

Aquatic Humic Substances: Ecology and Biogeochemistry

Aquatic humic substances (AHSs) are an essential component of aquatic ecosystems, playing crucial roles in carbon and nutrient cycling, water quality, and microbial interactions. This comprehensive book, titled "Aquatic Humic Substances Ecology and Biogeochemistry" (Ecological Studies 133), delves into the captivating world of AHSs, providing a comprehensive exploration of their chemistry, biogeochemistry, and ecological significance.



Aquatic Humic Substances: Ecology and Biogeochemistry (Ecological Studies Book 133)

by Geoffrey Budworth

★★★★★ 5 out of 5

Language : English

File size : 5517 KB

Text-to-Speech: Enabled

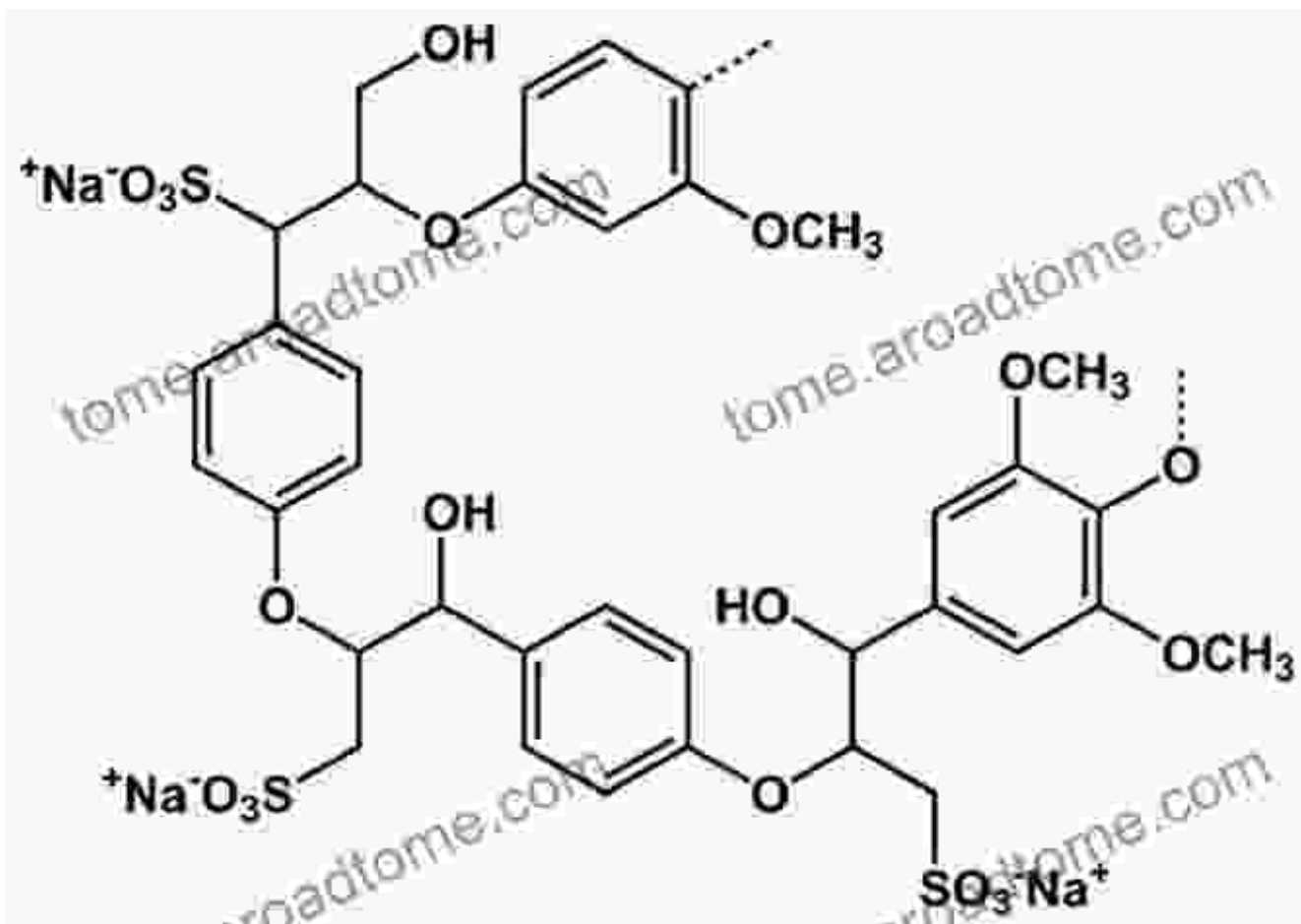
Screen Reader: Supported

Print length : 361 pages



Chapter 1: to Aquatic Humic Substances

The opening chapter introduces the concept of AHSs, defining their composition, sources, and classification. It highlights their ubiquity in aquatic environments, from pristine headwaters to highly polluted estuaries and coastal zones. The chapter also discusses the historical development of AHS research, showcasing the evolution of our understanding of these complex substances.



Chapter 2: Chemistry of Aquatic Humic Substances

Chapter 2 dives into the intricate chemistry of AHSs, examining their molecular structure, composition, and physicochemical properties. It explores the role of various functional groups, such as carboxylic acids and phenolic hydroxyl groups, in determining their reactivity and interactions with other molecules. The chapter also discusses the characterization techniques used to analyze AHSs, including spectroscopy and chromatography.

Chapter 3: Biogeochemistry of Aquatic Humic Substances

Chapter 3 delves into the biogeochemical processes that govern the fate and transport of AHSs in aquatic ecosystems. It examines the sources, sinks, and transformations of AHSs, including microbial degradation, photochemical reactions, and coagulation. The chapter also discusses the role of AHSs in carbon and nutrient cycling, highlighting their impact on water quality and ecosystem productivity.

Chapter 4: Ecological Interactions of Aquatic Humic Substances

