Professor Yibing Ma

Department of Environmental Science and Enginering
/Macao Environmental Research Institute
Faculty of Innovation Engineering
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Academic Qualification:

Ph.D. in Soil Science, La Trobe University, Australia
MSc in Science, Beijing Agricultural University, China
BSc in Agricultural Science, Beijing Agricultural University, China

Teaching Area

Environmental Chemistry
Frontiers of Environmental Science
Introduction to Environmental Science
Soil Contamination and Remediation

Research Area

Fate and behaviour of nutrients and contaminants in environments
Ecological risk assessment and management
Soil contamination and remediation
Environmental quality criteria for contaminants

Working Experience

Ø Professor in Environment Science, Director of Macao Environmental Research Institute, Macau University of Science and Technology (MUST), Macao (July 2019 -);
Ø Affiliated Professor in Environment Chemistry, (Taishan Scholar), School of Water Conservancy and Environment, Jinan University, China (2013-2019)
Ø Affiliated Senior Research Scientist, Land and Water, CSIRO, Adelaide, Australia (2004-2012)
Ø Professor in Soil/Environment Chemistry, Director of Research Centre of Heavy Metals in Asia Environments, Director of National Soil Fertility and Fertilizer Efficiency Long-term Monitoring Network in China, Institute of Agricultural Resources and regional Planning, Chinese Academy of Agricultural Sciences, China (2004-2019)
Ø Research Scientist, Land and Water, CSIRO, Adelaide, Australia (2002-2004)
Ø Research Officer, Debco Pty Ltd, Australia (1998-2002)
Ø Research Associate, La Trobe University, Australia (1996-1998)
Ø Associate Professor, Deputy Head of the Department of Soil and Agricultural Chemistry, Deputy Head of Key Laboratory of Soils and Fertilizers, Beijing Agricultural University, China (1992-1993)

Ø Lecturer (Soil Science), Beijing Agricultural University, China (1987-1992)
Ø Associate Lecturer, Beijing Agricultural University, China (1982-1987)

Research Grants

(i) Management and Application of National Soil Environment Criteria (Ministry of Environmental Protection) (2016-2018)
(ii) Research and Demonstration on Safe Utilization Techniques of Heavy Metals Contaminated Farmlands (SciTec supporting program, The Ministry of Science and Technology, China) (2015-2019)
(iii) Survey of Soil Contamination in China (Ministry of Environmental Protection) (2017-2019)
(iv) Research on Migration/Transformation and Safety Threshold of Heavy Metals in Farmland Systems (National Key Research and Development Program of China) (2016-2022)
(v) The Available Forms, Phytotoxicity and Predictive Models of Chromium in Soil (The Science and Technology Development Fund, Macau SAR) (05/2021-05/2023)

Representative publications (Complete publication refer to my webpage)

Books/Chapters

1. Yibing Ma, et al., Risk Assessment and Pollution Control of Copper in Soil, China Agriculture Press, 2018 (in Chinese)
2. Yibing Ma, et al., China Ecosystem Orientation Observation and Research Dataset -·Farmland Ecosystem Volume: National Soil Fertility and Fertilizer Benefit Monitoring Station Network 1989-2000, China Agriculture Press, 2011 (in Chinese)
3. Yibing Ma and Peter Hooda, Chapter 19: Chromium, Cobalt and Nickel. In: Peter Hooda (editor), Trace Elements in Soils, 2010, pp 461-480. Wiley-Blackwell
4. McLaughlin M.J., S. Lofts, M. St.J. Warne, M.J.B. Amorim, A. Fairbrother, R. Lanno, W. Hendershot, C.E. Schlekat, Y. Ma, and G.I. Paton. Derivation of ecologically-based soil standards for trace elements. In: Merrington and Schoeters (eds): Deriving, implementing and interpreting soil quality standards for trace elements: current state of understanding and future developments; SETAC, 2019
5. Yan, L. B., F. S. Zhang and Y. B. Ma 1992. Carbon turnover in the rhizosphere. Advance in Soil Science and Plant Nutrition. F. S. Zhang (ed.), Beijing Agricultural University (in Chinese)

