Assessment Of Airborne Bacteria And Fungi In An Indoor And

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RANDOLPH BEST

Manual of Environmental Microbiology Lulu.com
Despite the large amount of money spent on research into pollution of the indoor environment, the problem remains complex with major gaps in our knowledge of the identities and sources of pollutants and of the effects of prolonged exposure to indoor pollutants on health. Microorganisms in Home and Indoor Work Environments considers one such group o
Analysis of Airborne Viable Bacteria at Solid Waste Processing Facilities Springer
Microbial pollution is a key element of indoor air pollution. It is caused by hundreds of species of bacteria and fungi, in particular filamentous fungi (mould), growing indoors when sufficient moisture is available. This document provides a comprehensive review of the scientific evidence on health problems associated with building moisture and biological agents. The review concludes that the most important effects are increased prevalences of respiratory symptoms, allergies and asthma as well as perturbation of the immunological system. The document also summarizes the available information on the conditions that determine the presence of mould and measures to control their growth indoors. WHO guidelines for protecting public health are formulated on the basis of the review. The most important means for avoiding adverse health effects is the prevention (or minimization) of persistent dampness and microbial growth on interior surfaces and in building structures. [Ed.]
Experiments in Microbiology, Plant Pathology, Tissue Culture and Mushroom Production Technology American Society for Microbiology Press
This book intends to provide information about detection and health effects due to bacteria, fungi and viruses in indoor environments. The book will cover also information about preventive and protective measures to avoid health-hazardous. Case studies will be also addressed to enrich the book with the expertise of each invited author. The book also intends to fill a gap regarding information about all biologic agents, since most of the books available are dedicated to only one type of microorganisms. For various different biologic agents and metabolites this book will compile information about indoors presence, detection methods, exposure assessment and health effects. Several problems regarding the exposure of biologic agents will be presented through case studies, and also the implementation of preventive and protective measures to avoid/minimize exposure. Besides, all the book will focus on occupational health and/or public health point of view.
Bacterial Volatile Compounds as Mediators of Airborne Interactions BoD – Books on Demand
Aerobiology is the science that studies the biological component of the atmosphere and its effects on living systems and on the environment. This term was used for the first time in 1935, but the attention of scientists to the biological component of the atmosphere goes back to 1769, when the Italian biologist Spallanzani carried out a series of experiments that disproved the concept of spontaneous generation of life and proved the presence of viable microorganisms in the air. Aerobiology has marked characteristics of interdisciplinarity: its application fields range from respiratory diseases to the airborne outbreak of animal and vegetal diseases and to the biodegradation of substances and materials. The latter is the subject of this book. The purpose of aerobiological research applied to the conservation of cultural heritage is to evaluate the risk of alteration by airborne microorganisms of materials forming artefacts of historical, artistic and archaeological interest. Airborne spores and vegetative structures may develop on different substrates and may be a cause of degradation, in relation to the types of materials, the microclimatic situation and the pollution of the conservation environments. The qualitative and quantitative evaluation of the biological component of air, performed by means of targeted analysis campaigns, and of the characteristics of materials and environments, supplies indispensable information for the evaluation of the actual risk and the planning of interventions. This book is divided into four main parts.
Bioaerosols Springer Nature
People's desire to understand the environments in which they live is a natural one. People spend most of their time in spaces and structures designed, built, and managed by humans, and it is estimated that people in developed countries now spend 90 percent of their lives indoors. As people move from homes to workplaces, traveling in cars and on transit systems, microorganisms are continually with and around them. The human-associated microbes that are shed, along with the human behaviors that affect their transport and removal, make significant contributions to the diversity of the indoor microbiome. The characteristics of "healthy" indoor environments cannot yet be defined, nor do microbial, clinical, and building researchers yet understand how to modify features of indoor

environmentsâ€"such as building ventilation systems and the chemistry of building materialsâ€"in ways that would have predictable impacts on microbial communities to promote health and prevent disease. The factors that affect the environments within buildings, the ways in which building characteristics influence the composition and function of indoor microbial communities, and the ways in which these microbial communities relate to human health and well-being are extraordinarily complex and can be explored only as a dynamic, interconnected ecosystem by engaging the fields of microbial biology and ecology, chemistry, building science, and human physiology. This report reviews what is known about the intersection of these disciplines, and how new tools may facilitate advances in understanding the ecosystem of built environments, indoor microbiomes, and effects on human health and well-being. It offers a research agenda to generate the information needed so that stakeholders with an interest in understanding the impacts of built environments will be able to make more informed decisions.

