

Contents of Volume I

Part I Formation, Structure and Characteristics of HS and NOM

Revisiting Structural Insights Provided by Analytical Pyrolysis About Humic Substances and Related Bio- and Geo-Polymers	3
J.A. González-Pérez, F.J. González-Vila, G. Almendros, H. Knicker, J.M. de la Rosa, and Z. Hernández	
The Role of Mineral Complexation and Metal Redox Coupling in Carbon Cycling and Stabilization	7
Donald L. Sparks and Chunmei Chen	
Elucidating the Biogeochemical Memory of the Oceans by Means of High-Resolution Organic Structural Spectroscopy	13
N. Hertkorn, M. Harir, B.P. Koch, B. Michalke, and Ph. Schmitt-Kopplin	
Correlating Bulk Optical Spectroscopy and Ultrahigh-Resolution Mass Spectrometry to Determine the Molecular Composition of Dissolved Organic Matter in Northern Peatlands	19
William T. Cooper, Malak M. Tfaily, Jane E. Corbet, and Jeffrey P. Chanton	
Effects of Synthetic Quinones as Electron Shuttles on Geothite Reduction and Current Generation by <i>Klebsiella pneumoniae</i> L17	25
Xiaomin Li, Liang Liu, Tongxu Liu, Tian Yuan, Wei Zhang, Fangbai Li, Shungui Zhou, and Yongtao Li	
Dynamics of Newly Formed Humic Acid and Fulvic Acid in Aggregates After Addition of the ¹⁴C-Labelled Wheat Straw in a Typic Hapludoll of Northeast China	31
Sen Dou, Song Guan, Guang Chen, and Gang Wang	
FTIR Analysis of Soil Organic Matter to Link the Turnover of Organic Inputs with Carbon Respiration Rates	37
M.C. Hernandez-Soriano, B. Kerre, B. Horemans, and E. Smolders	

Characterization of Soil Humic Substances Using Mid-infrared Photoacoustic Spectroscopy	43
Changwen Du, Zhongqi He, and Jianmin Zhou	
Splitting of Soil Humic Acid Fluorescence on Different Fluorophores	49
Oleg Trubetskoj, Lubov Shaloiko, Dmitrii Demin, Victor Marchenkov, and Olga Trubetskaya	
Lumping or Splitting: Holistic or Fractionation Approaches to Studies of Humic Substances	55
Michael H.B. Hayes and Roger S. Swift	
The Fate of Mineral Particles in Bulk Peat and Corresponding Humic Acids Throughout an Ombrotrophic Bog Profile: Atmospheric Dust Depositions vs Mineralization Processes	61
C. Zacccone, S. Pabst, T.M. Miano, and W. Shotyk	
HS-Protein Associates in the Aqueous/Oil System: Composition and Colloidal Properties	67
M.G. Chernysheva and G.A. Badun	
Integrated Physical-Chemical Procedure for Soil Organic Carbon Fractionation and Characterization During Transition to Organic Farming	73
H.M. Abdelrahman, D.C. Olk, C. Coccozza, D. Ventrella, F. Montemurro, and T. Miano	
Sulfur-Containing Molecules Observed in Hydrophobic and Amphiphilic Fractions of Dissolved Organic Matter by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry	79
Guixue Song, Rajaa Mesfiou, Aaron Dotson, Paul Westerhoff, and Patrick Hatcher	
Standard and Reference Samples of Humic Acids, Fulvic Acids, and Natural Organic Matter from the Suwannee River, Georgia: Thirty Years of Isolation and Characterization	85
E. Michael Perdue	
Molecular Understanding of a Humic Acid by “Humeomic” Fractionation and Benefits from Preliminary HPSEC Separation	89
Antonio Nebbioso and Alessandro Piccolo	
Microbiological Oil Transformation to Humic-Like Substances	95
E.A. Vialih and S.A. Ilarionov	
Genesis of Peat Humic Acid Structure and Properties Within Bog Profiles	101
Maris Klavins and Oskars Purmalis	

Influence of Biota on Low Molecular Weight Organic Acids in Soil Solutions of Taiga and Tundra Soils in the East-European Russia	107
E.V. Shamrikova, I.V. Gruzdev, V.V. Punegov, and E.V. Vanchikova	
The Complementary Use of UV, EPR and SEC to Study the Structural Changes of Humic Substances During Wood Waste Composting	113
O. Bikovens, V. Lepane, N. Makarõtsëva, T. Dizhbite, and G. Telysheva	
Influence of Vegetation Dynamics on Humic Substance Composition in Maritime Burozems of Primorsky Krai (Russia)	119
B.F. Pshenichnikov and N.F. Pshenichnikova	
Residue-Derived Amino Sugar Formation and Its Carbon Use Efficiency	123
Zhen Bai, Samuel Bodé, Pascal Boeckx, and Xudong Zhang	
Studies of Humic Substances from Sediments in Galway Bay, Ireland	129
R. Mylotte, C.M.P. Byrne, R.R. Chang, C. Dalton, and M.H.B Hayes	
Separation of Humic Acid Constituents by Polyacrylamide Gel Electrophoresis in the Presence of Concentrated Urea Using a Preparative Electrophoresis System	135
S. Karim and M. Aoyama	
A Comparison of the Compositional Differences Between Humic Fractions Isolated by the IHSS and Exhaustive Extraction Procedures	141
R.R. Chang, R. Mylotte, R. McInerney, Y.M. Tzou, and M.H.B. Hayes	
Studies on Dynamic Change of Humic Acid in Chicken Manure Composting	147
Yujun Wang, Sen Dou, and Jinjing Zhang	
Optical Properties and Asymmetric Flow Field-Flow Fractionation of Dissolved Organic Matter from the Arcachon Bay (French Atlantic Coast)	153
Phuong Thanh Nguyen, Marie-Ange Cordier, Fabienne Ibalot, and Edith Parlanti	
Hydrocolloids Prepared from Humic-Rich Lignite	159
Miloslav Pekař and Mirka Macháčková	
Methodical Basis of Analysis for Various Genesis of Humic Acids	165
V.D. Tikhova and V.P. Fadeeva	
Adsorption of Extracellular Polymeric Substances (EPS) from <i>Pseudomonas putida</i> on Various Soil Particles from an Alfisol	171
Y. Cao, Q. Huang, and P. Cai	

