

Appendix A. Supplementary Data

Article Title: Heavy Metal and Pesticide Content in Commonly Prescribed Individual Raw Chinese Herbal Medicines

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Supplementary Data, Table S1. List of plant species included in the study (N=126).

Scientific Name (as listed in the Chinese Pharmacopoeia (CPC 2005))	Pin Yin Name	Medicinal Part
<i>Acanthopanax senticosus</i> (Rupr. ex Maxim.) Harms	Ci Wu Jia	Root, Rhizome & Stem
<i>Achyranthes bidentata</i> Bl.	Niu Xi	Root
<i>Acorus tatarinowii</i> Schott	Shi Chang Pu	Rhizome
<i>Agrimonia pilosa</i> Ledeb.	Xian He Cao	Leaf & Stem
<i>Akebia quinata</i> (Thunb.) Decne.	Mu Tong	Stem
<i>Alisma orientalis</i> (Sam.) Juzep.	Ze Xie	Tuber
<i>Alpinia officinarum</i> Hance	Gao Liang Jiang	Rhizome
<i>Alpinia oxyphylla</i> Miq.	Yi Zhi	Fruit
<i>Amomum villosum</i> Lour.	Sha Ren	Fruit
<i>Andrographis paniculata</i> (Burm. f.) Nees	Chuan Xin Lian	Leaf & Stem
<i>Apocynum venetum</i> L.	Luo Bu Ma Ye	Leaf
<i>Arctium lappa</i> L.	Niu Bang Zi	Fruit
<i>Areca catechu</i> L.	Da Fu Pi	Fruit
<i>Artemisia annua</i> L.	Qing Hao	Leaf & Stem
<i>Artemisia argyi</i> Lévl. et Vant	Ai Ye	Leaf
<i>Artemisia capillaris</i> Thunb.	Yin Chen	Leaf & Stem
<i>Asarum heterotropoides</i> var. <i>mandshuricum</i> (Maxim.) Kitag.	Xi Xin	Root & Rhizome
<i>Aster tataricus</i> L. f.	Zi Wan	Root & Rhizome
<i>Astragalus membranaceus</i> var. <i>mongholicus</i> (Bge.) Hsiao	Huang Qi	Root
<i>Atractylodes macrocephala</i> Koidz.	Bai Zhu	Rhizome
<i>Belamcanda chinensis</i> (L.) DC.	She Gan	Rhizome
<i>Brassica juncea</i> (L.) Czern. et Coss.	Jie Zi	Seed
<i>Brucea javanica</i> (L.) Merr.	Ya Dan Zi	Fruit
<i>Bupleurum chinense</i> DC.	Chai Hu	Root
<i>Cassia tora</i> L.	Jue Ming Zi	Seed
<i>Celosia cristata</i> L.	Ji Guan Hua	Flower
<i>Chaenomeles speciosa</i> (Sweet) Nakai	Mu Gua	Fruit
<i>Chrysanthemum indicum</i> L.	Ye Ju Hua	Flower
<i>Chrysanthemum morifolium</i> Ramat.	Ju Hua	Flower
<i>Citrus aurantium</i> L.	Zhi Qiao	Fruit
<i>Citrus medica</i> var. <i>sarcodactylis</i> Swingle	Fo Shou	Fruit
