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How Well Can We Predict the Toxicity of Pesticide Mixtures to Aquatic Life?

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EDITOR'S NOTE:

The following represents supplemental data and information provided by the author to support research reported in IEAM 3(3): 353–361.

Supplementary Table 6. Alphabetical list of pesticides that were evaluated in mixture toxicity tests. The number of studies that used each pesticide is shown based on experimental design (CA = concentration addition; IA = independent action; SI = simple interaction). The CA studies also are divided by pesticide mode of actions (MOA) and classes as described in the paper. Supplementary Tables 1–5 can be found at http://doi.dx.org/10.1897/2006-046.S1

Pesticide common name	CAS Nr	Nr experiments based on predictive model					
		CA: Same MOA	CA: Same class, different MOA	CA: Different class	IA	SI	All studies
2,4-D	94-75-7	—	10	5	2	—	17
2,4-D-butyl-ester	94-80-4	—	1	—	—	—	1
2,4-D-propylene-glycol-butyl-ether-ester	1320-18-9	—	1	—	—	—	1
Acephate	30560-19-1	—	2	—	—	—	2
Acetochlor	34256-82-1	1	—	—	1	—	2
Acifluorfen	50594-66-6	—	6	2	5	—	13
Alachlor	15972-60-8	1	6	—	3	—	10
Ametryn	834-12-8	2	—	—	1	1	4
Amitrol	61-82-5	—	1	—	—	—	1
Anilazine	101-05-3	—	1	10	—	—	11
Atraton	1610-17-9	1	—	—	2	—	3
Atrazine	1912-24-9	4	6	14	4	22	50
Azinphos-methyl	86-50-0	4	8	—	—	4	16
Azinphos-methyl	86-50-0	1	—	1	—	—	2
Azoxystrobin	131860-33-8	—	—	2	2	—	4
Baythion	14816-18-3	1	4	—	—	—	5
Bensulfuron-methyl	83055-99-6	1	—	—	1	—	2
Bentazone	25057-89-0	—	7	4	—	—	11
Bromoxynil	1689-84-5	—	—	2	2	—	4
Butachlor	23184-66-9	1	—	—	1	—	2
Buturon	3766-60-7	3	—	—	3	—	6
Carbaryl	63-25-2	—	1	2	—	—	3
Carbofuran	1563-66-2	—	2	3	2	—	7
Carbosulfan	55285-14-8	—	—	—	1	—	1
Chlorbromuron	13360-45-7	3	—	—	3	—	6
Chloridazon	1698-60-8	—	—	2	2	—	4