Books/Chapters

1. Yibing Ma, et al., Risk Assessment and Pollution Control of Copper in Soil, China Agriculture Press, 2018 (in Chinese)
2. Yibing Ma, et al., China Ecosystem Orientation Observation and Research Dataset -·Farmland Ecosystem Volume: National Soil Fertility and Fertilizer Benefit Monitoring Station Network 1989-2000, China Agriculture Press, 2011 (in Chinese)
3. Yibing Ma and Peter Hooda, Chapter 19: Chromium, Cobalt and Nickel. In: Peter Hooda (editor), Trace Elements in Soils, 2010, pp 461-480. Wiley-Blackwell
4. McLaughlin M.J., S. Lofts, M. St.J. Warne, M.J.B. Amorim, A. Fairbrother, R. Lanno, W. Hendershot, C.E. Schlekat, Y. Ma, and G.I. Paton. Derivation of ecologically-based soil standards for trace elements. In: Merrington and Schoeters (eds): Deriving, implementing and interpreting soil quality standards for trace elements: current state of understanding and future developments; SETAC, 2019
5. Yan, L. B., F. S. Zhang and Y. B. Ma 1992. Carbon turnover in the rhizosphere. Advance in Soil Science and Plant Nutrition. F. S. Zhang (ed.), Beijing Agricultural University (in Chinese)

Journal Papers

(1) **Ma YB**, Uren NC (1995) Application of a new fractionation scheme for heavy metals in soils. *Commun Soil Sci Plant Anal* 26: 3291-3303

(2) **Ma YB**, Uren NC (1996) The effects of cropping corn on the extractability of zinc added to a calcareous soil. *Plant Soil* 181: 221-226
(3) **Ma YB,** Uren NC (1997) The effects of temperature, time, and cycles of drying and rewetting on the extractability of zinc added to soil. *Geoderma* 75: 89-97
(4) **Ma YB**, Uren NC (1997) The fate and transformation of zinc added to soils. *Aust J Soil Res* 35: 727-738
(5) **Ma YB**, Liu JF (1997) Adsorption kinetics of zinc in a calcareous soil as affected by pH and temperature. *Commun Soil Sci Plant Anal* 28: 1117-1126
(6) **Ma YB**, Uren NC (1998) Transformation of heavy metals added to soils - application of a new sequential extraction procedure. *Geoderma* 84: 157-168
(7) **Ma YB**, Uren NC (1998) Dehydration, diffusion and entrapment of zinc in bentonite. *Clays Clay Miner* 46: 132-138
(8) **Ma YB,** Nichols DG (2004) Phytotoxicity and detoxification of fresh coir dust and coconut shell. *Commun Soil Sci Plant Anal* 31: 205-218
(9) **Ma YB**, Lombi E, Nolan AL, McLaughlin MJ (2006) Short-term natural attenuation of copper in soils: effect of time, temperature and soil characteristics. *Environ Toxicol Chem* 25: 652-658
(10) **Ma YB,** Lombi E, Nolan AL, McLaughlin MJ (2006) Determination of labile Cu in soils and isotopic exchangeability of complexes. *Eur J Soil Sci* 57: 147-153
(11) **Ma YB**, Uren NC (2006) Effect of aging on the availability of zinc added to a calcareous clay soil. *Nutr Cycl Agroecosys* 76: 11-18