<i>Citrus reticulata</i> Blanco	Chen Pi	Fruit
<i>Clematis chinensis</i> Osbeck	Wei Ling Xian	Root & Rhizome
<i>Codonopsis pilosula</i> (Franch.) Nannf.	Dang Shen	Root
<i>Coix lacryma-jobi</i> L.	Yi Yi Ren	Seed
<i>Coptis chinensis</i> Franch.	Huang Lian	Rhizome
<i>Cornus officinalis</i> Sieb. et Zucc.	Shan Zhu Yu	Fruit
<i>Corydalis yanhusuo</i> W. T. Wang	Yan Hu Suo	Tuber
<i>Cynanchum atratum</i> Bge.	Bai Wei	Root & Rhizome
<i>Cynanchum paniculatum</i> (Bge.) Kitag.	Xu Chang Qing	Root & Rhizome
<i>Dianthus chinensis</i> L.	Qu Mai	Leaf & Stem
<i>Dictamnus dasycarpus</i> Turcz.	Bai Xian Pi	Root
<i>Dimocarpus longan</i> Lour.	Long Yan Rou	Fruit
<i>Dioscorea nipponica</i> Makino	Chuan Shan Long	Rhizome
<i>Dioscorea opposita</i> Thunb.	Shan Yao	Rhizome
<i>Dipsacus asperoides</i> C.Y. Cheng et T.M. Ai	Xu Duan	Root
<i>Dolichos lablab</i> L.	Bai Bian Dou	Seed
<i>Echinops latifolius</i> Tausch	Yu Zhou Lou Lu	Root
<i>Epimedium brevicornum</i> Maxim.	Yin Yang Huo	Leaf & Stem
<i>Eriobotrya japonica</i> (Thunb.) Lindl.	Pi Pa Ye	Leaf
<i>Evodia rutaecarpa</i> (Juss.) Benth.	Wu Zhu Yu	Fruit
<i>Forsythia suspensa</i> (Thunb.) Vahl	Lian Qiao	Fruit
<i>Fritillaria cirrhosa</i> D. Don	Chuan Bei Mu	Bulb
<i>Ganoderma lucidum</i> (Curtis) Karst.	Ling Zhi	Fungus
<i>Gardenia jasminoides</i> Ellis	Zhi Zi	Fruit
<i>Gentiana macrophylla</i> Pall.	Qin Jiao	Root
<i>Ginkgo biloba</i> L.	Bai Guo	Seed
<i>Glehnia littoralis</i> F. Schmidt ex Miq.	Bei Sha Shen	Root
<i>Glycyrrhiza uralensis</i> Fisch.	Gan Cao	Root & Rhizome
<i>Hedyotis diffusa</i> Willd.	Bai Hua She She Cao	Leaf & Stem
<i>Houttuynia cordata</i> Thunb.	Yu Xing Cao	Leaf & Stem
<i>Illicium verum</i> Hook. f.	Ba Jiao Hui Xiang	Fruit
<i>Imperata cylindrica</i> var. <i>major</i> (Nees) C. E. Hubb.	Bai Mao Gen	Rhizome
<i>Inula japonica</i> Thunb.	Jin Fei Cao	Leaf & Stem
<i>Isatis indigotica</i> Fort.	Ban Lan Gen	Root
<i>Juncus effusus</i> L.	Deng Xin Cao	Stem
<i>Kaempferia galanga</i> L.	Shan Nai	Rhizome
<i>Kochia scoparia</i> (L.) Schrad.	Di Fu Zi	Fruit