Adsorption of HA Fractions with Different Molecular Weight on Magnetic Polyacrylic Anion Exchange Resin	177
Chendong Shuang, Fei Pan, Qing Zhou, Mancheng Zhang, Aimin Li, and Penghui Li	
An Innovative In Situ Spectroscopic Approach to Characterize Functional Groups in Natural Organic Matters (NOMs) and Their Interactions with Protons and Metals	181
Yuan Gao and Gregory V. Korshin	
Characterization and Three-Dimensional Structural Modeling of Humic Acid Using Molecular Dynamics	187
Nan Zhao, Yintian Zheng, and Yizhong Lv	
Relationships Between Polarity, Aliphaticity/Aromaticity, Fluorescence, and Molecular Size of Soil HA Electrophoretic Fractions	191
Olga Trubetskaya, Claire Richard, Guillaume Voyard, and Oleg Trubetskoj	
Molecular Size Distribution and Shape of Humic Substance and Ferrihydrite Coprecipitated Complexes	197
Claudio Colombo, Giuseppe Palumbo, Ruggero Angelico, Andrea Ceglie, and Jizheng He	
Properties of Soil Organic Matter in Abounded Pastureland: A Case Study from the Jaworzynka Valley in the Tatra Mountains, Poland . . .	203
Katarzyna Wasak and Marek Drewnik	
Spectroscopic Characterization of Humic Substances Isolated from Sediment of an Area of Sugarcane Cultivation	209
G. Pantano, A. Santos, M.C. Bisinoti, and A.B. Moreira	
Amino Acid Composition Analysis of Humic Acids Isolated by Sequential Alkaline Extraction from Soil	215
E.A. Vialykh, S.A. Ilarionov, and A.V. Zhdanova	
Study of the Optical Properties of Dissolved Organic Matter in the Seine River Catchment (France)	219
Phuong Thanh Nguyen, Camille Lopez, Caroline Bonnot, Gilles Varrault, Marc Benedetti, Marie-Ange Cordier, Alexandre Gelabert, Laure Cordier, Mickaël Tharaud, and Edith Parlanti	
Assessment of the Possibility of Humic Acid Extraction from Vermicompost with Urea	225
A. Hemati, H.A. Alikhani, G. Bagheri Marandi, and L. Mohammadi	
The Most Appropriate Way to Increase the Quality Indices of the Humic Acid Extracted from Vermicompost	229
H.A. Alikhani and A. Hemati	

Quantitation of Interactions of Suwannee River Fulvic Acid with Protons Based on Numerical Deconvolution of Differential Absorbance and Fluorescence Spectra	233
Mingquan Yan and Gregory V. Korshin	
Characterization of Chinese Standard Fulvic Acid Fractions Obtained by Sequential Extractions with Pyrophosphate Buffer from Forest Soil	239
Yingchen Bai, Fengchang Wu, and Guolan Shi	
Humification of Pig Slurry in Presence of Sawdust	245
Deborah P. Dick, Marlon H. Arenhardt, and Celso Aita	
Computational Screening of Environmental Proxies in Spectrometric Patterns from Humic Acids	251
G. Almendros, Z. Hernández, J. Sanz, F.J. González-Vila, H. Knicker, and J.A. González-Pérez	
Assessment of Agricultural Practices on Volcanic Ash Soils Assisted by Automated Interpretation of Mid-Infrared Spectra and Partial Least Squares Multivariate Statistical Approach	255
Z. Hernández, G. Almendros, J. Sanz, J.P. Pérez-Trujillo, J.A. González-Pérez, and F.J. González-Vila	
Humic Substances of Spodic Horizons in the Coastal Plain of São Paulo State	259
J.M. Lopes, P. Vidal-Torrado, P. Buurman, and P.B. Camargo	
Distribution of Humus Substances Between Clay Particles of Different Peptization Level in the Meadow Soils of the Middle Priamurje, Russia	265
L.A. Matiushkina	
Study of Humification of Soil Organic Matter in a Lowland Area	269
F.M.M. Luz, S.C. Saab, L.M. Santos, J.A.B. Santos, M.L. Simões, and A.M. Brinatti	
Study of Humification Dynamics of Organic Residues on Vermicomposting Process	273
L.B.F. Pigatin, A. dos Santos, F. Benetti, R.S. Ferrer, M.D. Landgraf, and M.O.O. Rezende	
Properties of Humic Acids as a Parameter Characteristics for Lake Bottom Sediments	277
J. Cieslewicz and S.S. Gonet	
Molecular Composition Study of Mumijo from Different Geographic Areas Using Size-Exclusion Chromatography, NMR Spectroscopy, and High-Resolution Mass Spectrometry	283
A.I. Konstantinov, G.N. Vladimirov, A.S. Grigoryev, A.V. Kudryavtsev, I.V. Perminova, and E.N. Nikolaev	