(12) **Ma YB,** Lombi E, Oliver IW, Nolan AL, McLaughlin MJ (2006) Long-term aging of copper added to soils. *Environ Sci Technol* 40: 6310-6317
(13) Tang X, Li JM, **Ma YB***, Hao X, Li XY (2008) Phosphorus efficiency in long-term (15 years) wheat-maize cropping systems with various soil and climate conditions. *Field Crops Res* 108: 231-237
(14) Zhou SW, Xu MG, **Ma YB***, Chen SB, Wei DP (2008) Aging mechanism of copper added to bentonite. *Geoderma* 147: 86-92
(15) Chen SB, **Ma YB***, Huang YZ (2009) Can phosphate compounds be used to reduce the plant uptake of Pb and resist the Pb stress in Pb-contaminated soils? *J Environ Sci* 21: 360-365
(16) **Ma YB**, Li JM., Li XY, Tang X, Liang YC, Huang SM, Wang BR, Liu H, Yang X (2009) Phosphorus accumulation and depletion in soils in wheat-maize cropping systems: modeling and validation. *Field Crops Res* 110: 207-212
(17) Wang XD, **Ma YB***, Hua L, McLaughlin MJ (2009) Identification of hydroxyl copper toxicity to barley root elongation in solution culture. Environ Toxicol Chem 28: 662-667
(18) Luo L, **Ma YB***, Zhang SZ, Wei DP, Zhu YG (2009) An inventory of heavy metal inputs to agricultural soils in China. *J Environ Manag* 90: 2524-2530
(19) Li B, Zhang X, Wang XD, **Ma YB*** (2009) Refining a biotic ligand model for nickel toxicity to barley root elongation in solution culture. *Ecotox Environ Saf* 72: 1760-1766
(20) Tang X, **Ma YB***, Hao XY, Li XY, Li JM, Huang SM, Yang XY (2009) Determining critical values of soil Olsen-P for crop yields using long-term experiments under various soil and climate conditions in China. *Plant Soil* 323: 143-151
(21) Zhao LP, **Ma YB***, Liang GQ, Li ST, Wu LS (2009) Phosphorus efficacy in four Chinese long-term experiments with different soil properties and climate characteristics. *Commun Soil Sci Plant Anal* 40: 3121-3138
(22) Chen SB, **Ma YB***, Chen Y, Wang LQ, Guo HT (2010) Comparison of Pb (II) immobilized by bone char meal and phosphate rock: characterization and kinetic study. *Arch Environ Con Tox* 50: 24-32
(23) Guo XY, **Ma YB***, Wang XD, Chen SB (2010) Re-evaluating the effects of organic ligands on copper toxicity to barley root elongation in culture solution. *Chem Spec Bioavail* 22: 51-59
(24) Guo XY, Luo L, **Ma YB***, Zhang SZ (2010) Sorption of polycyclic aromatic hydrocarbons on particulate organic matters. *J Hazard Mater* 173: 130-136
(25) Li B, **Ma YB***, McLaughlin MJ, Kirby J, Cozens G, Liu JF (2010) Influences of soil properties and leaching on copper toxicity to barley root elongation. *Environ Toxicol Chem* 29: 835-842
(26) Chen SB, **Ma YB***, Chen L, Huang YZ, Xiao K (2010) Adsorption of aqueous Cd^{2+}, Pb^{2+}, Cu2+ ions by nano-hydroxyapatite: Single- and multi-metal competitive adsorption study. *Geochem J* . 44: 233-