Scientific Name (as listed in the Chinese Pharmacopoeia (CPC 2005))	Pin Yin Name	Medicinal Part
<i>Leonurus heterophyllus</i> Sweet.	Yi Mu Cao	Leaf & Stem
<i>Ligusticum chuanxiong</i> Hort.	Chuan Xiong	Rhizome
<i>Ligustrum lucidum</i> Ait.	Nu Zhen Zi	Fruit
<i>Lindera aggregata</i> (Sims) Kosterm	Wu Yao	Tuber
<i>Lobelia chinensis</i> Lour.	Ban Bian Lian	Whole Plant
<i>Lonicera japonica</i> Thunb.	Jin Yin Hua	Flower
<i>Lophatherum gracile</i> Brongn.	Dan Zhu Ye	Leaf & Stem
<i>Lycium barbarum</i> L.	Gou Qi Zi	Fruit
<i>Lycopus lucidus</i> var. <i>hirtus</i> Regel	Ze Lan	Leaf & Stem
<i>Melia toosendan</i> Sieb. et Zucc.	Chuan Lian Zi	Fruit
<i>Menispermum dauricum</i> DC.	Bei Dou Gen	Rhizome
<i>Mentha haplocalyx</i> Briq.	Bo He	Leaf & Stem
<i>Momordica cochinchinensis</i> (Lour.) Spreng.	Mu Bie Zi	Seed
<i>Momordica grosvenori</i> Swingle	Luo Han Guo	Fruit
<i>Morus alba</i> L.	Sang Ye	Leaf
<i>Paeonia lactiflora</i> Pall.	Bai Shao	Root
<i>Paeonia suffruticosa</i> Andr.	Mu Dan Pi	Root
<i>Paeonia veitchii</i> Lynch.	Chi Shao	Root
<i>Panax ginseng</i> C.A. Mey.	Ren Shen	Root
<i>Panax notoginseng</i> (Burk.) F.H. Chen	San Qi	Root
<i>Perilla frutescens</i> (L.) Britt.	Zi Su Zi	Fruit
<i>Phragmites communis</i> Trin.	Lu Gen	Rhizome
<i>Piper nigrum</i> L.	Hu Jiao	Fruit
<i>Platycodon grandiflorum</i> (Jacqui) A. DC.	Jie Geng	Root
<i>Pogostemon cablin</i> (Blanco) Benth.	Guang Huo Xiang	Leaf & Stem
<i>Polygala tenuifolia</i> Willd.	Yuan Zhi	Root
<i>Polygonum aviculare</i> L.	Bian Xu	Leaf & Stem
<i>Polygonum cuspidatum</i> Sieb. et Zucc.	Hu Zhang	Root & Rhizome
<i>Polygonum multiflorum</i> Thunb.	He Shou Wu	Tuber
<i>Poria cocos</i> (Schw.) Wolf	Fu Ling	Fungus
<i>Portulaca oleracea</i> L.	Ma Chi Xian	Leaf & Stem
<i>Prunus armeniaca</i> var. <i>ansu</i> Maxim.	Ku Xing Ren	Seed
<i>Pseudostellaria heterophylla</i> (Miq.) Pax ex Pax et Hoffm.	Tai Zi Shen	Tuber
<i>Pueraria lobata</i> (Willd.) Ohwi	Ge Gen	Root
<i>Rehmannia glutinosa</i> Libosch.	Di Huang	Tuber
<i>Rheum palmatum</i> L.	Da Huang	Root & Rhizome
<i>Rosa laevigata</i> Michx.	Jin Ying Zi	Fruit
<i>Rosa rugosa</i> Thunb.	Mei Gui Hua	Flower
<i>Rubia cordifolia</i> L.	Qian Cao	Root & Rhizome
<i>Salvia multiorrhiza</i> Bge.	Dan Shen	Root & Rhizome
<i>Saposhnikovia divaricata</i> (Turcz.) Schischk.	Fang Feng	Root
<i>Sarcandra glabra</i> (Thunb.) Nakai	Zhong Jie Feng	Whole Plant
<i>Schisandra chinensis</i> (Turcz.) Baill.	Wu Wei Zi	Fruit
<i>Scutellaria baicalensis</i> Georgi	Huang Qin	Root
<i>Siegesbeckia orientalis</i> L.	Xi Xian Cao	Leaf & Stem
<i>Silybum marianum</i> (L.) Gaertn.	Shui Fei Ji	Fruit
<i>Sophora flavescens</i> Ait.	Ku Shen	Root
<i>Sparganium stoloniferum</i> Buch.-Ham.	San Leng	Rhizome
<i>Stellaria dichotoma</i> var. <i>lanceolata</i> Bge.	Yin Chai Hu	Root
<i>Trachelospermum jasminoides</i> (Lindl.) Lem.	Luo Shi Teng	Leaf & Stem
<i>Tribulus terrestris</i> L.	Ji Li	Fruit
<i>Tussilago farfara</i> L.	Kuan Dong Hua	Flower
<i>Uncaria rhynchophylla</i> (Miq.) Jacks.	Gou Teng	Stem
<i>Verbena officinalis</i> L.	Ma Bian Cao	Leaf & Stem
<i>Xanthium sibiricum</i> Patr.	Cang Er Zi	Fruit
<i>Zanthoxylum bungeanum</i> Maxim.	Hua Jiao	Fruit
<i>Ziziphus jujuba</i> var. <i>inermis</i> (Bunge) Rehd	Da Zao	Fruit
<i>Ziziphus jujuba</i> var. <i>spinosa</i> (Bunge) Hu et H. F. Chou	Suan Zao Ren	Seed

