

## Perbandingan Metode Maserasi Remaserasi Perkolasi Dan

Building on its best-selling predecessors, *Basic Statistics and Pharmaceutical Statistical Applications*, Third Edition covers statistical topics most relevant to those in the pharmaceutical industry and pharmacy practice. It focuses on the fundamentals required to understand descriptive and inferential statistics for problem solving. Incorporating new material in virtually every chapter, this third edition now provides information on software applications to assist with evaluating data. New to the Third Edition Use of Excel® and Minitab® for performing statistical analysis Discussions of nonprobability sampling procedures, determining if data is normally distributed, evaluation of covariances, and testing for precision equivalence Expanded sections on regression analysis, chi square tests, tests for trends with ordinal data, and tests related to survival statistics Additional nonparametric procedures, including the one-sided sign test, Wilcoxon signed-ranks test, and Mood's median test With the help of flow charts and tables, the author dispels some of the anxiety associated with using basic statistical tests in the pharmacy profession and helps readers correctly interpret their results using statistical software. Through the text's worked-out examples, readers better understand how the mathematics works, the logic behind many of the equations, and the tests' outcomes.

### Handbook of Laboratory Distillation

Drugs from plants are a major contribution to world health. Their production involves machinery, workers, quality control, standards, and legislation. *Phytopharmaceutical Technology* is a practical reference volume that provides the basic information necessary to select and operate machinery and to process plant products through to the desired liquid, solid, or powdered drug form. As a result, much of the book is devoted to the production process. Topics discussed include plants and plant parts; converting plants to medicinal forms; tips on handling incoming plant materials, including quality, pests, residues, analytical techniques and legislation; solvents for extraction, chemical data and notes regarding selection and use; and production processes, including grading (sorting), size reduction (comminution), extraction, concentration, purification, and drying. The book also contains details regarding the dozens of types of machinery that can be used, as well as drawings, including cross-sections and schematics of the working action. Quality assurance, standardization, and regulation is also discussed. *Phytopharmaceutical Technology* is a handy reference tool for engineers and industrial chemists in the plant drug processing industry, as well as excellent reading for university students.

Extending the shelf-life of foods whilst maintaining safety and quality is a critical issue for the food industry. As a result there have been major developments in food preservation techniques, which are summarised in this authoritative collection. The first part of the book examines the key issue of maintaining safety as preservation methods become more varied and complex. The rest of the book looks both at individual technologies and how they are combined to achieve the right balance of safety, quality and shelf-life for particular products. Provides an authoritative review of the development of new and old food preservation technologies and the ways they can be combined to preserve particular foods Examines the emergence of a new generation of natural preservatives in response to consumer concerns about synthetic additives Includes chapters on natural antimicrobials, bacteriocins and antimicrobial enzymes, as well as developments in membrane filtration, ultrasound and high hydrostatic pressure Flavor is unquestionably one of the most extremely secretive one-reluctant to disclose anything that might be of value to a important attributes of the food we eat. competitor. Thus, little information about Man does not eat simply to live but even the activities of the flavor industry itself is more so lives to eat. Take away the pleasure offood and life becomes relatively mundane. available to the public. There now is a substantial body of liter The goal of the original Source Book of ature dealing with food flavor. The "golden Flavors, written by Henry Heath, was to years" of flavor research in the United States bring together in one volume as much of the were the 1960s and 70s. Numerous academic worldwide data and facts and as many flavor and government institutions had strong related subjects (e. g. , food colors) as was flavor programs and money was readily possible. Henry Heath added a wealth of available for flavor research. In the 1980s personal information on how the industry and 90s, research funding has become diffi accomplishes its various activities, which cult to obtain, particularly in an esthetic had never been published in any other liter area such as food flavor. The number of ature. It has been the intent of this author to research groups focusing on food flavor has update and build upon the original work of declined in the United States. Fortunately, Henry Heath.