Supplementary Table 6. Continued

Pesticide common name	CAS Nr	Nr experiments based on predictive model					
		CA: Same MOA	CA: Same class, different MOA	CA: Different class	IA	SI	All studies
Chlorothalonil	1897-45-6	—	—	1	—	—	1
Chlorpyrifos	2921-88-2	5	4	2	2	31	44
Chlorsulfuron	64902-72-3	1	—	1	1	—	3
Chlortoluron	15545-48-9	3	7	4	3	—	17
Cinosulfuron	94593-91-6	1	—	—	1	—	2
Clopyralid	1702-17-6	—	—	1	1	—	2
Copper	7440-50-8	—	—	6	—	—	6
Cyanazine	21725-46-2	1	—	—	1	8	10
Cycloxydim	101205-02-1	—	—	2	2	—	4
Deethylatrazine	6190-65-4	—	—	—	—	3	3
Deisopropylatrazine	1007-28-9	—	—	—	—	3	3
Demeton-S-methyl	919-86-8	—	—	—	—	1	1
Desmetryn	1014-69-3	1	—	—	1	—	2
Diazinon	333-41-5	4	1	2	—	13	20
Dichlorvos	62-73-7	1	—	1	—	—	2
Didealkylatrazine	3397-62-4	—	—	—	—	1	1
Dimethachlor	50563-36-5	1	—	—	1	—	2
Dimethametryn	22936-75-0	1	—	—	1	—	2
Dimethoate	60-51-5	—	—	1	1	1	3
Dipropetryn	4147-51-7	1	—	—	1	—	2
Diquat	2764-72-9	—	6	3	3	—	12
Disulfoton	298-04-4	—	—	—	—	1	1
Diuron	330-54-1	3	—	—	3	4	10
Endosulfan	115-29-7	—	5	—	—	—	5
Endothall	145-73-3	—	1	—	—	—	1
Esfenvalerate	66230-04-4	—	3	1	3	1	8
Ethofumesate	26225-79-6	—	—	2	2	—	4
Fenuron	101-42-8	3	—	—	3	—	6
Fenvalerate	51630-58-1	—	4	—	—	—	4
Fluometuron	2164-17-2	3	—	—	3	—	6
Glufosinate	51276-47-2	—	1	—	—	—	1
Glyphosate	1071-83-6	—	21	6	5	—	32
Hexazinone	51235-04-2	—	—	—	6	—	6
Ioxynil	1689-83-4	—	—	2	2	—	4
Isofenphos	25311-71-1	—	—	2	2	—	4
Isoproturon	34123-59-6	3	—	2	5	—	10
Isoxaflutole	141112-29-0	—	—	2	2	—	4
Lenacil	2164-08-1	—	—	2	2	—	4

Supplementary Table 6. Continued

Pesticide common name	CAS Nr	Nr experiments based on predictive model					
		CA: Same MOA	CA: Same class, different MOA	CA: Different class	IA	SI	All studies
Lindane	58-89-9	—	1	10	—	—	11
Linuron	330-55-2	3	—	2	5	—	10
Malathion	121-75-5	1	1	1	—	1	4
MCPA	94-74-6	1	—	2	2	—	5
Mechlorprop	93-65-2	1	13	—	4	—	18
Mesotrione	104206-82-8	—	16	—	11	—	27
Metamitron	41394-05-2			2	2	—	4
Metazachlor	67129-08-2	1	7	4	1	—	13
Methabenzthiazuron	18691-97-9	—	7	4	—	—	11
Methidathion	950-37-8	4	—	—	—	4	8
Methoprotryne	841-06-5	1	—	—	1	—	2
Methoxychlor	72-43-5	—	1	2	—	—	3
Methylparathion	7699-30-1	1	2	4	—	2	9
Metobromuron	3060-89-7	3	—	—	3	—	6
Metolachlor	51218-45-2	1	—	2	3	—	6
Metoxuron	19937-59-8	3	—	—	3	—	6
Metribuzin	21087-64-9	1	—	—		—	1
Metsulfuron	79510-48-8	—	6	—	5	—	11
Metsulfuron-methyl	74223-64-6	3	5	—	1	—	9
Mevinphos	7786-34-7	—	—	1	—	—	1
Mexacarbate	315-18-4	—	6	—	—	—	6
Molinate	212-67-1	1	—	—	—	—	1
Monolinuron	1746-81-2	3	—	—	3	—	6
Monosodium methanearsonate	2163-80-6	—	1	—	—	—	1
Monuron	150-68-5	3	—	—	3	—	6
Omethoate	1113-02-6	—	—	—	—	1	1
Parathion	56-38-2	—	1	10	—	—	11
Pendimethalin	40487-42-1	—	—	2	2	—	4
Phenthoate	2597-03-7	—	1	—	—	—	1
Phosphamidon	13171-21-6	1	—	—	—	—	1
Picloram	1918-02-1	—	2	—	—	—	2
Pretilachlor	51218-49-6	1	—	—	1	—	2
Primisulfuron-methyl	86209-51-0	1	—	—	1	—	2
Prochloraz	67747-09-5	—	1	21	11	—	33
Profenofos	41198-08-7	1	2	—	—	—	3
Prometon	1610-18-0	2	—	—	2	1	5
Prometryn	7287-19-6	2	—	—	2	1	5
Propachlor	1918-16-7	1	—	—	1	—	2