Supplementary Data, Table S2. List of all pesticide residues screened (N=162).

Pesticide Name
3-Hydroxycarbofuran
Acetochlor
Alachlor
Aldicarb (temik)
Aldicarb sulfone
Aldicarb sulfoxide
Aldrin
Alpha-cypermethrin
Ametryne
Aminocarb
Atrazine
Bendiocarb
Benfluralin
BHC, alpha
BHC, beta
BHC, delta
Bifenoxy
Bifenthrin
Bromophos
Bromophos-ethyl
Bromopropylate
Butachlor
Butocarboxim
Butoxycarboxim
Carbaryl (Sevin)
Carbofuran (Furadan)
Carbophenothion
Chlordane, cis
Chlordane, technical
Chlordane, trans
Chlorfenvinphos
Chlornitrofen
Chlorobenzilate
Chloroneb
Chloroprotham
Chloropropylate
Chlorothalonil
Chlorpyrifos
Chlorpyrifos-methyl
Chlorthiophos
Cypermethrin
Cyprodinil
DCPA
DDE, o,p'
DDE, p,p'
DDT, o,p'
DDT, p,p'
DEF
Di-allate
Dialifor
Diazinon
Dichlofenthion
Dichlorofluanid
Diclofop-methyl
Dieldrin
Difenoconazole
Dinitramine
Dioxacarb
Diphenylamine
Endosulfan I
Endosulfan II

Pesticide Name
Endosulfan Sulfate
Endrin
Endrin ketone
EPN
Esfenvalerate
Ethalfuralin
Ethiofencarb
Ethiolate
Ethion
Ethoxyquin
Etridiazole
Etrimfos
Fenitrothion
Fenobucarb
Fenpropathrin
Fenvalerate
Fipronil
Fluazifop-butyl
Fluchoralin
Fluvalinate
Folpet
Fonofos
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Iprodione
Isofenphos
Isoproc carb
Leptophos
Lindane
Malathion
Metalaxyl
Methiocarb
Methomyl (Lannate)
Methoprotryne
Methoxychlor, o,p'
Methoxychlor, p,p'
Methoxychlorolefin
Metolcarb
Metribuzin
Mirex
Myclobutanil
Napropamide
Nitralin
Nitrofen
Nonachlor, cis
Nonachlor, trans
Octachlor epoxide
Ovex
Oxadiazon
Oxamyl
Oxyfluorfen
Parathion
Parathion-methyl
Pedimethalin
Pentachloroaniline
Pentachloroanisole
Pentachlorobenzene
Pentachlorothioanisole
Permethrins
Perthane

Pesticide Name
Phenthoate
Phosalone
Pirimicarb
Pirimiphos-ethyl
Pirimiphos-methyl
Procyazine
Procymidone
Promecarb
Prometryne
Propetamphos
Propham
Propoxur
Prothiofos
Quinalphos
Quintozene
Ronnel
Simazine
Simetryn
Sulfallate
Sulfotep
TDE, o,p'
TDE, p, p'
TDE, p,p'-olefin
Tecnazene
Terbufos-sulfone
Terbumeton
Terbutylazine
Terbutryne
Tetrachloroaniline
Tetradifon
Tetrahydrophthalimide (THPI)
Tetramethrine
Tetrasul
Thiabendazole
Thiofanox
Toxaphene
Tri-allate
Trichloronat
Trifluralin
Vinclozolin

Supplementary Data, Table S3. Reference values for pesticides and heavy metals.