Morphology and Hydrophobicity of Humic Coatings on Glass as Studied by Atomic Force Microscopy (AFM) and Contact Angle Measurements	289
A.B. Volikov, V.A. Lebedev, E.V. Lazareva, A.M. Parfenova, S.A. Ponomarenko, and I.V. Perminova	
Soil Oxidizable Organic Carbon Fractions Under Organic Management with Industrial Residue of Roasted Mate Tea	295
F.B. Pereira, R.C. Santos, K.C. Lombardi, A.N. Dias, and C.M.B.F. Maia	
Application of Thermal Analysis and Isotope Ratio Mass Spectrometry to Determine the Stability and Function of Soil Organic Matter in Forest Systems	301
Garrett C. Liles and William R. Horwath	
Changes in Selected Hydrophobic Components During Composting of Municipal Solid Waste	307
Jakub Bekier, Jerzy Drozd, Jerzy Weber, Bogdan Jarosz, and Elżbieta Jamroz	
The Release of Dissolved Organic Carbon in Paddy Soils Under Contrasting Redox Status	313
Jiajiang Lin, Yan He, Jiachun Shi, Xingmei Liu, and Jianming Xu	
Content of Organic Carbon and Nitrogen as Well as Root Mass in Meadow Soils Under a Combined Slope and Flood Irrigation System	319
A. Dziamski, M. Banach-szott, M. Drag, and Z. Stypczyńska	
A Novel Polymer Blend Based on Sodium Humate/PVP/PEG	323
Ahmet Tutar and Mümin Dizman	
Temperature Dependence of the Reaction Between the Hydroxyl Radical and Organic Matter	329
G. McKay, M.M. Dong, J. Kleinman, S.P. Mezyk, and F.L. Rosario-Ortiz	
Aggregation Kinetics of Humic Acid: Effects of Ca²⁺ Concentration . . .	335
N.S. Kloster, M. Brigante, G. Zanini, and M.J. Avena	
Surface Activity of Humic Substances Within Peat Profile	341
Oskars Purmalis and Maris Klavins	

Part II HS/NOM and Carbon Sequestration

Sequestration and Loss of Organic Carbon in Inland Waters: From Microscale to Global Scale	349
Lars J. Tranvik, Cristian Gudas, Birgit Koehler, and Dolly Kothawala	
Carbon Sequestration in Subtropical Oxisol Profiles: Retention Capacity and Effect of Soil Management	353
Deborah P. Dick, Cecília S. Reis, Cimélio Bayer, and Jennifer S. Caldas	

Electron Transfer Capacity as a Rapid Index for Soil Organic Carbon Stability	359
Ran Bi, Yong Yuan, Li Zhuang, and Shungui Zhou	
Carbon Sequestration Rates in Organic Layers of Soils Under the Grey Poplar (<i>Populus x canescens</i>) Stands Impacted by Heavy Metal Pollution	365
Agnieszka Medyńska-Juraszek and Leszek Kuchar	
CO₂ Sequestration by Humic Substances and the Contribution of Quinones and Quinone Imines: Consideration on the Molecular Scale	371
F. Liebner, M. Wieland, T. Hosoya, G. Pour, A. Potthast, and T. Rosenau	
Carbon Sequestration in Organic Farming	377
Raymond Liu, Jianming Xu, and C. Edward Clapp	
Field Temperature Dominantly Affected Soil Organic Carbon Stability along an Altitudinal Gradient in Changbai Mountain, Northeast China	381
Q.X. Tian, H.B. He, and X.D. Zhang	
Organic Carbon and Humic Substances Fractions in Soil Aggregates . . .	385
S.S. Gonet, H. Czachor, and M. Markiewicz	
Structural Features of Humic Substances as Biogeochemical Proxies for Soil Carbon Stabilization and Ecosystem Functions	391
F.J. González-Vila, G. Almendros, J.A. González-Pérez, Z. Hernández, H. Knicker, A. Piedra-Buena, and J.M. de la Rosa	
Contribution of High Accumulated Polyphenols to C Stabilization in Soil of Tea Gardens	397
M. Zhang, D.M. Fan, Q. Zhu, Y.P. Luo, and X.C. Wang	
Influence of Soil Use on Organic Carbon and Humic Substances of an Oxisol in Tropical Systems	401
N.V. Llerme, E.C. José, and S.G.P. Junior	
Soil Organic Carbon Sequestration Under Long-Term Manure and Straw Fertilization in North and Northeast China by RothC Model Simulation	407
Minggang G. Xu, Jinzhou Z. Wang, and Chang'ai A. Lu	
The Carbon Sequestration in Moso Bamboo Plantation and Its Spatial Variation in Anji County of Southeastern China	413
Keli L. Zhao, Weijun J. Fu, Peikun K. Jiang, and Guomo M. Zhou	
Using ArcGIS and Geostatistics to Study Spatial Pattern of Forest Litter Carbon Density in Zhejiang Province, China	419
Weijun Fu, Keli Zhao, Peikun Jiang, and Guomo Zhou	