Supplementary Table 6. Continued

Pesticide common name	CAS Nr	Nr experiments based on predictive model					
		CA: Same MOA	CA: Same class, different MOA	CA: Different class	IA	SI	All studies
Propazine	139-40-2	1	—	—	1	1	3
Prosulfuron	94125-34-5	1	—	—	1	—	2
Pyrethrum	8003-34-7	2	4	—	—	—	6
Quinalphos	13593-03-8	1	—	—	—	—	1
Resmethrin	10453-86-8	2	4	—	—	—	6
Rimsulfuron	122931-48-0	1	—	—	1	—	2
Ru-11679 (bioethanomethrin)	22431-62-5	2	4	—	—	—	6
Sebuthylazine	7286-69-3	1	—	—	1	—	2
Secbumeton	26259-45-0	1	—	—	1	—	2
Simazine	122-34-9	2	7	4	1	7	21
Simetryn	1014-70-6	1	—	—	1	—	2
Terbumeton	33693-04-8	1	—	—	1	—	2
Terbuthylazine	5915-41-3	1	13	4	7	—	25
Terbutryn	886-50-0	1	—	—	1	—	2
Thifensulfuron-methyl	79277-27-3	—	—	2	2	—	4
Thiobencarb	28249-77-6	1	—	—	—	—	1
Tri-Allate	2303-17-5	—	7	4	—	—	11
Triasulfuron	82097-50-5	3	—	2	3	—	8
Tribenuron-methyl	101200-48-0	—	—	2	2	—	4
Trichlorfon	52-68-6	2	4	1	—	—	7
Triclopyr	55335-06-3	—	1	—	—	—	1

CAS = Chemical Abstract Service registration number.

Supplementary Table 7. Alphabetical list of species that were evaluated in mixture toxicity tests. The number of studies that used each species is shown based on experimental design (CA = concentration addition; IA = independent action; SI = simple interaction). The CA studies also are divided by pesticide mode of actions (MOA) and classes as described in the paper

Species	CA: Same MOA	CA: Same class, different MOA	CA: Different class	IA	SI	All studies
Bufo americanus	—	2	—	—	—	2
Carassius auratus	—	1	—	—	—	1
Ceriodaphnia dubia	2	4	—	—	1	7
Channa punctata	—	1	—	—	—	1
Chironomus tentans	6	2	8	1	39	56
Daphnia magna	—	—	4	4	—	8
Dunaliella tertiolecta	—	—	2	—	—	2
Epipsammon community	1	—	—	1	—	2
Fundulus heteroclitus	—	6	—	—	—	6
Gammarus italicus	1	—	2	—	—	3
Homarus americanus	1	—	—	—	—	1
Hyallella azteca	—	—	—	—	13	13
Ictalurus punctata	—	1	—	—	—	1
Lemna minor	3	32	3	19	—	57
Lepomis macrochirus	—	3	—	—	1	4
Neomysis mercedis	1	—	—	—	—	1
Oncorhynchus clarkii	—	2	—	—	—	2
Oncorhynchus mykiss	5	16	—	—	—	21
Oreochromis mossambicus	1	—	—	—	—	1
Periphyton community	1	—	—	1	—	2
Pimephales promelas	—	2	—	1	2	5
Procambarus clarkii	—	1	—	—	—	1
Pseudokirchneriella subcapitata	1	6	4	4	—	15
Rana clamitans	—	—	—	—	—	0
Rana pipiens	—	2	—	—	—	2
Scenedesmus vacuolatus	6	31	38	6	—	81
Tigriopus brevicornis	1	1	2	—	—	4
Utterbackia imbecillis	—	—	2	—	—	2
Xenopus laevis	—	—	—	—	2	2