Contaminant	Type	Source of RfD/MRL	RfD, PAD, or MRL (mg/kg body wt/day)
Arsenic	Heavy Metal	ATSDR Acute, oral exposure	0.005
Arsenic	Heavy Metal	ATSDR Chronic, oral exposure	0.0003
Arsenic	Heavy Metal	EPA-IRIS for Inorganic Arsenic, Chronic Oral Exposure	0.0003
Cadmium	Heavy Metal	ATSDR Chronic Oral Exposure	0.0001
Cadmium	Heavy Metal	ATSDR Int. Oral Exposure	0.0005
Cadmium	Heavy Metal	EPA-IRIS for Chronic Oral Exposure in Food	0.001
Chromium	Heavy Metal	ATSDR Chronic Oral Exposure (for Cr VI)	0.001
Chromium	Heavy Metal	ATSDR Int. Oral Exposure (for Cr VI)	0.005
Chromium	Heavy Metal	EPA-IRIS Chronic Oral Exposure (for Cr VI)	0.003
Lead	Heavy Metal	JECFA (based on the provisional tolerable weekly intake [PTWI] for lead of 25 µg/kg body wt per week)	0.0036
Mercury	Heavy Metal	ATSDR Chronic Oral Exposure to Methyl Mercury	0.0003
Mercury	Heavy Metal	ATSDR Int. Oral Exposure to Mercuric Chloride	0.002
Mercury	Heavy Metal	JECFA (based on the Provisional Tolerable Weekly Intake [PTWI] for inorganic mercury of 4 µg/kg body wt per week)	0.00057
Alachlor	Pesticide	EPA ISTEP PAD, Acute Dietary, Females 13-49	1.5
Alachlor	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.01
Atrazine	Pesticide	ATSDR Acute MRL	0.01
Atrazine	Pesticide	ATSDR Int. MRL	0.003
Atrazine	Pesticide	EPA ISTEP PAD, Acute Dietary, Females 13-49	0.01
Atrazine	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.0018
Carbofuran (Furadan)	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.0002
Chlorpyrifos	Pesticide	ATSDR Acute MRL	0.003
Chlorpyrifos	Pesticide	ATSDR Chronic MRL	0.001
Chlorpyrifos	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.0005
Chlorpyrifos	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.00003
DDT, p,p'	Pesticide	ATSDR Acute MRL	0.0005
DDT, p,p'	Pesticide	ATSDR Chronic MRL	0.0005

Contaminant	Type	Source of RfD/MRL	RfD, PAD, or MRL (mg/kg body wt/day)
Diphenylamine	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.1
Endosulfan	Pesticide	ATSDR Chronic MRL	0.002
Endosulfan	Pesticide	ATSDR Int. MRL	0.005
Endosulfan	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.051
Endosulfan	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.006
Endrin	Pesticide	ATSDR Chronic MRL	0.0003
Endrin	Pesticide	ATSDR Int. MRL	0.002
Esfenvalerate	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.0018
Esfenvalerate	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.0018
Fenpropathrin	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.06
Fenpropathrin	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.025
Fenvalerate	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.0018
Fenvalerate	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.0018
Fipronil	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.025
Fipronil	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.0002
Iprodione	Pesticide	EPA ISTEP PAD, Acute Dietary, Females 13-49	0.02
Iprodione	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.06
Lindane	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.02
Lindane	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.0016
Malathion	Pesticide	ATSDR Chronic MRL	0.02
Malathion	Pesticide	ATSDR Int. MRL	0.02
Malathion	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.076
Malathion	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.071
Methomyl (Lannate)	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.02
Methomyl (Lannate)	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.008
Myclobutanil	Pesticide	EPA ISTEP PAD, Acute Dietary, Females 13-49	0.6

Contaminant	Type	Source of RfD/MRL	RfD, PAD, or MRL (mg/kg body wt/day)
Myclobutanil	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.025
Parathion-methyl	Pesticide	ATSDR Chronic MRL	0.0003
Parathion-methyl	Pesticide	ATSDR Int. MRL	0.0007
Parathion-methyl	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.00011
Parathion-methyl	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.00002
Permethrin	Pesticide	ATSDR Acute MRL	0.3
Permethrin	Pesticide	ATSDR Int. MRL	0.2
Permethrins	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.25
Permethrins	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.25
Procymidone	Pesticide	EPA ISTEP PAD, Acute Dietary, Females 13-49	0.035
Quintozene	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.001
Terbufos	Pesticide	EPA ISTEP PAD, Acute Dietary, General Population	0.0003
Terbufos	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.00005
Trifluralin	Pesticide	EPA ISTEP PAD, Acute Dietary, Females 13-49	1
Trifluralin	Pesticide	EPA ISTEP PAD, Chronic Dietary, General Population	0.024

