0.05 mg/L = HIGH; 0.1 = HIGH; 0.5 mg/L =HIGH

**Boccionia et al 2020**

Location- Argentina

Treatment- dexamethasone

EEC: 10 – 589 ug/L

🡪 Chang et al. 2007, LaLone et al. 2012, Herrero et al. 2013, Arsand et al. 2013, aus der Beek et al. 2016

Treatment used in experiment-

1 μg/L = LOW

10 μg/L = LOW

100 μg/L = MEDIUM

1000 μg/L = HIGH

**Lu et al 2021**

Location- China

Treatment- cadmium

EEC: 4-167 μg/ L (0.004- 0.167 mg/L)

🡪 Wu et al 2017

Treatment used in experiment- 10 μg/L = LOW; 100 μg/L = MEDIUM

**Cheron et al 2021**

Location- France

Treatment- Aminomethylphosphonic acid (glyphosate)

EEC: 0.1-10 ug/L

🡪 Cheron et al 2021, Okada et al. 2020

Treatment used in experiment- 0.07 μg/L = LOW; 0.32 μg/L =LOW ; 3.57 μg/L = MEDIUM

**Radovanovic et al 2021**

Location- Italy

Treatment- deltamethrin

EEC: 0.73 ng/L to 24 μg/L

🡪 Allinson et al. 2015, Feo et al. 2010, Jijie et al. 2020

Treatment used in experiment- 1 mg/100 mL H2O = HIGH

**Acquaroni et al 2021**

Location- Argentina

Treatment- dimethoate

EEC: 0.045-μg/L (0.000045 mg/L)

🡪 De Geronimo et al. 2014

Treatment used in experiment- 0.25 mg/L = HIGH ; 0.5 mg/L = HIGH; 1 mg/L = HIGH

**Liu et al 2021**

Location- China

Treatment- metamifop

EEC: 0.02-0.35 mg/L

🡪 Barik et al. 2018

Treatment used in experiment- 0.063 mg/L = LOW

**Nascimento et al 2021**

Location- Brazil

Treatment- Polyethylene glycol

EEC: 1.9 to 6.1 ng/mL

🡪 Tran et al. 2014

Treatment used in experiment- 5 mg/L = HIGH ; 10 mg/L = HIGH

**Rutkoski et al 2021**

Location- Brazil

Treatment- Cypermethrin, Fipronil

EEC: Cypermethrin: 1-20 ug/L ; Fipronil: 0.05 to 26.2 μg L−1

🡪 Belluta et al. 2010, Etchegoyen et al. 2017, Carlos et al. 2011 ; Albuquerque et al. 2016

Treatment used in experiment-

Cypermethrin:

1 μg/L = LOW

3 μg/L = LOW

6 μg/L = LOW

10 μg/L = MEDIUM

20 μg/L = MEDIUM

Fipronil:

26 μg/L = MEDIUM

50 μg/L = HIGH

100 μg/L = HIGH

500 μg/L = HIGH

1500 μg/L =HIGH

**Saad et al 2021**

Location- Egypt

Treatment- neonicotinoid (Thiamethoxam), neonicotinoid (acetamiprid)

EEC: 320mg/L

🡪 Morrissey et al. 2015, Robinson et al. 2017

Treatment used in experiment-

neonicotinoid (Thiamethoxam): 30 mg/L = LOW

neonicotinoid (acetamiprid): 40 mg/L = LOW

**Lajmanovich et al 2021**

Location- Argentina

Treatment- Glyphosate, glufosinate-ammonium

EEC: glyphosate 100- 700 ug/L (0.1-0.7 mg/l); glufosinate-ammonium 0.1- 13.15 μg/L (0.0001-0.01315 mg/L)

🡪 Aparicio et al. 2013, Lutri et al. 2020, Peruzzo et al 2008; Masiol et al. 2018, Geng et al. 2021

Treatment used in experiment-

Glyphosate:

1.56 mg/L = HIGH

3.12 mg/L = HIGH

6.25 mg/L = HIGH

glufosinate-ammonium

1.56 mg/L = HIGH

3.12 mg/L = HIGH

6.25 mg/L = HIGH

**Peluso et al. 2021**

Location- Argentina

Treatment- Pesticides (atrazine, azoxystrobin, tebuconazole, glyphosate and AMPA) and Metals (Fe, Pb and Cr), Pesticides (atrazine, ) and Metals (As, Cr, Co, Rb, Fe, Pb, Ba, Cu, Mn)

Treatment used in experiment- MEDIUM

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