Wildfire-Induced Changes in the Quantity and Quality of Humic Material Associated to the Mineral Phase	425
M. Lopéz Martín, M. Velasco-Molina, F.J. González-Vila, and H. Knicker	
The Potential of Humic Material in Sombric-Like Horizons of Two Brazilian Soil Profiles as an Efficient Carbon Sink within the Global C Cycle	429
M. Velasco-Molina, H. Knicker, and F. Macías	
 Part III HS/NOM and Biogeochemical Cycling of Nutrients	
Field Assessment of Humic Substance Effect on Phosphate Rock Solubilization	437
O.O. Adesanwo, M.T. Adetunji, and S. Diatta	
Effect of Calcium Boro-Humate Application on the Yield Performance of Cotton	445
K. Dhanasekaran and R. Priyarani	
Changes in the Composition of Soil Dissolved Organic Matter After Application of Poultry Manure	451
D. Pezzolla, S. Gizzi, C. Zadra, A. Agnelli, L. Roscini, and G. Gigliotti	
Long-Term Fertilization Effects on β-Glucosaminidase Activity in a Chinese Mollisol	455
Wei Zhang, Xudong Zhang, and Hongbo He	
Stoichiometric Effect of Labile C and N on the Transformation Dynamics of Soil Amino Acids	461
Xudong Zhang, Hongbo He, and Wei Zhang	
Nitrogen Release from Natural and Aminoorganosilane-Modified Humic Substances	465
N.A. Kulikova, O.I. Philippova, Ya.S. Bychkova, A.B. Volikov, and I.V. Perminova	
Alkalinity Generation by Agricultural Residues Under Field Conditions	471
C.R. Butterly, J.A. Baldock, and C.Tang	
Leaching of Dissolved Organic Carbon (DOC) as Affected by Plant Residue Composition and Soil pH	475
Kongcao Xiao, Jian Zhou, Xingmei Liu, Jianjun Wu, and Jianming Xu	
Abundant and Stable Char Residues in Soils: Implications for Soil Fertility and Carbon Sequestration	479
J.D. Mao, R.L. Johnson, J. Lehmann, D.C. Olk, E.G. Neves, M.L. Thompson, and K. Schmidt-Rohr	

Importance of Harvesting Time of Winter Cover Crop Rye as Green Manure on Controlling CH₄ Production in Paddy Soil Condition	485
Sang Yoon Kim, Hyo Suk Gwon, Yong Gwon Park, Hyun Young Hwang, and Pil Joo Kim	
Characterization of Humic Fractions in Leachates from Soil Under Organic and Conventional Management and Their Interactions with the Root Zone	489
T. Vujinovic, M. Contin, S. Cesco, R. Pinton, N. Tomasi, P. Ceccon, and M. De Nobili	
Part IV HS/NOM and the Environmental Processes of Toxic Elements and Anthropogenic Organics	
Effect of Carbonaceous Soil Amendments on Potential Mobility of Weak Acid Herbicides in Soil	497
William C. Koskinen, Alegria Cabrera, Kurt A. Spokas, Lucia Cox, Jennifer L. Rittenhouse, and Pamela J. Rice	
Role of Natural Organic Matter as Sorption Suppressant in Soil	501
Joseph J. Pignatello	
Comparison of Thermal and Chemical Stability of Cu-Humic Complexes	505
Martina Klučáková and Kristýna Nováčková	
Correlation Between Humic-Like Substances and Heavy Metals in Composts	511
M. Elisabete F. Silva, L. Teixeira de Lemos, O.C. Nunes, and A.C. Cunha-Queda	
Influence of Organic Matter from Urban Effluents on Trace Metal Speciation and Bioavailability in River Under Strong Urban Pressure	517
Z. Matar, G. Chebbo, M. Troupel, L. Boudhamane, E. Parlanti, E. Uher, C. Gourlay, and G. Varrault	
Mechanisms of Detoxification by Humic Substances	523
N.S. Kudryasheva, A.S. Tarasova, and E.S. Fedorova	
Sorption of Pentachlorophenol to Organo-Clay Complexes Prepared by Polycondensation Reactions of Humic Precursors	529
Masami Fukushima, Ryo Okabe, Ryo Nishimoto, Shigeki Fukuchi, Tsutomu Sato, and Motoki Terashima	
The Influence of Aquatic Humic Substances from an Area of Sugarcane and Orange on the Dynamics of Chromium Ions in the Environment	535
A.M. Tadini, A.B. Moreira, and M.C. Bisinoti	

Mechanisms of Co-catalytic Action of Humic-Like Additives on Pentachlorophenol Oxidation by a Fe-Porphyrin Catalyst	543
M. Louloudi, M. Papastergiou, and S.P. Perlepes	
Effect of Humification and Temporal Alterations of Organogenic Waste (Sewage Sludge) Properties on Its Sorption Capacity for Metals	549
Irena Twardowska, Ewa Miszczak, Sebastian Stefaniak, Philippe Schmitt-Kopplin, and Mourad Harir	
Does the Compositional Change of Soil Organic Matter in Rhizosphere and Bulk Soil of Tea Plant Induced by Tea Polyphenols Have Some Correlation with Pb Bioavailability?	555
Dechao Duan, Mingge Yu, Yingxu Chen, Luying Dai, Dongyan Long, and Chen Xu	
Reaction Rates in Enzymatic Assay System in Solutions of Metal Salts and Humic Substances	561
Anna S. Tarasova and Nadezhda S. Kudryasheva	
Humic Acid-Bound Polycyclic Aromatic Hydrocarbons (PAHs) in Rhizosphere of Rice (<i>Oryza sativa</i> L.)	567
Bin Ma and Jianming Xu	
Study on Mobility of Methylene Blue in the Presence of Humic Acids	573
Petr Sedláček, Jiří Smilek, and Martina Klučáková	