ATSDR = Agency for Toxic Substances and Disease Registry (ATSDR, 2010)

EPA-IRIS = Environmental Protection Agency Integrated Risk Information System (US EPA, 2010)

EPA-ISTEP = Environmental Protection Agency (EPA) Office of Pesticide Programs ISTEP Toxicology Endpoint Selection Database (David J. Miller, Chief, Chemistry & Exposure Branch, Office of Pesticide Programs, EPA, email communication, April 2010)

JECFA-PTWI = Joint FAO/WHO Expert Committee On Food Additives, Provisional Tolerable Weekly Intake (Pb: JECFA, 2000; Hg: JECFA, 2010)

RfD = Reference Dose

PAD = Population Adjusted Dose

MRL = Minimal Risk Level (ATSDR, 2010)

Supplementary Data, Table S4. Summary of pesticide residues detected (LOD=10–50 ppb; total of 162 pesticides screened) in raw Chinese Herbal Medicines (Total N=294).

Pesticide Name	United States Registration Status	General Summary Statistics for samples with detectable levels				Comparison with EPA-ISTEP PAD values				Comparison with ATSDR Minimal Risk Level (MRL) values (ATSDR, 2010)				Comparison with Levels in EU Pesticides Database (EUP, 2010) for Dried Herbal Infusions and FDA Action Levels*		
		# Samples with Detectable Pesticide (% samples in parentheses)	Value if N=1 (ppb)	Median (ppb)	Minimum (ppb)	Maximum (ppb)	Herb Taken as Soup/Tea, Assuming 10% Leaching	Whole Herb Ingested	Herb Taken as Soup/Tea, Assuming 10% Leaching	Whole Herb Ingested	Herb Taken as Soup/Tea, Assuming 10% Leaching	Whole Herb Ingested	EU Maximum Residue Level or FDA Action Level† (ppb)	# Samples > Level (% samples in parentheses)		
						# Samples > 1% PAD (% samples in parentheses) Acute Exposure	# Samples > 1% PAD (% samples in parentheses) Chronic Exposure	# Samples > 1% PAD (% samples in parentheses) Acute Exposure	# Samples > 1% PAD (% samples in parentheses) Chronic Exposure	# Samples > 1% MRL (% samples in parentheses) Acute Exposure	# Samples > 1% MRL (% samples in parentheses) Chronic Exposure	# Samples > 1% MRL (% samples in parentheses) Acute Exposure	# Samples > 1% MRL (% samples in parentheses) Chronic Exposure			
Alachlor	Registered	1 (0.3%)	55			0 (0%)	0 (0%)	0 (0%)	0 (0%)					50	1 (0.3%)	
Atrazine	Registered	2 (0.7%)		92	30	155	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	100	1 (0.3%)	
BHC, alpha	Not Registered*	2 (0.7%)		93	20	166								50*	1 (0.3%)	
BHC, beta	Not Registered*	6 (2%)		44	28	120								50*	2 (0.7%)	
BHC, delta	Not Registered*	1 (0.3%)	650											50*	1 (0.3%)	
BifenoX	Not Registered	3 (1%)		12	11	13								50	0 (0%)	
Carbofuran (Furadan)	Registered	1 (0.3%)	13				0 (0%)	0 (0%)						50	0 (0%)	
Chloropropylate	Not Registered	1 (0.3%)	67													
Chlorpyrifos	Registered	76 (25.9%)		68	10	2955000	14 (4.8%)	66 (22.4%)	60 (20.4%)	75 (25.5%)	5 (1.7%)	13 (4.4%)	18 (6.1%)	37 (12.6%)	500	13 (4.4%)
