Humic Matter In Soil And The Environment Principles And Controversies Second Edition Books In Soils Plants And The Environment

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SAMIR ZAYDEN

Humic Substances and Their Role in the Environment LSV1
Elsevier Publishing Company
Despite the large number of papers and books published on soil organic matter (humus), our knowledge of the subject is still very limited, as is our knowledge of humic acid. The author of this book began to study humus at the end of the 1940s and continued until 1984 when he retired from Nagoya University. With the intention of establishing a systematic understanding of soil organic matter, he has compiled facts and a discussion of humus based on his extensive experimental results during the past 40 years. In this book, humic acids are classified into A, B, Rp and P types, based on their optical properties. The elementary composition and other chemical properties of humic acid types are shown to be regularly different from each other. A new method for humus composition analysis applied to various kinds of soils in Japan and several other countries indicates that the diversity of humus compositions of soils is systematically understandable. These findings lead the author to novel theories on the chemical configuration and formation of humic acids and humic substances. Diagenesis of humus under terrestrial conditions is illustrated as to the buried humic horizons of Black soil (Andosol). The book will be useful not only to soil scientists and agronomists but also to geochemists, oceanographers, limnologists, water scientists, biologists and chemists who are dealing with organic matter in terrestrial, aquatic, and sedimentary environments.

Humic Substances in Soil and Crop Sciences BoD – Books on Demand
This volume presents the proceedings of the 10th international symposium Humus et Planta held in Prague in August 19-23, 1991. The main topics of this book are devoted to the recent advances in fundamental, as well as applied research of humic substances, the most abundant of the naturally occuring macromolecules of nature, the understanding of their nature and how they react and interact in their natural environments. Texts are included on the structure, physical and chemical properties of humic substances; the relationships among humus, soil properties and fertility; the biotransformations of organic substances in the soil; the relationships between humic substances and plants and the interactions of humus and xenobiotic substances. This book presents recent knowledge of the

complicated and challenging humic substances. It will be of interest not only to scientist, but also to University teachers and students of agricultural and environmental sciences.

Humus Elsevier

This volume uses a molecular approach to bring the reader up to date with research into the structure and properties of these unusual materials. Agricultural and environmental scientists will find its coverage of HS use for soil remediation and enhancement and in water purification as alternatives to conventional methods invaluable.

Humic Substances in Terrestrial Ecosystems Wiley-Interscience

A range of products, often referred to as alternative fertilisers, are marketed with numerous claims relating to soil health and improved plant growth. However, there is often an absence of evidence about the veracity of the claims and the effectiveness of these products. Producers and consumers alike are left to rely on the advertised promises which come with little proof. One common group of alternative fertilisers are the humic products that are often sold as soil amendments with or without accompanying plant nutrients. More than 200 humic products are currently manufactured and sold in Australia. Thousands more are available for purchase via overseas websites. Is there a place for humic products in Australian agriculture? Do they have the potential to realise at least some of the advertised claims or are these benefits merely presumption on the part of manufacturers? This technical bulletin 'Humic products – Potential or presumption for agriculture' is the first in a series that will cover a range of alternative fertiliser products. Written and produced by NSW Department of Primary Industries, these reports ask two basic questions: Can the product work? Given our current understanding of the physical, chemical and biological mechanisms that interact in soil-plant ecosystems, can we explain how the product functions? Does the product work? Is there sufficient evidence from independent trials that the product will work under field conditions? This publication is written primarily for agronomists, soil scientists, consultants and other farm advisors. However, the readable style, explanations and diagrams provided by the author, Kim Billingham, make it accessible for others with a more rudimentary understanding of the soil and plant sciences. 'A brief history of humus' will engage readers from both conventional and more alternative philosophies as we all work towards farming in a more sustainable manner.

Fulvic and Humic Acids Humic Matter in Soil and the Environment Soil Organic Matter

Humic Substances Elsevier

Present in soil and water, humic substances are the most widespread organic compounds, naturally occurring from a physical, chemical, and microbiological transformation of biomolecules. They represent about 25% of the total organic carbon on the Earth and comprise up to 75% of the dissolved organic carbon in water, making them important for multiple environmental processes in both soil and aquatic systems. Despite many decades of extensive

