Supplementary Materials

Beyond Bioremediation: The Untapped Potential of Microalgae in Wastewater Treatment

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NUMBER OF PAGES: 8

NUMBER OF FIGURES: 0

NUMBER OF TABLES: 1

NUMBER OF REFERENCES: 0

Table S1. Examples of EPs divided by major groups.

Pollutant	Name	Abbreviation
Metals	**Cadmium**	**Cd**
	Calcium	Ca
	Copper	Cu
	Cromium	Cr^{6+}
	Iron	Fe^{2+}
	Lead	Pb^{2+}
	Magnesium	Mg^{2+}
	Manganese	Mn^{2+}
	Nickel	Ni^{2+}
	Zinc	Zn^{2+}
Pesticides	2,4-dichlorophenoxy acetic acid	2,4-D
	2-Methyl-2-(methylthio)propionaldehyde O-(methylcarbamoyl)oxime	Aldicarb
	6-Chloro-N-ethyl-N'-isopropyl-1,3,5-triazine-2,4-diamine	Atrazine
	3-[3-(4'-bromobiphenyl-4-yl)-3-hydroxy-1-phenylpropyl]-4-hydroxycoumarin	Brodifacoum
	3-[3-(4'-bromobiphenyl-4-yl)-3-hydroxy-1-phenylpropyl]-4-hydroxycoumarin	Bromadiolone
	2,4,5,6-tetrachloroisophthalonitrile	Chlorothalonil
	Copper sulfate pentahydrate	Copper Sulfate
	Dichlorodiphenyltrichloroethane (1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane)	DDT
	3-(α-acetonylbenzyl)-4-hydroxycoumarin	Difenacoum
	S-Ethyl dipropylthiocarbamate	Ethoprop
	N-(phosphonomethyl)glycine	Glyphosate
	2-(4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl)-3-pyridinecarboxylic acid	Imazapyr
	Iron(III) phosphate	Iron Phosphate
	1,1'-Dimethyl-4,4'-bipyridinium dichloride	Paraquat
	Dimethoxyphosphinothioylthio butanedioic acid diethyl ester	Malathion
	Mixture of zinc bis(dimethyldithiocarbamat	Mancozeb

	e) and manganese ethylene bis(dithiocarbamate)	
	2,4,6,8-Tetramethyl-1,3,5,7-tetraoxocane	Metaldehyde
	Sodium N-methyldithiocarbamate	Metam Sodium
	(RS)-2-(4-chlorophenyl)-2-(1H-1,2,4-triazol-1-ylmethyl)hexanenitrile	Myclobutanil
	Various chemicals with names like imidacloprid (1-(6-chloro-3-pyridylmethyl)-N-nitroimidazolidin-2-ylideneamine) and clothianidin (1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine)	Neonicotinoids
	2',5-Dichloro-4'-nitrosalicylanilide	Niclosamide
	Various chemicals, including chlorpyrifos (O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate) and diazinon (O,O-Diethyl O-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate)	Organophosphates
	Various chemicals with names like permethrin (3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane-1-carboxylate) and cypermethrin (α-cyano-3-phenoxybenzyl 2,2-dimethyl-3-(2,2-dichlorovinyl) cyclopropanecarboxylate)	Pyrethroids
	1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol	Tebuconazole
	2-(4-thiazolyl)benzimidazole	Thiabendazole
	3-(α-acetonylbenzyl)-4-hydroxycoumarin	Warfarin
	Zinc diphosphide	Zinc Phosphide
Pharmaceuticals	N-(4-hydroxyphenyl)acetamide	Acetaminophen (Paracetamol)
	8-chloro-1-methyl-6-phenyl-4H-[1,2,4]triazolo[4,3-a][1,4]benzodiazepine	Alprazolam (Xanax)
	(2S,5R,6R)-6-[(R)-(-)-2-amino-2-(p-hydroxyphenyl)acetamido]-3,3-dimethyl-7-oxo-4-thia-1-	Amoxicillin