Industrial Entomology BoD – Books on Demand

Expanding far beyond its predecessor, this text offers a comprehensive guide to the assessment and control of bioaerosols in the full range of contemporary workplaces. Although the indoor environment remains a focus of concern, much of the information in this publication has application beyond office environments. The prominence of saprophytic microorganisms remains; however, more attention has been given to other important biological agents (e.g., arthropod and animal allergens, infectious agents, and microbial volatile organic compounds). In addition, fuller descriptions are provided for microbial toxins and cell wall components that may cause health effects

Encyclopedia of Microbiology Springer Nature

"Many parents today are turning to or seeking information about Complementary and Alternative Medicine (CAM) for their children. Whether you initiate alternative therapies or simply need to respond when asked for information or advice, it's crucial to have the most recent, evidence-based information about alternative therapies and know how to safely and effectively integrate them with conventional treatment. This innovative and reliable reference is the ideal resource to have at hand." "This book includes a wide range of complementary and alternative therapies, focusing on those most often used with children: mind/body approaches, manual therapies, lifestyle approaches, alternative systems, energy medicine, and biological agents. Within these main categories, therapies such as acupuncture, chiropractic, massage, homeopathy, herbs, and magnets are covered." "Fifty-five common pediatric conditions are comprehensively discussed, with diagnostic and evidence-based treatment information, followed by authoritative information on the major CAM therapies available for treatment of the condition. Whenever possible, an integrative approach that combines conventional and alternative approaches is presented."--BOOK JACKET.

“AERO-BACTERIOLOGY OF OCCUPATION ASSOCIATED ENVIRONMENT” CRC Press

This interdisciplinary guide offers background, research findings, and practical strategies for assessing and improving air quality in hospitals and other healthcare settings. Positing good air quality as critical to patient and staff well-being, it identifies disease-carrying microbes, pollutants, and other airborne toxins and their health risks, and provides localized interventions for reducing transmission of pathogens. Effective large-scale approaches to air quality control are also outlined, from green building materials to hygienic HVAC and air treatment practices. Its thoroughness of coverage makes this book a vital resource for professionals involved in every aspect of health service facilities, from planning and construction to maintenance and management. Among the topics covered: Existing guidelines in indoor air quality: the case study of hospital environments Hospital environments and epidemiology of healthcare-associated infections Analysis of microorganisms in hospital environments and potential risks Legionella indoor air contamination in healthcare environments HVAC system design in healthcare facilities and control of aerosol contaminants Assessment of indoor air quality in inpatient wards Indoor Air Quality in Healthcare Facilities imparts up-to-date expertise to a variety of professional readers, including hospitals' technical and management departments, healthcare facilities' chief medical officers, hospital planners, sport and thermal building designers, public health departments, and students of universities and schools of hygiene.

Sterility, Sterilisation and Sterility Assurance for Pharmaceuticals National Academies Press

Air pollution is thus far one of the key environmental issues in urban areas. Comprehensive air quality plans are required to manage air pollution for a particular area. Consequently, air should be continuously sampled, monitored, and modeled to examine different action plans. Reviews and research papers describe air pollution in five main contexts: Monitoring, Modeling, Risk Assessment, Health, and Indoor Air Pollution. The book is recommended to experts interested in health and air pollution issues.

Damp Indoor Spaces and Health Royal Society of Chemistry

This book focusses on the toxicological aspects of aerobiology, considering the adverse health effects associated with the inhalation of airborne biological particulates.

