**SUPPLEMENTARY MATERIAL**

**Table S3.**Some examples of the application of GC-MS and GC-MS/MS and LC-MS and LC-MS/MS for the determination of pesticides in food samples from Colombia.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Number of multiclass pesticides** | **Matrix** | **Sample preparation** | **Analysis technique** | **Analyser** | **LOQ** | **References** |
| 21  | Junca Onion  | SPME | GC-MS  | NPD  |  0.11-7.15 µg/kg   | [104] |
| 201  | Tropical fruits and vegetables   | QuEChERS | LC-HRMS  | QqQ  | 0.1- 1 µg/kg  | [105]  |
| 13  | Coffee  | SPME | GC-MS  | Q  | 0.7- 5 µg/kg  | [106] |
| 48  | Annona cherimola and gulupa  | QuEChERS | GC-MS/MS  | QqQ  | 5 µg/kg  | [107] |
| 50  | Exotic fruits   | QuEChERS | GC-MS   | Q  | 1 µg/kg  | [108]  |

 GC-MS: Gas cromatography mass spectrometry; GC-MS/MS: Gas cromatography tandem mass spectrometry; LC-HRMS: [Liquid chromatography](https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/liquid-chromatography) [high resolution mass spectrometry](https://www.sciencedirect.com/topics/chemistry/high-resolution-mass-spectrometry-hrms); NPD: Nitrogen phosphorus detector SPME: Solid-phase microextraction; Q: Single quadrupole; QqQ: Triple quadrupole; QuEChERS: Quick, easy, cheap, effective, rugged and safe.