	azabicyclo[3.2.0]heptane-2-carboxylic acid	
	7-{4-[4-(2,3-dichlorophenyl)piperazin-1-yl]butoxy}-3,4-dihydro-2(1H)-quinolinone	Aripiprazole
	2-(acetyloxy)benzoic acid	Aspirin (Acetylsalicylic Acid)
	(RS)-2-{4-[(2S)-2-hydroxy-3-{[(propan-2-yl)amino]propyl}phenoxy]ethyl}benzene-1,2-diol	Atenolol
	(3R,5R)-7-[2-(4-fluorophenyl)-5-(1-methylethyl)-3-phenyl-4-(phenylcarbamoyl)-1H-pyrrol-1-yl]-3,5-dihydroxyheptanoic acid	Atorvastatin
	5H-dibenz[b,f]azepine-5-carboxamide	Carbamazepine
	1-cyclopropyl-6-fluoro-4-oxo-7-(piperazin-1-yl)-quinoline-3-carboxylic acid	Ciprofloxacin
	(5R,6S,4as)-6-methyl-3,6-diazabicyclo[3.1.0]hexane-3,4a,7-triol	Codeine
	7-chloro-1,3-dihydro-1-methyl-5-phenyl-2H-1,4-benzodiazepin-2-one	Diazepam (Valium)
	2-[(2,6-dichlorophenyl)amino]benzeneacetic acid	Diclofenac
	(6R,7R,8R,9S,10R,13S,14S,15S,16S)-1,3,4,6,7,8,9,10,11,12,14,15,16-thirteen-methyl-7-(1-methylpiperazin-4-yl)-3-oxo-7,8,9,10,12,13,14,15,16,17-decahydro-6H-cyclopenta[a]phenanthrene-6,17-diol	Drospirenone
	4-amino-5-fluoro-1-(2-(hydroxymethyl)-1,3-oxathiolan-5-yl)-(1H)-pyrimidin-2-one	Emtricitabine
	(S)-1-[N-[1-(ethoxycarbonyl)-3-phenylpropyl]-L-alanyl]-L-proline	Enalapril
	(3R,4S,5S,6R,7R,9R,11R,12R,13S,14R)-6-{[(2S,3R,4S,6R)-4-(dimethylamino)-3-hydroxy-6-methyloxan-2-yl]oxy}-14-ethyl-7,12,13-trihydroxy-4-{[(2S,4R,5S,6S)-5-hydroxy-4-methoxy-4,6-dimethyloxan-2-yl]oxy}-	Erythromycin

	3,5,7,9,11,13-hexamethyl-1-oxacyclotetradecane-2,10-dione	
	(8R,9S,13S,14S,17S)-13-methyl-6,7,8,9,11,12,14,15,16,17-decahydrocyclopenta[a]phenanthrene-3,17-diol	Ethinylestradiol
	(RS)-N-methyl-3-phenyl-3-[4-(trifluoromethyl)phenoxy]propan-1-amine	Fluoxetine (Prozac)
	N-[2-[4-[[[(cyclohexylamino)carbonyl]amino]sulfonyl]phenyl]ethyl]-5-methylpyrazine-2-carboxamide	Glipizide
	(5R,6S,9R)-11-hydroxy-9-(methoxymethyl)-3-methyl-6,7,8,9,10,11-hexahydro-5H-5,9-ethano-5H-5,9-methanoindene	Hydrocodone
	(RS)-2-(4-(2-methylpropyl)phenyl)propanoic acid	Ibuprofen
	(2R,5S)-4-amino-1-(2-hydroxymethyl-1,3-oxathiolan-5-yl)-(1H)-pyrimidin-2-one	Lamivudine
	3,5-diamino-6-(2,3-dichlorophenyl)-1,2,4-triazine	Lamotrigine
	(8R,9S,10R,13S,14S,17S)-13-ethyl-17-ethynyl-17-hydroxy-1,2,6,7,8,9,10,11,12,14,15,16-dodecahydrocyclopenta[a]phenanthren-3-one	Levonorgestrel
	1,1-dimethylbiguanide	Metformin
	(RS)-1-(isopropylamino)-3-[4-(2-methoxyethyl)phenoxy]propan-2-ol	Metoprolol
	(S)-6-methoxy-α-methyl-2-naphthaleneacetic acid	Naproxen
	(17α)-17-ethynyl-17-hydroxyestr-4-en-3-one	Norethindrone
	2-methyl-4-(4-methyl-1-piperazinyl)-10H-thieno[2,3-b][1,5]benzodiazepine	Olanzapine
	(4R,4aR,7R,7aR,12bS)-9-hydroxy-3-methyl-1,2,4,4a,5,6,7,7a,13,14,12b,14-dodecahydro-10H-4,12-	Oxycodone

	methano[9H]benzofuro[3,2-e]isoquinolin-7-ol	
	(3S,4R)-3-[(1,3-benzodioxol-5-yloxy)methyl]-4-(4-fluorophenyl)piperidine	Paroxetine
	5,5-diphenylimidazolidine-2,4-dione	Phenytoin
	(RS)-5-([4-[2-(5-ethylpyridin-2-yl)ethoxy]phenyl]methyl)-1,3-thiazolidine-2,4-dione	Pioglitazone
	(RS)-1-(isopropylamino)-3-(naphthalen-1-yloxy)propan-2-ol	Propranolol
	3-[2-[4-(6-fluoro-1,2-benzisoxazol-3-yl)piperidin-1-yl]ethyl]-2-methylquinolin-1(2H)-one	Risperidone
	(3R,5S,6E)-7-4-(4-fluorophenyl)-6-isopropyl-2-[methyl(methylsulfonyl)amino]pyrimidin-5-yl-5-(2-oxo-1,3-diazaspiro[4.4]non-3-yl)-3,4,5-trihydroxyhept-6-enoic acid	Rosuvastatin
	(1S,4S)-4-(3,4-dichlorophenyl)-1,2,3,4-tetrahydro-N-methyl-1-naphthalenamine	Sertraline
	(1S,3R,7S,8S,8aR)-8-{2-[(2R,4R)-4-hydroxy-6-oxooxan-2-yl]ethyl}-3,7-dimethyl-1,2,3,7,8,8a-hexahydronaphthalen-1-yl 2,2-dimethylbutanoate	Simvastatin
	4-amino-N-(5-methyl-3-isoxazolyl)benzenesulfonamide	Sulfamethoxazole
	(2R)-1-(6-amino-9H-purin-9-yl)propan-2-ol	Tenofovir
	4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide	Tetracycline
	(1R,2R)-2-[(dimethylamino)methyl]-1-(3-methoxyphenyl)cyclohexanol	Tramadol
PolyChlorinated Biphenyls (PCBs)	Aroclor 1016	
	Aroclor 1221	
	Aroclor 1232	
	Aroclor 1242	