Indoor Air Quality in Healthcare Facilities Elsevier

This interdisciplinary guide offers background, research findings, and practical strategies for assessing and improving air quality in hospitals and other healthcare settings. Positing good air quality as critical to patient and staff well-being, it identifies disease-carrying microbes, pollutants, and other airborne toxins and their health risks, and provides localized interventions for reducing transmission of pathogens. Effective large-scale approaches to air quality control are also outlined, from green building materials to hygienic HVAC and air treatment practices. Its thoroughness of coverage makes this book a vital resource for professionals involved in every aspect of health service facilities, from planning and construction to maintenance and management. Among the topics covered: Existing guidelines in indoor air quality: the case study of hospital environments Hospital environments and epidemiology of healthcare-associated infections Analysis of microorganisms in hospital environments and potential risks Legionella indoor air contamination in healthcare environments HVAC system design in healthcare facilities and control of aerosol contaminants Assessment of indoor air quality in inpatient wards Indoor Air Quality in Healthcare Facilities imparts up-to-date expertise to a variety of professional readers, including hospitals' technical and management departments, healthcare facilities' chief medical officers, hospital planners, sport and thermal building designers, public health departments, and students of universities and schools of hygiene.

Quantitative Microbial Risk Assessment John Wiley & Sons

Provides the latest QMRA methodologies to determine infection

riskcause by either accidental microbial infections or deliberateinfections caused by terrorism • Reviews the latest methodologies to quantify at everystep of the microbial exposure pathways, from the first release ofa pathogen to the actual human infection • Provides techniques on how to gatherinformation, on how each microorganism moves through theenvironment, how to determine their survival rates on variousmedia, and how people are exposed to the microorganism • Explains how QMRA can be used as a tool to measure theimpact of interventions and identify the best policies andpractices to protect public health and safety • Includes new information on genetic methods • Techniques use to develop risk models for drinkingwater, groundwater, recreational water, food and pathogens in theindoor environment

Integrative Medicine for Children Fundacion BBVA

Investigation techniques and analytical methodologies for addressing microbial contamination indoors Microbial contamination indoors is a significant environmental and occupational health and safety problem. This book provides fundamental background information on fungal and bacterial growth indoors as well as in-depth, practical approaches to analyzing and remedying problems. The information helps investigators, laboratory managers, and environmental health professionals properly use state-of-the-science methods and correctly interpret the results. With chapters by expert microbiologists, mycologists, environmental professionals, and industrial hygienists, Sampling and Analysis of Indoor Microorganisms is a multidisciplinary, comprehensive reference on advanced approaches, covering: Microbiological problems in a water-damaged environment Indoor construction techniques and materials that impact environmental microbiology Microbial ecology indoors, airborne bacteria, genetic-based analytical methods, and statistical tools for microorganism analysis Microbiological sampling approaches Mold removal principles and methods, including specialized microbial remediation techniques for HVAC systems, legionellas and biofilms, and sewage contamination A forensic approach toward the assessment of fungal growth in the indoor environment A must-have guide for practicing professionals, including environmental health and safety personnel, public health officials, and building and construction engineers and architects, this is also a valuable reference for attorneys, home inspectors, water restoration personnel, mold remediation contractors, insurance adjusters, and others.

Multivariate Analysis of Ecological Data John Wiley & Sons

This comprehensive handbook provides up-to-date knowledge and practical advice from established authorities in aerosol science. It covers the principles and practices of bioaerosol sampling, descriptions and comparisons of bioaerosol samplers, calibration methods, and assay techniques, with an emphasis on practicalities, such as which sampler to use and where it should be placed. The text also offers critiques concerning handling the samples to provide representative and meaningful assays for their viability, infectivity, and allergenicity. A wide range of microbes-viz., viruses, bacteria, fungi and pollens, and their fragments-are considered from such perspectives. Bioaerosols Handbook is divided into four parts, providing a wide-ranging reference work, as well as a practical guide on how best to sample and assay bioaerosols using current technology.