Contents of Volume II

Influence of Reactivity of Humic Acids on Transport Behaviour of Copper(II) Ions	579
Michal Kalina, Martina Klučáková, and Petr Sedláček	
Dissolved Organic Matter-Ofloxacin Interaction as Affected by Metal Ions	585
Chi Wang, Mengyi Qiu, Bo Pan, and Baoshan Xing	
Arsenic Sorption onto Peat and Iron Humates	591
Linda Ansone, Linda Eglite, and Maris Klavins	
Catalytic Decomposition of Pentachlorophenol by the Iron Fenton System: The Dual Role of Humic Acid	597
Y. Deligiannakis and Dimitra Hela	
Effects of Dissolved Organic Matter on Pentachlorophenol Reductive Transformation in Paddy Soils	603
Liang Tao, Mangjia Chen, Zhenke Zhu, and Fangbai Li	
Phytoremediation of the Endocrine Disruptors Bisphenol A, Linuron and 17α-ethinylestradiol in NOM-Enriched Water and Freshwaters . . .	607
C.E. Gattullo, B.B. Cunha, E Loffredo, A.H. Rosa, and N. Senesi	
The Relationship Between the Activity of Dehydrogenases and the Content of Polycyclic Aromatic Hydrocarbons in Urban Soils	611
E.J. Bieleńska	
Influences of a Humic Acid on Potassium Monopersulfate Oxidation of 2,4,6-Tribromophenol by a SiO₂-Supported Iron(III)-Porphyrin Catalyst	615
Qianqian Zhu, Yusuke Mizutani, Shouhei Maeno, and Masami Fukushima	

Mitigation of Peroxidative Stress for a Barley Exposed to Cadmium in the Presence of Water-Extractable Organic Matter from Compost-Like Materials	621
Naoya Tachibana, Kenya Nagasawa, Masami Fukushima, Hikari Kanno, Takuro Shinano, and Keiki Okazaki	
The Role of Sediment Humic Substances in Cu and Cr Concentrations in the Pore Water of a Typical Area of Cultivation of Sugar Cane in São Paulo, Brazil	627
G. Pantano, M.B. Campanha, A.B. Moreira, and M.C. Bisinoti	
Effect of Humic and Fulvic Acids on the Photocatalytic Degradation of <i>N, N</i>-diethyl-<i>m</i>-toluamide (DEET) Using TiO₂ Suspensions and Simulated Solar Light	633
I.K. Konstantinou and Y. Deligiannakis	
Accumulation and Transformation of PCBs in Ryegrass (<i>Lolium multiflorum</i> L.)	637
Na Ding, Jianming Xu, and Paul Schwab	
Humic Substances as a Reductant for Hydrophobic Organic Compounds	641
Tahir Hayat, Wen Xia, Yan He, Haizhen Wang, Jianjun Wu, and Jianming Xu	
Differentiation of Organic Matter and Major Geochemical Flows in the Amur Basin Landscapes	647
A.F. Makhinova and A.N. Makhinov	
The Impact of Different Root Exudate Components on Phenanthrene Availability in Soil	653
Bingqing Sun and Yanzheng Gao	
Influence of the Incorporation of Organic Matter in the Retention of Pb, Cr, and Cu Cations in Soil	659
L.A. Mendes, L.F.P. Bucater, M.M. Kanashiro, M.D. Landgraf, and M.O.O. Rezende	
Cadmium Adsorption by a Humic Acid	665
Sara Mola Ali Abasiyan and Hassan Tofighi	
Does the Distribution of Polycyclic Aromatic Hydrocarbons in Soil Particle-Size Separates Affect Their Dissipation During Phytoremediation of Contaminated Soils?	669
Jinzh Ni, Jiwang Lin, Ran Wei, Hongyu Yang, and Yusheng Yang	
Effects of Cation Saturation, Substrate Addition, and Aging on the Mineralization and Formation of Non-extractable Residues of Nonylphenol and Phenanthrene in a Sandy Soil	673
Anastasia Shchegolikhina and Bernd Marschner	

Influence of Tea Polyphenols Amendment to Contaminated Soil on Lead Speciation, Transformation, and Bioavailability	679
Mingge Yu, Hong Xiao, Dechao Duan, Jie Yu, Yingxu Chen, and Jie Xu	
A Novel Fluorescence Spectroscopy Approach to Characterization of Interaction Between Humic Substances and Pyrene: Determination of Environmental Polarity	685
E.A. Shirshin, G.S. Budylin, N.Yu. Grechischeva, V.V. Fadeev, and I.V. Perminova	
Link Between Acetate Extractable Fe(II) Accumulation and Pentachlorophenol Dissipation in Flooded Paddy Soils with <i>Vicia cracca</i> L. Addition	691
Yong Liu, Xiongsheng Yu, Fangbai Li, and Jianming Xu	
Determination and Characterization on the Capacity of Humic Acid for the Reduction of Divalent Mercury	695
Tao Jiang, Shiqiang Wei, Xuemei Li, Song Lu, and Meijie Li	
Dynamics of Dissolved Organic Carbon in Rhizosphere of Different Rice (<i>Oryza sativa</i> L.) Cultivars Induced by PAHs Stress	701
Wen Xia, Yan He, F.Z. Xu, and Jianming Xu	
Effects of DOM on Sorption of Polar Compounds to Soils: Sulfapyridine as a Case Study	705
Hai Haham, Adi Oren, and Benny Chefetz	
Determination of Mercury Methylation Potential in the Presence of Peat Organic Matter	709
Marques Gomes Vinicius, dos Santos Ademir, César Rocha Júlio, Moutinho da Silva Ricardo, Fabrício Zara Luis, and Camargo de Oliveira Luciana	
Effect of Composting Process of Pig Manure on Phytotoxicity	715
Jun Meng, Xingmei Liu, Jiachun Shi, Jianjun Wu, and Jianming Xu	
Transformation of Metal Fractions in the Rhizosphere of <i>Elsholtzia splendens</i> in Mining and Smelter-Contaminated Soils: Contribution of Fulvic-Metal Complex	721
Jianjun Yang, Jin Liu, Shenhai Zhu, Cheng Peng, Lijuan Sun, Jiyan Shi, and Yingxu Chen	
Part V HS/NOM, Naturally Occurring and Engineered Nanoparticles	
Environmental Processes and Biotoxicity of Engineered Nanoparticles	729
Baoshan Xing	