**Table S2.** Identification of some pesticide residues by Colombian departments.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DEPARTAMENT** | **PESTICIDE TYPE** | **COMMON NAME** | **ACTIVE INGREDIENT** | **LD50 FOR RATS (mg/k)** | **TOXICOLOGICAL CATEGORY (WHO)** |
| Cundinamarca | OPP | Lorsban ™ 4 CE | Chlorpyrifos | 135 | II  |
| OPP | Nadir® 600 SL | Methamidophos | 30 | Ib |
| OCPsOCP | Sunfire® 24 SC - Mitipry 240 SC | Chlorfenapyr | 441 | II |
| OPP | Profitox 80 SP | Trichlorfon | 250 | II |
| Neonicotinoid | Engeo® - Centric® 75 SG | Thiamethoxam | 871 | II |
| Pyrethroid | Brigada® 100 CE - Extinguidor 100 EC | Bifenthrin | c55 | II |
| Pyrethroid | Engeo® | Cyhalothrin | c144 | II |
| OPP | Roxion® 40 CE - Koleo Inpro 400 CE | Dimethoate | c150 | II |
| OPP | Fulminator 600 CE - Progenocron | Profenofos | 358 | II |
| Benzamide | Luna® Tranquilidad | Fluopyram | >2000 | III |
| Strobilurin | Amistar® TOP CS - Xstrata 250 SC | Azoxystrobin | >5000 | U |
| Anilinopyrimidine | Bucanero 40 SC | Pyrimethanil | 4150 | III |
| Tetronic acid | Oberon® SC 240 | Spiromesifen | >2000 | III |
| Triazole | Nativo® SC - Saat rap 250 EC | Tebuconazole | 1700 | II |
| Benzimidazol | Carbendazima 500 - Carbencial® | Carbendazim | >10000 | U |
| Triazole | Opera® SC | Epoxiconazole - Pyraclostrobin | >200 | II |
| Triazole | Mertect® 500 SC - Sellabac 20 SC | Thiabendazole | 3330 | III |
| Anilide | Ridomil® Oro MZ 68 WP - Axioma 250 EC | Metalaxyl | 670 | II |
| OPP | Opera® SC | Pyraclofos | 237 | II |
| Triazole | Amistar® TOP CS - Difenoconazol vecol250 EC | Difenoconazole | 1453 | II |
| Carboxamide | Lathix 54 EC | Hexythiazox | >5000 | U |
| Sulfite ester  | Omite® 6EC - Propargite proficol | Propargite | 2200 | III |
| Boyacá | OPP | Pyrinex 4 EC- Lorsban 4 EC- Niferex 48 CE | Clorpirifos | 135 | II |
| Oxathiin carboxamides | Vitavax 300 | Carboxyl | 3820 | III |
| OCP | Daconil 720 SC- Ridonato 720 SC | Chlorothalonil | >10000 | U  |
| OCP | Oxicloruro de cobre 58.8% WP | Copper oxychloride | >2000 | III |
| Morpholine | Foro 500 WP | Dimethomorph | 3500 | III |
| Organometal | Brestanid 500 SC- Duro 20% | Fentin hydroxide | 108 | II |
| Carbamate | Cobretano- ditano M-45 WP NT- manzate- Manzate 200 GT- Manzate 200 WP | Mancozeb | >8000 | U  |
| Carbamate | Curathane- Curzate M-8- Cymozeb | Mancozeb - Cymoxanil | 1196 | II |
| Carbamate | Ridomil Oro MZ 68 WP | Mancozeb- Metalaxy | 670 | II |
| Carbamate | Sandofán M | Mancozeb- Oxadixyl | 1860 | II |
| OCP | Espejismo 45 CE | Prochloraz | 1600 | II |
| Carbamate | Previcur N SL | Propamocarb- clorhidrato | 325 | II |
| Carbamate | Antracol WP 70 | Propineb | 8500 | U |
| Carbamate | Fitoraz WP 76 | Propineb- Cymoxani | 1150 | II |
| OPP | Orthene 75% SP | Acephate | 945 | II |
| Pyrethroid | Dominex 10 CE | Alpha Cypermethrin | c79 | II |
| Carbamate | Carbofurano 3 GR Coljap- carbofurano 330 SC Coljap- carburador- curador- Furadan 3 GR- Furadan 3 SC- fursem- | Carbofuran | 8 | Ib |
| Carbamate | Eltra 48 CE | Carbosulfan | 250 | II |
| OPPs | Látigo EC | Chlorpyrifos - Cypermethrin | 135 | II |
| Pyrethroid | Cipermetrina 200 CE | Cypermethrin | c250 | II |
| Pyrethroid | Decis 2-5 CE | Deltamethrin | c135 | II |
| OPP | Agrometox 40 CE- Roxion 40 CE- Sistemin 40 CE | Dimethoate | c150 | II |
| Pyrethroid | Karate Zeon SC | Lambda-cyhalothrin | c56 | II |
| OPP | Malathion 57% EC | Malathion | c2100 | III |
| OPP | Tamaron SL 600- Monitor- Nadir 600 SL- Metamidofós 600 Proficol- | Methamidophos | 30 | Ib |
| Carbamate | Metavina 90 SP- Lannato 40 SP- Lannate-SL | Methomyl | 17 | Ib |
| Pyrethroid | Pirestar 38 CE | Permethrin | c220 | II |
| OPPs | Curacron 500 CE | Profenofos | 358 | II |
| Neonicotinoid | Engeo | Thiametoxam - Lambda-cyhalothrin | c56 | II |
| Carbamate | Larvin 375 SC | Thiodicarb | 66 | II |
| OPP | Orthene 75% SP | Acephate | 945 | II |
| Benzimidazole | Carbendazima Vecol 500 | Carbendazim | >10000 | U |
| Carbamate | Moxan mz wp | Carbofuran | 8 | Ib |
| Cyanoacetamide oxime | Moxan mz wp | Cymoxanil | 1196 | II |
| OPP | Danadim progress ® 400 ec | Dimethoate | c150 | II |
| Triazole | Nankin 100 me | Hexaconazole | 2180 | III |
| Neonicotinoid  | Saat fandango 350 sc | Imidacloprid | 450 | II |
| Oxadiazine | Belenus 300 wg | Indoxacarb | 268 | II |
| Phenylamine | Axioma 250 ec | Metalaxyl | 670 | II |
| Carbamate | Volkar® | Methomyl | 17 | Ib |
| Carbohydrazide | Intrepid® sc | Methozyfenozide | >5000 | U |
| Anilinopyrimidine  | Pirimus 400 sc | Pyrimethanil | 4150 | III |
| Unclassified | Evisect s | Thiocyclam | 310 | II |
| Tolima | Acetanilide | Bongo - Butanox - Crusher - Machete - Panachlor - Pilarsete | Butachlor | 3300 | III |
| OCP | Azuco | Chlozolinate | >4000 | III |
| Dinitroaniline | Pendimetalina Vecol 400 EC | Pendimethalin | 1050 | II |
| Triazole | TILT 250 ® EC | Propiconazole | 1520 | II |
| OPPs | Tributylphosphate | Tributylphosphate | 194 | II |
| Córdoba | Bipyridyl | Gramoxone | Paraquat | 150 | II |
| Organophosphorus | Lorsban | Chlorpyrifos | 135 | II |
| Organophosphorus | Methyl parathion | Parathion-methyl | 14 | Ib |
| Pyrethroid | Cipermetrina crl 200 ec | Cypermethrin | c250 | II |
| Triazine | Helzine 500 sc | Atrazine | c2000 | III |
| Triazine | Exalt | Spinetoram | >5000 | U |
| Triazine | Roundup or Glyphosate | Glyphosate | 4230 | III |

 Toxicological categorization according to the WHO: Ia: extremely hazardous; Ib: highly hazardous; II: moderately hazardous; III: Slightly hazardous; U: Unlikely to present acuate hazard.