Bioaerosols American Conference of Governmental Industrial Hygenists

This second edition of the ACGIH publication, Bioaerosols: Assessment and Control, has been much anticipated by indoor environmental quality (IEQ) researchers in academics, practitioners such as certified industrial hygienists (CIHs), and the public in general who often have a personal interest in this field. The first edition, known as the "Red Book" due to the color of the hard cover, was published in 1999, and since then, it has been the gold standard on the impact that biological particles have on our lives.The first edition was strongly influenced by bioaerosols of concern at the time, particularly mold and tuberculosis. This second edition of Bioaerosols: Assessment and Control has been expanded to address contemporary bioaerosols, including coronavirus, H1N1, Legionella, recombinant and synthetic nucleic acids, prions, and agents of bioterrorism, notably SARS-CoV-2. New chapters cover bioterrorism agents and respiratory protection. Existing chapters are updated and expanded. The book starts with an introduction to bioaerosols, health effects, hazard and risk assessment, and prevention of indoor microbial contamination. It progresses to building inspections, sampling techniques, analysis, and interpretation of data. Remediation and control methods are discussed, along with the role of medical professionals. Chapters cover specific biological agents like bacteria, fungi, viruses, house dust mites, and allergens. Sections within chapters are numbered for easy reference. Acronyms and abbreviations are introduced when first used, with full terms listed in the appendix. Latin genus and species names are given on first use, with subsequent references abbreviated. This book focuses on identifying and controlling bioaerosol exposures in various settings, including nonindustrial, institutional, commercial, healthcare, residential, and certain manufacturing and recreational environments. It emphasizes evaluating actual or potential bioaerosol exposures and preventing material or structural damage due to biological growth. Key themes include understanding the source-pathway-receptor paradigm and using a scientific approach to assess potential bioaerosol contamination. The book discusses the systematic process of hypothesis evaluation, which may involve visual and olfactory assessments or environmental measurements and sampling. It also covers the limitations and interpretation of air and source samples for various biological agents and the challenges in establishing exposure limits due to the diverse effects of bioaerosols and the lack of clear dose-response relationships. Overall, the book provides insights into assessing health risks associated with bioaerosol exposures based on case-by-case evaluations combining health assessments, risk assessments, and environmental observations. [éditeur]

Microbiology of Aerosols WHO Regional Office Europe

This book covers the fundamentals of bacterial volatile-mediated communication with other organisms, starting with the biosyntheses of volatile organic compounds (VOC), interactions with plants and animals, interactions with microbes, tools for data analysis, and their applications. With this foundation in place, the book subsequently focuses on understanding the effect of bacterial volatiles on plant growth promotion, discusses plant immunity, and lastly shares insights into future research directions. The book is divided into fourteen-in-depth chapters, each of which is designed to enrich readers’ understanding of bacterial volatile compounds’ functions and various applications. The pivotal roles of bacterial volatile compounds make this book essential reading for scientists and students of all biological disciplines seeking to fully understand microorganism responses and environmental adaptations. In addition to its value as a

fundamental book for graduate students, it offers a clearly structured reference guide for all individuals working in microbiology.

IEH Assessment on Indoor Air Quality in the Home John Wiley & Sons

Almost all homes, apartments, and commercial buildings will experience leaks, flooding, or other forms of excessive indoor dampness at some point. Not only is excessive dampness a health problem by itself, it also contributes to several other potentially problematic types of situations. Molds and other microbial agents favor damp indoor environments, and excess moisture may initiate the release of chemical emissions from damaged building materials and furnishings. This new book from the Institute of Medicine examines the health impact of exposures resulting from damp indoor environments and offers recommendations for public health interventions. Damp Indoor Spaces and Health covers a broad range of topics. The book not only examines the relationship between damp or moldy indoor environments and adverse health outcomes but also discusses how and where buildings get wet, how dampness influences microbial growth and chemical emissions, ways to prevent and remediate dampness, and elements of a public health response to the issues. A comprehensive literature review finds sufficient evidence of an association between damp indoor environments and some upper respiratory tract symptoms, coughing, wheezing, and asthma symptoms in sensitized persons. This important book will be of interest to a wide-ranging audience of science, health, engineering, and building professionals, government officials, and members of the public.