(27) Liu J, Liu H, Huang SM, Yang XY, Wang BR, Li XY, **Yibing Ma*** (2010) Nitrogen efficiency in long term wheat-maize cropping systems under diverse field sites in China. *Field Crops Res* 118: 145-151
(28) Guo, X., Zuo YB, Wang BR, Li JM, **Ma YB*** (2010) Toxicity and accumulation of copper and nickel in maize plants cropped on calcareous and acidic field soils. *Plant Soil* 333: 365–373
(29) Yang JX, Guo HT, **Ma YB*,** Wang LQ, Wei DP, Hua L (2010) Genotypic variations in the accumulation of Cd exhibited by different vegetables. *J Environ Sci* 22: 1246-1252
(30) Wang XD, Li B, **Ma YB***, Hua L (2010) Development of a biotic ligand model for acute zinc toxicity to barley root elongation. *Ecotox Environ Saf* 73: 1272-1278
(31) Li B, Zhang HT, **Ma YB***, McLaughlin MJ (2011) Influences of soil properties and leaching on nickel toxicity to barley root elongation. *Ecotox Environ Saf* 74: 459-466
(32) Luo L, Ma CY, **Ma YB*,** Zhang SZ, Cui MQ (2011) Sorption mechanism of cadmium by red mud. *Environ Pollut* 159: 1108-1113
(33) Tang X, Shi XJ, **Ma YB*,** Hao XY (2011) Phosphorus efficiency in a long-term wheat-rice cropping system in China. *J Agric Sci* 149: 297-304
(34) Yang JX, Wang LQ, Wei DP, Chen SB, **Ma YB*** (2011) Foliar spraying and seed soaking of zinc fertilizers decreased cadmium accumulation in cucumber grown in Cd-contaminated soils. *Soil Sed Contam* 20: 400-410
(35) Li Q, Guo XY, Xu XH, Zuo YB, Wei DP, **Ma YB*** (2012) Phytoavailability of copper, zinc, and cadmium in biosolid-amended calcareous soils. *Pedosphere* 22: 254-262
(36) Li JM, Gao JS, Liu J, Xu MG, **Ma YB*** (2012) A predictive model for phosphorus accumulation in paddy soils with long-term inorganic fertilization. *Commun Soil Sci Plant Anal* 43(13): 1823-1832
(37) Tang X, Ellert BH, Hao XY, **Ma YB***, Nakonechny E, Li JM (2012) Temporal changes in soil organic carbon contents and $\delta^{13}C$ values under long-term maize–wheat rotation systems with various soil and climate. *Geoderma* 183-184: 67–73
(38) Li Q, Li JM, Cui XL, Wei DP, **Ma YB*** (2012) On-farm Assessment of biosolids effects on nitrogen and phosphorus accumulation in soils. J Integr Agric 11: 1545–1554
(39) Wang XD, Hua L, **Ma YB*** (2012) A biotic ligand model predicting acute copper toxicity for barley (*Hordeum vulgare*): Influence of calcium, magnesium, sodium, potassium and pH. *Chemosphere* 89: 89–95
(40) **YB Ma,** Lombi E, McLaughlin MJ, Oliver IW, Annette L. Nolan AL, Oorts K, Smolders E (2013). Aging of nickel added to soils as predicted by soil pH and time. *Chemosphere* 92: 962–968.
(41) Zhang XQ, Wei DP, Li B, **Ma YB***, Huang ZB (2013). Importance of soil solution chemistry to nickel toxicity to barley root elongation. *Chem Spec Bioavail* 25(3): 153-164
(42) Liang ZF Ding Q, Wei DP, Li J, Chen SB, **Ma YB*** (2013). Major controlling factors and predictable equations for Cd transfer factor involved in soil-spinach system. *Ecotox Environ Saf* 93:
(43) Li B, Zhang HT, **Ma YB***, McLaughlin MJ (2013). Relationship between soil properties and phytotoxicity of copper and nickel to bok choy and tomato in Chinese soils. *Environ Toxicol Chem* 32: 2372–2378
(44) Zhang XQ, Wei DP, Li B, **Ma YB***, Huang ZB (2013). The Influence of soil solution properties on phytotoxicity of soil soluble copper in a wide range of soils. *Geoderma* 211–212: 1–7
(45) Song NN, Zhong X, Li B, Li JM, Wei DP, **Ma YB*** (2014) Development of a multi-species biotic ligand model predicting the toxicity of trivalent chromium to barley root elongation in solution culture. *PLoS ONE* 9: e105174.
(46) Li B, Yang JX, Wei DP, Chen SB, Li JM, **Ma YB*** (2014). Field evidence of cadmium phytoavailability decreased effectively by rape straw and/or red mud with zinc sulphate in a Cd-contaminated calcareous soil. *PLoS ONE* 9: e109967
(47) Song NN, **Ma YB***, Zhao YJ, Tang SR (2014). Elevated ambient carbon dioxide and *Trichoderma inoculum* could enhance cadmium uptake of *Lolium perenne* explained by changes of soil pH, cadmium availability and microbial biomass. *Appl Soil Ecol* 85: 56–64
(48) Wang B, Liu H, Wang XH, Li JM, **Ma YB***, Ma XW (2015). Soil phosphorus accumulation model for an arid area of northwest China with 3-year rotation of wheat, maize and cotton. *J Agric Sci (Cambridge)* 153: 1247-1256