study, the formation mechanisms of humic substances are still a subject of discussion and controversy. This book examines the dynamics of humic substances, their physicochemical and biological properties, and methods for their extraction and characterization. The book also sheds light on recent advances and applications of humic substances in agriculture, environment, industry, and medicine.
Springer Science & Business Media
The properties of humic substances (HSs) in plants, soils and sediments regulate the environment and affect all aspects of like, yet they are only very imprecisely understood. This volume presents work on HSs including instruments and techniques being developed to throw more light on their structure and relationship to macro- and micro-scopic properties.
Humus, its Structure and Role in Agriculture and Environment Woodhead Publishing
623435-28b.gif Volume B covers the ecological significance of the interactions among clay minerals, organic matter and soil biota. Soil is a dynamic system in which soil minerals constantly interact with organic matter and microorganisms. Close association among abiotic and biotic entities governs several chemical and biogeochemical processes and affects bioavailability, speciation, toxicity, transformations and transport of xenobiotics and organics in soil environments. This book elaborates critical research and an integrated view on basic aspects of mineral weathering reactions; formation and surface reactivity of soil minerals with respect to nutrients and environmental pollutants; dynamics and transformation of metals, metalloids, and natural and anthropogenic organics; effects of soil colloids on microorganisms and immobilization and activity of enzymes, and metabolic processes, growth and ecology of microbes. It offers up-to-date information on the impact of such a processes on soil development, agricultural production, environmental protection, and ecosystem integrity.
Humic Substances in Soil, Sediment, and Water Elsevier
The only book to completely define and explore the genesis, extraction, properties, and impact of humic matter on agriculture, industry, and the environment, Humic Matter in Soil and the Environment delves into the issues and controversies associated with produced and natural humic compounds. It assesses the role of humic substances in medicines, fertilizers, and industrial and pharmaceutical operations, providing characteristic visible light, infrared, ESR, NMR spectra, and electron micrographs for every humic compound. Unparalleled in scope and depth, this reference examines controversies regarding humic matter as a real or false compound and identifies trends and prospects for the future.
Ecological Significance of the Interactions among Clay Minerals, Organic Matter and Soil Biota CRC Press
The field of humic matter research has undergone drastic changes in concepts and principles since the first edition of Humic Matter in Soil and the Environment: Principles and Controversies was

published more than a decade ago. Still the only book of its kind specifically addressing humic acid principles and controversies, the Second Edition presents the newest advances in humic acid science. Eleven new and rewritten chapters replace the original nine, with updated material representing modern humic acid chemistry. This includes the delineation of organic matter, humus, and humic matter. The book begins by considering organic matter as a whole, describing terrestrial and aquatic organic matter. It examines humus as a mixture of humified and nonhumified organic matter, focusing also on the importance of the nonhumified fraction plant biopolymers in their original or slightly decomposed forms as raw materials for formation of the humic fraction. The book then presents concepts of humic matter, referred to as humic acid, covering a range of ideas from traditional views of biopolymers to the latest concepts based on micellar, supramolecular, and nanotube chemistry. The author presents the major pathways of humification and discusses humification theories. He also examines the extraction, isolation, and fractionation of humic matter. The book reviews the chemical composition and model structures of humic acids, the chemical and spectroscopic characterization of humic substances, and the electrochemical properties of humic matter. It also addresses the agronomic, environmental, and industrial (including pharmaceutical) importance of humic matter. This revised and updated edition continues the tradition of providing comprehensive coverage of the genesis, extraction, properties, and impacts of humic matter."

Humic Matter in Soil and the Environment: Principles and Controversies, Second Edition NSW Agriculture

The Future of Soil Carbon: Its Conservation and Formation provides readers with an integrative approach to understanding the important role of organic carbon in soil functioning and fertility. Terrestrial interactions between SOC and complex human-natural systems require new fundamental and applied research into regional and global SOC budgets. This book provides new and synthesized information on the dynamics of SOC in the terrestrial environment. In addition to rigorous state-of-the art on soil science, the book also provides strategies to avoid risks of soil carbon losses. Soil organic carbon (SOC) is a vital component of soils, with important and far-reaching effects on the functioning of terrestrial ecosystems. Human activities over the last several decades have significantly changed the regional and global balance of SOC, greatly exacerbating global warming and climate change. Provides a holistic overview of soil carbon status and main threats for its conservation Offers innovative solutions to conserve soil carbon Includes in-depth treatment of regional and global changes in soil organic carbon budget

Humic Substances CRC Press

This second edition of the popular Soil Sampling, Preparation, and Analysis provides a hands-on guide to the methods most commonly used in modern soil laboratories around the world, illustrating the methods

with actual results. Divided into three sections, the book covers principles of soil sampling and sources of errors and variability of results, common procedures for extraction and analysis in soil plant testing, and instrumentation. The author added three new chapters on soil and plant test methods, electron microscopy, and nuclear magnetic resonance. He has extensively revised, updated, and expanded all of the other chapters to reflect recent advances and shifting interests in the field.