Humic Substances-Assisted Synthesis of Nanoparticles in the Nature and in the Lab	735
I.V. Perminova	
Adsorption of Sulfamethoxazole on DOM-Suspended Carbon Nanotubes	741
Di Zhang, Bo Pan, Hao Li, and Baoshan Xing	
Genotoxicity Study of Multiwalled Carbon Nanotubes in the Presence of Humic Acids	745
M.S. Vidali, D. Vlastos, E. Bletsa, and Y. Deligiannakis	
Effect of Humic Acids on the Physicochemical Property and Cd(II) Sorption of Multiwalled Carbon Nanotubes	751
Xiaoli Tian, Kun Yang, Yong Xu, Huifeng Lu, and Daohui Lin	
Application of Natural Organic Matter in the Biosynthesis of α-Alumina Nanoparticles: The Humic Sol-Gel Route	757
Graziele da Costa Cunha, Luciane Pimenta Cruz Romão, and Zélia Soares Macedo	
Adsorption of Contaminants of Emerging Concern by Carbon Nanotubes: Influence of Dissolved Organic Matter	763
Ilya Lerman, Yona Chen, and Benny Chefetz	
Enhancement of Extraction Amount and Dispersibility of Soil Nanoparticles by Natural Organic Matter in Soils	769
Wenyan Li, Xinyu Zhu, Huiming Chen, Yan He, and Jianming Xu	
Synthesis and Characterization of Nanostructured Hydroxyapatite Produced via Precipitation Route Using Natural Organic Matter (NOM)	773
J.A. Peixoto, G.C. Cunha, L.P.C. Romão, Z.S. Macêdo, and M.E.G. Valerio	
Adsorption of SMX on CNTs as Affected by Environmental Conditions: Coexisted Organic Chemicals and DOM	779
Hao Li, Bo Pan, Di Zhang, and Baoshan Xing	
A New Humic Acid Preparation with Addition of Silver Nanoparticles	783
G.P. Alexandrova, G. Dolmaab, Sh. Tserenpil, L.A. Grishenko, B.G. Sukhov, D. Regdel, and B.A. Trofimov	
Highly Reactive Subnano-Sized Zero-Valent Iron Synthesized on Smectite Clay Templates	789
Cheng Gu, Hui Li, Brian J. Teppen, and Stephen A. Boyd	
Solubilisation of Multiwalled Carbon Nanotubes by Synthetic Humic Acids Studied by ATR-FTIR Spectroscopy	793
Eleni Bletsa, Yiannis Deligiannakis, and Dimitris Gournis	

Fluorescence and Raman Spectroscopy Study of Humic Acids in Iron Chloride Solutions and Magnetite/HA Nanoparticles	799
S.A. Burikov, T.A. Dolenko, N.V. Gorbunova, O.Yu. Gosteva, D.A. Khundzhua, K.A. Kydralieva, S.V. Patsaeva, A.A. Yurischeva, and V.I. Yuzhakov	
Interactions Between Silver Nanoparticles and Dissolved Natural Organic Matter Under Estuarine Conditions	805
M. Millour, E. Pelletier, and J.P. Gagné	
Part VI HS/NOM, Biodiversity and Ecosystem Health	
How Important Is Microbial Biodiversity in Controlling the Mineralisation of Soil Organic Matter?	813
Phil Brookes and Sarah Kemmitt	
The Influence of Humic Acids on the Activities of Lysozyme and Urease	817
Yan Li, Wenfeng Tan, and Luuk K. Koopal	
Sorption Between Humic Substances and Marine Microalgae in Estuaries: Effects of Microalgae Species, pH and Salinity	823
M. Millour and J.P. Gagné	
Feasibility of Chelating Agent Utilization for Suppressing Methane Production During Soil Organic Matter Decomposition	829
Prabhat Pramanik and Pil Joo Kim	
Microbial and Enzyme Properties in Response to Amelioration of an Acidic Ultisol by Industrial and Agricultural By-Products	833
Jiuyu Li, Zhaodong Liu, Anzhen Zhao, and Renkou Xu	
Change of Cation Exchange Capacity of Soils as Influenced by Plowing and Irrigation	839
B.M. Klenov	
Elemental Composition of Humic Acids in Frost Cracks of Soils of Cryolithic Belt	843
G.D. Chimitdorzhieva, M.G. Merkusheva, A.N. Baldanova, O.V. Vishnyakova, and B.M. Klenov	
Humus Composition of Saline Soils as Affected by Long-Term Irrigation	847
M.G. Merkusheva, A.N. Baldanova, G.D. Chimitdorzhieva, and B.M. Klenov	
Determination of Labile Fe(II) Species Complexed with Seawater Extractable Organic Matter in a Seawater Environment	853
Hisanori Iwai, Masami Fukushima, and Mitsuo Yamamoto	