(49) Yang JX, Wang LQ, Wei DP, Chen SB, **Ma YB*** (2015). Effects of rape straw and red mud on extractability and bioavailability of cadmium in a calcareous soil. *Front Environ Sci Eng* 9: 419-428
(50) Li B, Liu JF, Yang JX, **Ma YB***, Chen SB (2015). Comparison of phytotoxicity of copper and nickel in soils with different Chinese plant species. *J Integr Agric* 14: 1192–1201.
(51) Song NN, Wang FL, **Ma YB***, Tang SR (2015). Using DGT to assess cadmium bioavailability to ryegrass as influenced by soil properties. *Pedosphere* 25: 825–833
(52) Wang B, Li JM, Ren Y, Ma XW, Xin JS, Hao XY, **Ma YB*** (2015). Validation of soil phosphorus accumulation models in main areas of wheat-maize crop rotation in China. *Field Crops Res* 178: 42–48
(53) Zhang XQ, Li JM, Wei DP, Li B, **Ma YB*** (2015). Predicting soluble nickel in soils using soil properties and total nickel. *Plos One* 10: e0133920
(54) Wang XQ, Wei DP, **Ma YB*,** McLaughlin MJ (2015). Derivation of soil ecological criteria for copper in Chinese soils. *Plos One* 10: e0133941
(55) Qu RH, Zeng SQ, Ding Q, Liang ZF, Wei DP, Li JM, **Ma YB*** (2016): Factors and predictions for cadmium transfer from soils into tomato plants. *Commun Soil Sci Plant Anal* 47: 1612-1621
(56) Li HL, **Ma YB*** (2016). Field study on uptake, accumulation, translocation and risk assessment of PAHs in soil-wheat system with amendments of sewage sludge. *Sci Total Environ* 560–561: 55–61
(57) Li SM, Jumei Li JM, Li CS, Huang SM, Li XY, Li SX; **Ma YB* (**2016). Testing the RothC and DNDC models against long-term dynamics of soil organic carbon stock observed at cropping field soils in North China. *Soil Till Res* 163: 290-297
(58) Lu T, Li JM, Wang XQ, **Ma YB***, Smolders E, Zhu NW (2016). Derivation of ecological criteria for copper in land-applied biosolids and biosolid-amended agricultural soils. J Environ Manag 183: 945-951
(59) Song NN, **Ma YB*** (2017). The toxicity of $HCrO_4^-$ and CrO_4^{2-} to barley root elongation in solution culture: pH effect and modelling. *Chemosphere* 171: 537-543
(60) Zhang X, Jiang B, **Ma YB*** (2017). Aging of Zn added to soils with a wide range of different properties: factors and modeling. Environ Toxicol Chem 36: 2925–2933
(61) Wang XD, Ji DX, Chen XL, **Ma YB***, Yang JX, Ma JX, Li XX (2017). Extended biotic ligand model for predicting combined Cu-Zn toxicity to wheat (*Triticum aestivum L* .): Incorporating the effects of concentration ratio, major cations and pH. *Environ Pollut* 230: 210-217
(62) Zeng SQ, Li JM, Wei DP, **Ma YB*** (2017) A new model integrating short- and long-term aging of copper added to soils. *PLoS ONE* 12: e0182944
(63) Liu J, Yang JJ, Cade-Menun BJ, Hu YF, Li JM, Peng C, **Ma YB***. Molecular speciation and transformation of soil legacy phosphorus with and without long-term phosphorus fertilization: Insights from bulk and microprobe spectroscopy. *Sci Rep* 7: 15354
(64) Li B, **MaYB***, Yang JX (2017). Is the computed speciation of copper in a wide range of Chinese soils reliable? *Chem Spec Bioavail* 29: 205–215
(65) Wang XQ, Wei DP, **Ma YB***, McLaughlin MJ. Soil ecological criteria for nickel as a function of soil properties. *Environ Sci Pollut Res* 25: 2137-2146
(66) Yang GH, Zhu GY, Li HL, Han XM, Li JM, **Ma YB*** (2018). Accumulation and bioavailability of heavy metals in a soil-wheat/maize system with long-term sewage sludge amendments. *J Integr Agric* 17: 1861–1870
(67) Han XM, Hu HW, Chen QL, Yang LY, Li HL, Zhu YH, Li XZ, **Ma YB*** (2018) Antibiotic resistance genes and associated bacterial communities in agricultural soils amended with different sources of animal manures. *Soil Biol Biochem* 126: 91–102
(68) Li HL, Sun ZG, Qiu YH, Han XM, **Ma YB*** (2018). Integrating bioavailability and soil aging in the derivation of DDT criteria for agricultural soils using crop species sensitivity distributions. Ecotox Environ Saf 165: 527-532
(69) Wang XD, Meng XQ, Zhong X, Pu X, **Ma YB*** (2018). The prediction of combined toxicity of Cu–Ni for barley using an extended concentration addition (CA) model. *Environ Pollut* 242: 136-142
(70) Ni RX, **Ma YB*** (2018). Current inventory and changes of the input/output balance of trace elements in farmland across China. *PLoS ONE* 13: e0199460
(71) Jiang B, **Ma YB***, Zhu GY, Li J (2019). A new model describing copper dose–toxicity to tomato and bok choy growth in a wide range of soils, Int J Environ Res Public Health 16: 264