Humus and Humic Substances Nova Science Publishers

It has long been recognized that soil organic matter is the key to soil fertility. As a nutrient store it gradually provides essential elements which the soil cannot retain for long in inorganic form. It buffers growing plants against sudden changes in their chemical environment and preserves moisture in times of drought. It keeps the soil in a friable, easily penetrated physical condition, well-aerated and free draining, providing young seedlings with an excellent medium for growth. But it has another property, the nature and extent of which have been the subject of argu ment and controversy ever since scientists began to study the soil, and that is its ability to affect growth directly, other than by providing nutrient elements. Any one wishing to learn about these effects has been faced with a daunting mass of literature, some confusing, often contradictory, and spread through a multitude of journals. Individual aspects have been covered from time to time in reviews but there has obviously been a need for a modern authoritative text book dealing with the many facets of this subject, so the publication of this volume is timely. The editors and authors are all specialists in their fields, fully familiar with the com plex nature of soil organic matter and with the particular difficulties arising in any study of its properties. Where controversies exist they have presented all sides of the argument and have highlighted areas where further work is badly needed.

Humic Substances and Natural Organic Matter Academic Press

Humic acids (HA) make up an important component of soil humus related to the maintenance of soil water-holding capacity, stabilisation of soil structure and fertility and vital activity of soil micro-organisms, plants and animals. Additionally, obtaining humic substances (HS) from vermicompost has shown to be a promising alternative for large scale use in agriculture. Humic substances (HS) are also major components of natural organic matter (NOM) in soil and water as well as in geological organic deposits. This book includes chapters on vermicompost-derived liquid humus in low-input and small-scale farming; the production of liquid organic fertilisers enriched with humic substances from olive mill wastes; mechanisms of protective action of the HUMI preparation on wheat plant response to toxic ions; the application of surface-enhanced Raman scattering and fluorescence spectroscopy on silver plasmonic nanoparticles as innovative techniques to study humic substances; the complexation of metal ions with humus substances in soils and water and the final chapter examines the natural organic matter in

drinking water.
Humic Substances Wiley-Interscience
A comprehensive and critical geochemical overview of the nature and functions of humic substances in such diverse environments as soil, peat, groundwater, salt and fresh water.
Humus Acids of Soils Elsevier
This timely volume provides a basic introduction to the biological aspects of soil organic matter. With rapidly increasing societal demands on the soil ecosystem and the current recognition that the pools of organic matter in agricultural soils are declining, we have come to realize the essential function that soil organic matter performs in the ecosystem. The author shows how, in many cases, the total nature and longevity of the the entire ecosystem are controlled by the chemical, biological, and physical properties of the soil organic matter pool. Covers fauna, microbes, and enzymes in the soil; organic matter transformation and humification; mathematical modeling; ecosystem management, and much more.
Soil Sampling, Preparation, and Analysis Nova Science Publishers
Advances in the chemistry and biochemistry of humic substances: isolation, characterization, functions; humic substances in soil and crop production; humic substances in aquatic and sedimentary systems; interactions of humic substances with organic and inorganic xenobiotics and with organisms; applicative aspects of humic substances: industrial and medical issues.
Labile Organic Matter Umi Research Press
This book is about humic and fulvic acids, two types of organic substances which are increasingly becoming popular in agriculture and organic farming. In this book, the authors study and reveal their research on humic substances and the different aspects related to their formation. Other chapters include recent research on GRSP (Glomalin Related Soil Protein) and its relation to different kinds of fluorescent substances, including fulvic acid-like and humic acid-like substances. The last two chapters of the book explore humic acids and their ability to interfere in molecular ecological studies as well as the various methods one could use to measure the humic acids' concentration in soil-extracted nucleic acids. Finally, this book presents an in-depth look at the role of humic materials in the dispersion of radioactive contaminants in the environment, the latter of which are some of the most broadly circulated substances on the earth's surface, occurring in soils, rivers, lakes and seas.
Agrochimica Taylor & Francis
Humic substances are ubiquitous in the environment. These remarkable brown biomaterials are found in animals, plants, coals, sediments, soils and water. They are crucial components of the carbon cycle and other life processes. Humic Substances: Nature's Most Versatile Materials contains a compilation of papers presented at the 2002 Humic Substances Seminar and will keep humic substances scientists up to date with the latest research.
Understanding and Managing Organic Matter in Soils, Sediments, and Waters CRC Press
The field of humic matter

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