A comprehensive, accessible, up-to-date catalog of enzymes andtheir uses in modern manufacturing. Enzymes have long been used by industrial product makers as majorcatalysts to transform raw materials into end products. Nowavailable in English for the first time, *Industrial Enzymes andTheir Applications* is the only authoritative catalog of enzymeswith in-depth coverage of their varied uses, the classes in whichthey are grouped, and which chemical reagents they have replaced oncurrent mass production lines. The first section surveys general enzyme characteristics anddiscusses their microbiological origin, including pH andtemperature dependence of the activity and stability of eachenzyme. The next section then examines the most importantindustrial enzymes in use today--includingcarbohydrate-hydrolyz-ing enzymes, proteases, estercleavage-fat-hydrolyzing enzymes, and immobilized enzymes. The lastsection is devoted to specific applications of technical enzymes insuch areas as food processing, beverage production, animalnutrition, leather, and textiles. *Industrial Enzymes and Their Applications* offers instant access toa wealth of key enzyme data--an invaluable, wide-ranging resourcefor industrial chemists, biochemists, biochemical engineers, andstudents.

The only comprehensive reference on this popular and rapidly developing technique provides a detailed overview, ranging from fundamentals to applications, including a section on the evaluation of GC-MS analyses. As such, it covers all aspects, including the theory and principles, as well as a broad range of real-life examples taken from laboratories in environmental, food, pharmaceutical and clinical analysis. It also features a glossary of approximately 300 terms and a substance index that facilitates finding a specific application. For this new edition the work has been now extended to two volumes, reflecting the latest developments in the technique and related instrumentation, while also incorporating several new examples of applications in many fields. The first two editions were very well received, making this handbook a must-have in all analytical laboratories using GC-MS.

The fourth edition of this classic text provides a thorough, yet concise review of the cellular and molecular mechanisms involved in the transformation of normal into malignant cells, the invasiveness of cancer cells into host tissues, and the metastatic spread of cancer cells in the host organism. It defines the fundamental pathophysiologic changes that occur in tumor tissue and in the host animal or patient. Each chapter discusses the historical development of a field, citing the key experimental advances to the present day, and evaluates the current evidence that best supports or rules out concepts of the molecular and cellular mechanisms regulating cancer cell behavior. For all the areas of fundamental cancer research, an effort has been made to relate basic research findings to the clinical disease states. The book is well written and well illustrated, with schematic diagrams and actual research data to demonstrate points made in the text. There is also an extensive, up-to-date bibliography, making the book valuable to scientists, and to physicians, students, and nurses interested in the field of cancer biology. The topics covered include pathologic characterization of human tumors, epidemiology of human cancer, regulation of cell proliferation and differentiation, cellular and molecular phenotypic characteristics of the cancer cell, mechanisms of carcinogenesis, tumor initiation and promotion, viral carcinogenesis, oncogenes and oncogene products, growth factors, chromosomal alterations in cancer, mechanisms of tumor metastasis, host-tumor interactions, fundamental aspects of tumor immunology, and the advances in cancer cell biology that will lead to improved diagnosis and treatment of cancer in the future.

This comprehensive, concise, carry-along reference addresses the development and progression of disease and describes how more than 450 diseases affect the human body. The book explains the how and why behind each disease process, the signs and symptoms, and the most useful diagnostic tests and interventions. This thoroughly updated Second Edition includes new entries on genetic disorders, stress-related diseases, emerging infections such as SARS, and diseases of bioterrorism. This edition also provides more illustrations, twice as many full-color images, and selected references, including Websites. An expanded Table of Contents and indexing by body system help readers quickly locate a disease.

Cell and tissue culture is a technique in which plant or animal cells are grown under controlled conditions in the laboratory. This is then used for the analysis of the cells themselves, the assessment of the cell's response to chemicals, or as a tool to produce cellular-derived protein products. This book is a collection of fundamental and specific applied procedures in cell and tissue culture which form the basis of the new medical techniques of tissue engineering and gene therapy. It combines both detailed laboratory procedures and informative overviews. \* Provides step-by-step protocols with troubleshooting tips and notes on time considerations. \* Main procedures are supplemented by alternative procedures, background information and references. \* Experimental examples indicate expected results.

Our knowledge of mass transfer processes has been extended and applied to various fields of science and engineering including industrial processes in recent years. Since mass transfer is primordial phenomenon, it plays a key role in the scientific researches and fields of mechanical, energy, environmental, materials, bio, and chemical engineering. In this book, energetic authors especially provide advances in scientific findings and technologies, and develop new theoretical models concerning mass transfer for sustainable energy and environment. This book brings valuable references for research engineers working in the variety of mass transfer sciences and related fields. Since the constitutive topics cover the advances in broad research areas, the topics will be mutually stimulus and informative not only to research engineers, but also to university professors and students.