Microbial Community Composition of Latosols Under a Rubber Plantation	859
Haichao Guo, Wenbin Wang, Xiaoping Wu, and Xuehua Luo	
Quantitative Determination of 2-Mercaptoethane Sulfonate as a Biomarker for Methanogens in Soil Using HPLC	863
Prabhat Pramanik and Pil Joo Kim	
<i>Kocuria Rosea</i> HN01: A Newly Discovered Alkaliphilic Humic-Reducing Bacteria Isolated from Cassava Dregs Composting . . .	869
Nan Chen, Chunyuan Wu, Qinfen Li, and Xiao Deng	
The Endodermis Is the Major Control Point for Radial Transport of Humic Substances into the Vascular System of Plants	873
N.A. Kulikova, D.P. Abroskin, A.S. Beer, G.A. Badun, M.G. Chernysheva, V.I. Korobkov, and I.V. Perminova	
Impact of Methanogens Originated from Cattle Manure on Increasing CH₄ Emission in Paddy Soil During Rice Cultivation . . .	877
Sang Yoon Kim, Prabhat Pramanik, and Pil Joo Kim	
Part VII HS/NOM in Water and Water Treatment	
Water Repellency Induced by Organic Matter (OM) in Treated Wastewater (TWW) Infiltration Ponds and Irrigation	883
Itamar Nadav, Jorge Tarchitzky, and Yona Chen	
Production of Biologically Stable Safe Drinking Water from Polluted Surface Water Sources	889
Olena Samsoni-Todorova, Natalia Klymenko, and Liudmyla Savchyna	
The Effect of Increased Dissolved Natural Organic Matter on Eutrophication	895
Rolf D. Vogt, Alexander Engebretsen, and Christian Mohr	
EEM Spectra and Removal Property of Fluorescent DOM in Biologically Treated Sewage Effluent	901
Wentao Lia and Aimin Li	
pH Dependence of Configurations and Surface Properties of Microbial Extracellular Polymeric Substances (EPS)	905
Lingling Wang, Longfei Wang, Xuemei Ren, Xiaodong Ye, Wenwei Li, Shijie Yuan, Min Sun, Guoping Sheng, Hanqing Yu, and Xiangke Wang	
Ferrate(VI): Novel Compound for Removal of Natural Organic Matter in Water	911
Virender K. Sharma, Jiaqian Jiang, and Hyunook Kim	
The Role of Natural Organic Matter in the Biodecontamination of Freshwaters from the Endocrine Disruptor Bisphenol A	915
G. Castellana, E. Loffredo, A. Traversa, and N. Senesi	

Selective Removal of DOM on Anion-Exchange Resin from Water . . .	921
Haiou Song, Aimin Li, and Yang Zhou	
Applicability of Fluorescence Analysis of Sedimentary Porewater Humic Substances for Reconstructing Past Lake Conditions	925
A. Leebein	
Effect of Natural Organic Matter (NOM) with Different Molecular Size on Tetracycline Removal from Natural Aquatic Environment by Resin	931
Qing Zhou, Mengqiao Wang, Chendong Shuang, Aimin Li, Zheqin Li, and Mancheng Zhang	
Humic Substance and Dissolved Organic Matter Distribution in the Bureya Reservoir Water System, Central Priamurye, Russia . . .	935
S.I. Levshina	
Assessing the Dynamics of Dissolved Organic Matter in the Changjiang Estuary with Absorption and Fluorescence Spectroscopy . . .	939
Weidong Guo, Liyang Yang, Weidong Zhai, Robert G.M. Spencer, Wenzhao Chen, and Huasheng Hong	
Rivers of the Southern Russian Far East: DOC Composition and Landscape Peculiarities	945
Tatiana Lutsenko	
Spectral Approach to Binding Between Metals and Dissolved Organic Matter from a Biological Wastewater Treatment Plant	949
Juan Xu and Guoping Sheng	
Part VIII Characterization and Function of Biochar in the Environment	
Designing Relevant Biochars to Revitalize Soil Quality: Current Status and Advances	955
Jeff Novak, Keri Cantrell, Don Watts, and Mark Johnson	
Relationships Between Biochar and Soil Humic Substances	959
M.H.B. Hayes	
Effects of Black Carbon and Earthworms on the Degradation and Residual Distribution of ¹⁴C-2,4-Dichlorophenol and ¹⁴C-Phenanthrene in Soil	965
Wenqiang Zhou, Bingqi Jiang, Hongyan Guo, and Rong Ji	
Characterisation of Humic Substances Extracted from Soil Treated with Charcoal (Biochar)	971
E.H. Novotny, R. Auceaise, L.B. Lima, and B.E. Madari	
Impact of Pyrolysis Temperature on Nutrient Properties of Biochar . . .	975
Hao Zheng, Zhengyu Wang, Xia Deng, and Baoshan Xing	

The Sorption of Sulfamethoxazole on Biochars Derived from a Sediment with High Organic Matter Content	979
Zhen Mao, Bo Pan, Ping Huang, and Baoshan Xing	
Effect of Biochars on Adsorption of Cu(II), Pb(II) and Cd(II) by an Oxisol from Hainan, China	983
Renkou Xu, Anzhen Zhao, and M.M. Masud	
Utilizing Stalk-Based Biochar to Control the Risk of Persistent Organic Pollutants in the Environment	989
Huoliang Kong, Jiao He, Jin Han, and Yanzheng Gao	
Impact of Black Carbon Amendments on the Retention Capacity of Cadmium in Soil	993
Qing Yi, Xueyu Hu, and Jahisiah J. Benoit	
Biochar Produced from Chemical Oxidation of Charcoal	997
A.S. Mangrich, L.C. Angelo, and K.M. Mantovani	
Carbon Distribution in Humic Substance Fractions Extracted from Soils Treated with Charcoal (Biochar)	1003
B.E. Madari, L.B. Lima, M.A.S. Silva, E.H. Novotny, F.A. Alcântara, M.T.M. Carvalho, and F.A. Petter	
Using Solid-State ^{13}C NMR to Study Pyrolysis Final Temperature Effects on Biochar Stability	1007
C.F.B.V. Alho, R. Auccaise, C.M.B.F. Maia, E.H. Novotny, and R.C.C. Lelis	
Physical Attributes of Soil Evaluated for 9 Months After Application of Biochar in Planting <i>Eucalyptus benthamii</i>	1013
R.S. Carvalho, K.C. Lombardi, and E.G. Pinheiro	
Organic Matter and Carbon in a Cambisol After Incorporation of Biochar for <i>Eucalyptus benthamii</i>	1017
G.T. Haberland and K.C. Lombardi	
The Effect of Biochar and Bacterium Agent on Humification During Swine Manure Composting	1021
Qiaoping Tu, Weixiang Wu, HaoHao Lu, Bin sun, Cheng Wang, Hui deng, and Yingxu Chen	
A Comparison of Greenhouse Gas Emissions from a Paddy Field Following Incorporation of Rice Straw and Straw-Based Biochar	1027
Jianlin Shen, Hong Tang, Jieyun Liu, Yong Li, Tida Ge, and Jinshui Wu	
Organic Matter Investigation by Direct Analysis of Charcoal Fractions Using Diffuse Reflectance FT-IR Spectroscopy	1033
O. Francioso, G. Certini, and C. Ciavatta	
Impact of Pyrolysis Time and Temperature on Physicochemical Characteristics of Biochars from Wetland Plants	1039
Niaz Muhammad, Zhongmin Dai, Haizhen Wang, F.Z. Xu, and Jianming Xu	