Comprehensive Sampling and Sample Preparation Academic Press

Aeromicrobiology provides a detailed and systematic analysis of the microbial communities and toxins collectively called bioaerosols that can be found in air. It provides information on the basics of Aeromicrobiology, the fate and transport of microorganisms in air, and the fundamental differences between intramural and extramural Aeromicrobiology. Leaning heavily on the current state of science, detailed information on the sampling and analysis of bioaerosol samples is provided. Subsequent chapters comprehensively discuss various airborne microbial groups and toxins, while the final chapter is dedicated to bioaerosol control strategies, biosafety, and biosecurity. There are limited resources on Aeromicrobiology. In rare instances where there are resources on Aeromicrobiology, they are often restricted to chapters in books or even supplementary materials. The emergence of new airborne pathogens, the aerosolization of microorganisms hitherto believed not to be airborne, and the proliferation of technologies for sampling, analysis, and control of bioaerosols makes it imperative for this title, which streamlines and succinctly presents the new body of knowledge in the field. Leans heavily on current state-of-the-art technologies used in sampling and analysis of bioaerosol samples such as metagenomics and sensor-based, hybrid technologies, among others Dedicates considerable attention to airborne and droplet-borne viruses, against the background of SARS-CoV-2 and related pathogens Comprehensively attends to regulatory aspects of bioaerosol control, highlighting various policies and regulations aimed at achieving biosecurity and curbing bioterrorism Helps researchers and policy makers in various fields who are often confronted with the need for basic information delivered in seamless style without loss of essential content

Sampling and Analysis of Indoor Microorganisms Academic Press

Failure to adequately control any microbial challenge associated within process or product by robust sterilisation will result in a contaminated marketed product, with potential harm to the patient. Sterilisation is therefore of great importance to healthcare and the manufacturers of medical devices and pharmaceuticals. Sterility, sterilisation and sterility assurance for pharmaceuticals examines different means of rendering a product sterile by providing an overview of sterilisation methods including heat, radiation and filtration. The book outlines and discusses sterilisation technology and the biopharmaceutical manufacturing process, including aseptic filling, as well as aspects of the design of containers and packaging, as well as addressing the cleanroom environments in which products are prepared. Consisting of 18 chapters, the book comprehensively covers sterility, sterilisation and microorganisms; pyrogenicity and bacterial endotoxins; regulatory requirements and good manufacturing practices; and gamma radiation. Later chapters discuss e-beam; dry heat sterilisation; steam sterilisation; sterilisation by gas; vapour sterilisation; and sterile filtration, before final chapters analyse depyrogenation; cleanrooms; aseptic processing; media simulation; biological indicators; sterility testing; auditing; and new sterilisation techniques. Covers the main sterilisation methods of physical removal, physical alteration and inactivation Includes discussion of medical devices, aseptically filled products and terminally sterilised products Describes bacterial, pyrogenic, and endotoxin risks to devices and products

Current Air Quality Issues Elsevier

This volume discusses the effects of indoor air environment and pollution in modern buildings on human health. Highlighting epidemiological studies and the determining factors, it offers proposals for improving indoor air quality (IAQ) in different environments. Focusing not only on homes and offices, but also vehicles and aircrafts, it details practical methods of measuring and assessing indoor air quality. Written by pioneering researchers, Indoor Environmental Quality and Health Risk toward Healthier Environment for All is a valuable resource for both new and established researchers as well as students seeking a comprehensive overview of the facts on indoor air quality and health. Also is also of interest to hygiene experts in industry, occupational health and safety professionals, governmental public health sectors and school physicians.