(72) Li SW, Li HL, Han XM, **Ma YB*** (2019). Development and validation of a model for whole course aging of nickel added to a wide range of soils using a complementary error function. *Geoderma* 348:
(73) Liu J, Sui P, Cade-Menun BJ, Hu YF, Yang JJ, Huang SM, **Ma YB*** (2019). Molecular-level understanding of phosphorus transformation with long-term phosphorus addition and depletion in an alkaline soil. *Geoderma* 353: 116-124
(74) Li K, Cao CL, **Ma YB***, Su DC, Li JM (2019). Identification of cadmium bioaccumulation in rice (*Oryza sativa L.*) by the soil-plant transfer model and species sensitivity distribution. *Sci Total Environ* 692C: 1022-1028
(75) Zhao R, Lv YZ, **Ma YB*** Li JM (2020). Effectiveness and longevity of amendments to a cadmium-contaminated soil. *J Integr Agric* 19: 1097–1104
(76) Li B, Yang JX, Sun WT, **Ma YB***, Shi Y (2019). Carbonization of plant residues decreased their capability of reducing hexavalent chromium in soils. *Water Air Soil Pollut* 230: 300
(77) Jiang B, **Ma YB***, Zhu GY, Li J, Prediction of soil copper phytotoxicity to barley root elongation by an EDTA extraction method. *J Hazard Mat* 389: 121869
(78) Wan YN, Jiang B, Wei DP, **Ma YB*** (2020). Ecological criteria for zinc in Chinese soil as affected by soil properties. *Ecotox Environ Saf* 194: 110418
(79) Huang YJ, Li JM, **MaYB*** (2020). Determining optimum sampling numbers for survey of soil heavy metals in decision making units: taking cadmium as an example. *Environ Sci Pollut Res* 27: 24466-24479
(80) Zhang XQ, Wu HX, **Ma YB***, Meng Y, Ren DJ, Zhang SQ (2020). Intrinsic soil property effects on Cd phytotoxicity to *Ligustrum japonicum 'Howardii'* expressed as different fractions of Cd in forest soils. *Ecotoxicol Environ Saf* 206: 110949
(81) Ullah A, **Ma YB***, Li JM, Tahir N, Hussain B (2020) Effective amendments on cadmium, arsenic, chromium and lead contaminated paddy soil for rice safety. *Agronomy* 10:359
(82) Zhao R, Li JM, **Ma YB***, Lv YZ (2020) A field study of vertical mobility and relative bioavailability of Cu and Ni in calcareous soil. *Environ Pollut Bioavail* 32: 121-130
(83) Li LJ, Jiang B, Wan YN, Li JM, **Ma YB*** (2021) Integrating bioavailability and aging in the criteria derivation of cadmium for the safe production of rice in paddy soils. *Ecotoxicol Environ Saf* 219: 112356
(84) Li MJ, Zhang FY, Li SJ, Wang XX, Liu J, Wang B, **Ma YB***, Song NN* (2021) Biotic ligand modeling to predict the toxicity of HWO_4^- and WO_4^{2-} on wheat root elongation in solution cultures: Effects of pH and accompanying anion. *Ecotoxicol Environ Saf* 222: 112499
(85) Huang YJ, Li JM, Ma YB*, Li FB, Chen DL (2021) A simple method to determine the sampling numbers in decision-making units with unknown variations of soil cadmium. Environ Monit Assess 193:
(86) Li HL, Cheng YH, Liu YH, Li SW, Han XM, **Ma YB*** (2021) Trace element accumulation from swine feeds to feces in Chinese swine farms: Implication for element limits. Integ *Environ Assess Manag* 2021:1–10. DOI: 10.1002/ieam.4525