Part IX Industrial Products and Application of HS

On-Farm Evaluation of a Humic Product in Iowa (US)	
Maize Production	1047
Dan C. Olk, Dana L. Dinnes, Chad Callaway, and Mike Raske	
Enhancement of Germination and Early Growth of Different Populations of Switchgrass (<i>Panicum virgatum</i> L.) by Compost Humic Acids	1051
A. Traversa, E. Loffredo, A.J. Palazzo, T.L. Bashore, and N. Senesi	
Humic Acid Quality: Using Oxalic Acid as Precipitating Agent	1055
Guido Meyer and Renate Klöcking	
Possible Use of Leonardite-Based Humate Sources as a Potential Organic Fertilizer	1061
M.R. Karaman, M. Turan, A. Tutar, M. Dizman, and S. Şahin	
Chemical Properties of Humic and Fulvic Acid Products and Their Ores of Origin	1067
Jingdong Mao, Dan C. Olk, Na Chen, Dana L. Dinnes, and Mark Chappell	
Evaluation of a Proposed Standardized Analytical Method for the Determination of Humic and Fulvic Acids in Commercial Products . . .	1071
Richard Lamar, Dan C. Olk, Lawrence Mayhew, and Paul R. Bloom	
Potential Direct Mechanisms Involved in the Action of Humic Substances on Plant Development	1075
V. Mora, L. Jannin, E. Bacaicoa, M. Arkoun, M. Fuentes, M. Olaetxea, R. Baigorri, M. Garnica, S. San Francisco, A.M. Zamarreño, A. Ourry, P. Etienne, P. Laíné, J.C. Yvin, and J.M. Garcí-mina	
Commercial Humic Substances Stimulate Tomato Growth	1079
A.F. Patti, W.R. Jackson, S. Norng, M.T. Rose, and T.R. Cavagnaro	
Effect of Application Rate of Commercial Lignite Coal-Derived Amendments on Early-Stage Growth of <i>Medicago sativa</i> and Soil Health, in Acidic Soil Conditions	1085
Karen Little, Michael Rose, Antonio Patti, Timothy Cavagnaro, and Roy Jackson	
Influence of Commercial Humic Products on Living Organisms and Their Detoxification Ability in Cu-Polluted Soil in Model Experiment	1089
O.S. Yakimenko, M.V. Gorlenko, V.A. Terekhova, A.A. Izosimov, and M.A. Pukalchik	
Comparable Evaluation of Biological Activity of New Liquid and Dry Modifications of the Humic Product “Lignohumate”	1095
R.B. Poloskin, O.A. Gladkov, O.A. Osipova, and O.S. Yakimenko	

Production of Fulvic Acid via Ethyl Fulvate	1101
Bekir Zühtü Uysal, Yusuf Mert Sönmez, and Duygu Uysal	
Application of Humic Substances in Medicine: Basic Studies to Assess Pro- and Anticoagulant Properties of Humic Acids	1105
H.P. Klöcking and R. Klöcking	
Possibility for Synergic Growth-Stimulating Effects of Humic Substances and Water with Low Isotope 2H Content on the Germination of Wheat Seeds Under Favourable and Stress Conditions	1111
N.G. Bakanova, A.A. Timakov, A.I. Smirnov, and G.A. Kalabin	
Dose-Dependent Effects of Different Humic Substances in Preclinical Test Systems	1117
R. Klöcking, C. Kleiner, R. Junek, R. Schubert, A.M. Beer, J. Lukanov, P. Sagorchev, H.P. Klöcking, and J.I. Schoenherr	
Humic Acid Quality: The Influence of Peat Formation Variables	1123
Guido Meyer, Dierk Michaelis, Hans Joosten, and Renate Klöcking	
Nitration Effect on the Yield and Chemical Composition of Humic Acids Obtained from South Brazil Coal Samples	1129
Eduardo de Albuquerque Brocchi, Deborah P. Dick, and Anderson José Barcellos Leite	
Granulated Mineral-Organic Humic Preparations Based on PAPR . . .	1133
K. Hoffmann, M. Huculak-Mączka, and J. Hoffmann	
Molecular Composition of Microaggregates from Artificial Soils Based on Organic Wastes and Fe-Rich Mud by FTIR Analysis	1137
M.C. Hernandez-Soriano, A. Sevilla-Perea, M.D. Mingorance, and E. Smolders	
Author Index	1143