DDE, p,p'	Not Registered*	1 (0.3%)	243											20*	1 (0.3%)	
DDT, o,p'	Not Registered*	1 (0.3%)	203											20*	1 (0.3%)	
DDT, p,p'	Not Registered*	2 (0.7%)		144	43	246					0 (0%)	0 (0%)	2 (0.7%)	2 (0.7%)	500	0 (0%)
Diphenylamine	Registered	1 (0.3%)	159					0 (0%)	0 (0%)					50	1 (0.3%)	
Endosulfan I	Registered	1 (0.3%)	47				0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	500	0 (0%)	
Endrin	Not Registered	1 (0.3%)	59							0 (0%)	0 (0%)	0 (0%)	1 (0.3%)	100	0 (0%)	
Esfenvalerate	Registered	4 (1.4%)		68	45	731	0 (0%)	0 (0%)	1 (0.3%)	1 (0.3%)				50	3 (1.0%)	
Ethiolate	Not Registered	3 (1%)		84	80	87										
Fenobucarb	Not Registered	2 (0.7%)		45	44	45										
Fenpropathrin	Registered	5 (1.7%)		34	20	101	0 (0%)	0 (0%)	0 (0%)	0 (0%)				20	5 (1.7%)	
Fenvalerate	Registered	2 (0.7%)		126	36	215	0 (0%)	0 (0%)	1 (0.3%)	1 (0.3%)				50	1 (0.3%)	
Fipronil	Registered	1 (0.3%)	50				0 (0%)	0 (0%)	0 (0%)	1 (0.3%)				5	1 (0.3%)	
Iprodione	Registered	2 (0.7%)		39	23	56	0 (0%)	0 (0%)	0 (0%)	0 (0%)				100	0 (0%)	
Isoprocarb	Not Registered	3 (1%)		62	16	2020										
Lindane	Not Registered*	4 (1.4%)		39	26	125	0 (0%)	0 (0%)	0 (0%)	1 (0.3%)				1000	0 (0%)	
Malathion	Registered	2 (0.7%)		16	14	18	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	500	0 (0%)	
Methomyl (Lannate)	Registered	1 (0.3%)	478				0 (0%)	0 (0%)	0 (0%)	0 (0%)				100	1 (0.3%)	
Myclobutamil	Registered	1 (0.3%)	105				0 (0%)	0 (0%)	0 (0%)	0 (0%)				50	1 (0.3%)	
Nonachlor, cis	Not Registered	1 (0.3%)	21													
Parathion	Not Registered	5 (1.7%)		49	14	1810								100	2 (0.7%)	
Parathion-methyl	Registered	4 (1.4%)		39	19	65	0 (0%)	4 (1.4%)	4 (1.4%)	4 (1.4%)	0 (0%)	0 (0%)	2 (0.7%)	3 (1.0%)	50	2 (0.7%)
Pentachloroaniline	Registered	1 (0.3%)	30											100	0 (0%)	
Permethrin	Registered	2 (0.7%)		73	60	87	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	100	0 (0%)	
Procymidone	Registered	3 (1%)		149	83	400	0 (0%)	0 (0%)	0 (0%)					100	2 (0.7%)	
Quintozene	Registered	1 (0.3%)	85					0 (0%)		1 (0.3%)				100	0 (0%)	
Sulfotep	Not Registered	6 (2%)		47	12	1511										
TDE, o,p'	Not Registered*	1 (0.3%)	202											20*	1 (0.3%)	
TDE, p, p'	Not Registered*	2 (0.7%)		140	49	232								20*	2 (0.7%)	
TDE, p,p'-olefin	Not Registered*	1 (0.3%)	53											20*	1 (0.3%)	
Terbufos-sulfone	Registered	1 (0.3%)	11				0 (0%)	0 (0%)	0 (0%)	1 (0.3%)				10	1 (0.3%)	
Tetrachloroaniline	Not Registered	1 (0.3%)	30													
Thiofanox	Not Registered	2 (0.7%)		11	10	11										
Trifluralin	Registered	1 (0.3%)	61				0 (0%)	0 (0%)	0 (0%)	0 (0%)				100	0 (0%)	

*Pesticide is no longer registered for use in the United States, but the FDA has established an Action Level (US FDA, 2009).

All calculations were done using the maximum daily dose of the herb (CPC, 2005) and assuming a body weight of 70 kg.

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