Chapter 4 explores the ecological interactions of AHSs with various aquatic organisms, including microorganisms, invertebrates, and fish. It examines the effects of AHSs on microbial growth and activity, nutrient uptake, and toxicity. The chapter also discusses the role of AHSs in predator-prey interactions and the formation of biofilms.

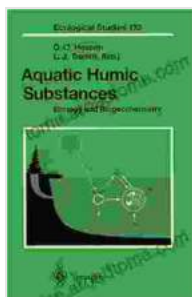
Chapter 5: Aquatic Humic Substances and Water Quality

Chapter 5 investigates the influence of AHSs on water quality, focusing on their impact on dissolved oxygen levels, nutrient availability, and the formation of disinfection byproducts. It discusses the potential implications of AHSs for drinking water treatment and the management of aquatic ecosystems.

Chapter 6: Modeling Aquatic Humic Substances

Chapter 6 explores the use of mathematical models to simulate the behavior of AHSs in aquatic ecosystems. It reviews existing models and discusses their strengths and weaknesses. The chapter also highlights the importance of modeling for understanding the fate and transport of AHSs and predicting their ecological effects.

, "Aquatic Humic Substances Ecology and Biogeochemistry" provides a comprehensive and up-to-date synthesis of the current knowledge on AHSs. It is an invaluable resource for researchers, students, and professionals working in the fields of aquatic ecology, biogeochemistry, and environmental chemistry. By delving into the intricate world of AHSs, this book sheds light on their vital role in maintaining the health and functioning of aquatic ecosystems.



Aquatic Humic Substances: Ecology and Biogeochemistry (Ecological Studies Book 133)

by Geoffrey Budworth

★★★★★ 5 out of 5

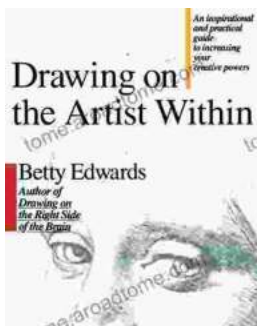
Language : English

File size : 5517 KB

Text-to-Speech: Enabled

Screen Reader: Supported

Print length : 361 pages



Unleash Your Inner Artist: An Immersive Journey with "Drawing On The Artist Within"

Embark on an Artistic Odyssey to Discover Your Creative Potential In the realm of art, true mastery lies not solely in technical...



Easy Delicious Recipes To Heal The Immune System And Restore Overall Health For A Thriving, Energetic Life

: The Cornerstone of Immunity The human body is an intricate symphony of interconnected systems, each playing a vital role in maintaining our...