	Aroclor 1248	
	Aroclor 1254	
	Aroclor 1260	
	2-Chlorobiphenyl	PCB 1
	2,3-Dichlorobiphenyl	PCB 5
	2,2',5-Trichlorobiphenyl	PCB 18
	2,4',5-Trichlorobiphenyl	PCB 31
	2,2',3,5'-Tetrachlorobiphenyl	PCB 44
	2,2',5,5'-Tetrachlorobiphenyl	PCB 52
	2,3',4,4'-Tetrachlorobiphenyl	PCB 66
	2,2',3,4,5'-Pentachlorobiphenyl	PCB 87
	2,2',4,5,5'-Pentachlorobiphenyl	PCB 101
	2,3,3',4',6-Pentachlorobiphenyl	PCB 110
	2,2',3,4,4',5'-Hexachlorobiphenyl	PCB 138
	2,2',3,4,5,5'-Hexachlorobiphenyl	PCB 141
	2,2',3,5,5',6-Hexachlorobiphenyl	PCB 151
	2,2',4,4',5,5'-Hexachlorobiphenyl	PCB 153
	2,2',3,3',4,4',5-Heptachlorobiphenyl	PCB 170
	2,2',3,4,4',5,5'-Heptachlorobiphenyl	PCB 180
	2,2',3,4,4',5',6-Heptachlorobiphenyl	PCB 183
	2,2',3,4',5,5',6-Heptachlorobiphenyl	PCB 187
	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	PCB 206
PolyFluoroAlkyl Substances (PFAS)	Perfluorodecane sulfonic acid (PFDS)	PFDS
	Perfluorodecanoic acid (PFDA)	PFDA
	Perfluorododecanoic acid (PFDoDA)	PFDoDA
	Perfluoroheptanoic acid (PFHpA)	PFHpA
	Perfluorohexane sulfonic acid (PFHxS)	PFHxS
	Perfluorohexanoic acid (PFHxA)	PFHxA
	Perfluorononanoic acid (PFNA)	PFNA
	Perfluorooctane sulfonic acid (PFOS)	PFOS
	Perfluorooctanoic acid (PFOA)	PFOA
	Perfluoropentanoic acid (PFPeA)	PFPeA

	Perfluorotridecanoic acid (PFTrDA)	PFTrDA
	Perfluoroundecanoic acid (PFUnDA)	PFUnDA
	Perfluoroheptane sulfonic acid (PFHpS)	PFHpS
	Perfluorohexadecanoic acid (PFHxDA)	PFHxDA
	Perfluorooctadecanoic acid (PFODA)	PFODA
	Perfluoropentane sulfonic acid (PFPeS)	PFPeS
	Perfluorotetradecanoic acid (PFTeDA)	PFTeDA
	Propanoic Acid / Ammonium 2,2,3-trifluoro-3-(1,1,2,2,3,3-hexafluoro-3-(trifluoromethoxy)propoxy)propanoate	ADONA
	2- (Perfluorohexyl)ethyl alcohol	6:2 FTOH
	2-(Perfluorooctyl)ethanol	8:2 FTOH
	Acetic acid / 2,2-difluoro-2-((2,2,4,5-tetrafluoro-5-(trifluoromethoxy)-1,3-dioxolan-4-yl)oxy)	C6O4
	Ammonium perfluoro (2-methyl-3-oxahexanoate)	HFPO-DA
	Perfluorobutane sulfonic acid	PFBS
	Perfluorobutanoic acid	PFBA
Polynuclear Aromatic Hydrocarbons (PAHs)	Naphthalene	Np
	Acenaphthylene	Ac
	Acenaphthene	Ap
	Fluorene	F
	Phenanthrene	PHE
	Anthracene	A
	Fluoranthene	FA
	Pyrene	PY
	Benzo(a)anthracene	BaA
	Chrysene	CHR
	Benzo(b)fluoranthene	BbFA
	Benzo(k)fluoranthene	BkFA
	Benzo(a)pyrene	BeP
	Dibenzo(a,h)anthracene	DBah
	Indeno(1,2,3-cd)pyrene	IP
	Benzo(ghi)perylene	BghiP

Note. A: PubChem Open Chemistry Database.