*- Corresponding author. More publication @https://scholar.must.edu.mo/scholar/100915

Patents

(1) Use sphagnum moss and natural minerals to produce plant growth substrates for disease-free weeds, CN1168375C
(2) Starch-based phosphate fertilizer and its preparation method, CN101172886B
(3) A control-release urea and its preparation method, CN101255069B.
(4) A method for passivation and remediation of soil cadmium pollution, CN101745524B.
(5) Method for detecting the acute toxicity of copper-contaminated soil using freshwater luminescent bacteria, CN101487798B
(6) A method for removing heavy metal ions in sewage by using nano-hydroxyapatite, CN101745526B
(7) A straw phosphate fertilizer and its preparation method, CN101519318B
(8) Soil cadmium passivator preparation method and application, CN103275732B
(9) Application of a sodium-type nano-montmorillonite in removing copper from pollutants, 201010034308.X.
(10) Spraying agent for reducing the absorption of cadmium in the soil by tobacco and its preparation and use method, CN103392741B

(11) A soil cadmium passivator and its preparation method and its application in reducing cadmium in tobacco, CN103320138B
(12) A special tobacco foliar spray, preparation method and application method. CN104478556B
(13) A method for determining the amount of nitrogen fertilizer applied to crops. CN103646347B
(14) Device and method for rapid purification of cadmium-contaminated irrigation water before entering the field, CN105129899B.
(15) A method and system for determining the threshold value of Chinese soil DDTs based on the quality and safety of agricultural products. CN107391952B.

Standards

(1) The safety threshold of arsenic, mercury, cadmium, lead, and chromium in the soil for rice production (GB/T36869-2018)
(2) The safety threshold of cadmium, lead, chromium, mercury, and arsenic in dryland soils for planting root vegetables (GB/T36783-2018),
(3) Soil pollution risk management and control standards for agricultural land (GB15619-2018)
(4) The Agricultural Industry Standard of the People's Republic of China NY/T 3343-2018. Criteria for evaluation of farmland pollution control effect
(5) The Agricultural Industry Standard of the People's Republic of China NY/T 3443-2019. Technical specification for calcareous improved acidified soil
(6) The Agricultural Industry Standard of the People's Republic of China NY/T 3499-2019. Guidelines for the treatment and restoration of contaminated farmland

Professional Certification and Awards

² The National Science and Technology Progress Award, the second class (3th place), 2019
² Guangdong Science and Technology Award, the first class (3th place), 2017
² The Great Northern Agriculture Technology Award (Environmental Engineering Award) (3th place), 2017
² Henan Province Science and Technology Progress Award, third prize, seventh place (7th place), 2010
² Hebei Province Science and Technology Progress Award, the third class (3th place), 2020
² Science and Technology Progress Award, The National Education Commission Science, the third class (3th place), 1994
² Honour Award of Foreign Expert in Liaoning, 2004

² Member of the International Committee for Trace Element Biogeochemistry (ICOBTE) （2006-2012）
² Member of the Scientific Committee of the World Society for Environmental Toxicology and Chemistry (SETAC), (2006 - 2012)
² Affiliated Chief Professor, Environmental Soil Science. University of Chinese Academy of Sciences (2014-2019)
² Honorary Principal Fellow, the University of Melbourne, Australia (2019-)
² Member of National Standardization Technical Committee in China (2013-2025)
² Member of the expert guidance group for cultivated land quality construction of the Ministry of Agriculture and Rural Affairs, China (2014-)
² Committee Member of Experts of "Soil Pollution Control", Ministry of Science and Technology, China (2016-)
² Committee Member of Experts of "Detailed Survey of Soil Contamination" and deputy leader of the report writing group, Ministry of Ecology and Environment, China (2016-2020)
² Chair of Expert Committee of "Provention and Control of Cultivated Land Contamination with Heavy Metals", Ministry of Agriculture and Rural Affairs, China (2014-2019)
² Deputy Chair of Expert Committee of "Provention and Control of Cultivated Land Contamination with Heavy Metals", Ministry of Agriculture and Rural Affairs, China (2019-)

Journal Editorship

Editor of Asian Journal of Ecotoxicology (2006-)

Personal Website

https://scholar.must.edu.mo/scholar/100915