Principles and Practice of Bioanalysis provides a guide to the methods available and the techniques currently used in this field. It provides up to the minute information and guidance on the methods and strategy used in developing and running ultra-trace analyses for drugs, metabolites and other substances. The authors writes in an informal and did

Muscarinic acetylcholine receptors have played a key role in the advancement of knowledge of pharmacology and neurotransmission since the inception of studies in these fields, and the effects of naturally occurring drugs acting on muscarinic receptors were known and exploited for both therapeutic and non-therapeutic purposes for hundreds of years before the existence of the receptors themselves was recognized. This volume presents a broad yet detailed review of current knowledge of muscarinic receptors that will be valuable both to long-time muscarinic investigators and to those new to the field. It describes the detailed insights that have been obtained on the structure, function, and cell biology of muscarinic receptors. This volume also describes physiological analyses of muscarinic receptors and their roles in regulating the function of the brain and of a variety of peripheral tissues. This volume shows how the study of muscarinic receptors continues to provide new and surprising insights not just to the cholinergic system but to the broad areas of neurobiology, cell biology, pharmacology, and therapeutics.

The Anti-Aging Plan is an upbeat, practical overview of all aspects of looking good while growing older, providing a complete plan to help today's women through the anti-aging maze by casting a critical eye on beauty products and their claims, debunking health and nutritional myths, taking a realistic look at plastic surgery options, and sorting the practical from the dubious. It helps you to evolve your own age-beating game plan so you can enjoy the challenge of change and aging. Book jacket.

SPONSLILY Publisher

Thin layer chromatography (TLC) is increasingly used in the fields of plant chemistry, biochemistry, and molecular biology. Advantages such as speed, versatility, and low cost make it one of the leading techniques used for locating and analyzing bioactive components in plants. Thin Layer Chromatography in Phytochemistry is the first source devoted to supplying state-of-the-art information on TLC as it applies to the separation, identification, quantification, and isolation of medicinal plant components. Renowned scientists working with laboratories around the world demonstrate the applicability of TLC to a remarkable diversity of fields including plant genetics, drug discovery, nutraceuticals, and toxicology. Elucidates the role of plant materials in the pharmaceutical industry... Part I provides a practical review of techniques, relevant materials, and the particular demands for using TLC in phytochemical applications. The text explains how to determine the biological activity of metabolites and assess the effectiveness of herbal medicines and nutritional supplements. Part II concentrates on TLC methods used to analyze specific plant-based metabolite classes such as carbohydrates, proteins, alkaloids, flavonoids, terpenes, etc. Organized by compound type, each chapter discusses key topics such as sample preparation, plate development, zone detection, densitometry, and biodetection. Demonstrates practical methods that can be applied to a wide range of disciplines... From identification to commercial scale production and quality control, Thin Layer Chromatography in Phytochemistry is an essential bench-top companion and reference on using TLC for the study of plant-based bioactive compounds.

Pharmacognosy (the science of biogenic or nature-derived pharmaceuticals and poisons) has been an established basic pharmaceutical science taught in institutions of pharmacy education for over two centuries. Over the past 20 years though it has become increasingly important given the explosion of new drugs, phytomedicines (plant medicines), nutraceuticals and dietary supplements – all of which need to be fully understood, tested and regulated. From a review of the previous edition: 'Drawing on their wealth of experience and knowledge in this field, the authors, who are without doubt among the finest minds in pharmacognosy today, provide useful and fascinating insights into the history, botany, chemistry, phytotherapy and importance of medicinal plants in some of today's healthcare systems. This is a landmark textbook, which carefully brings together relevant data from numerous sources and provides, in an authoritative and exhaustive manner, cutting-edge information that is relevant to pharmacists, pharmacognocists, complementary practitioners, doctors and nurses alike.' The Pharmaceutical Journal 'This is an excellent text book which provides fascinating insights into the world of pharmacognosy and the authors masterfully integrated elements of orthodox pharmacognosy and phytotherapy. Both the science student and the non-scientific person interested in phytotherapy will greatly benefit from reading this publication. It is comprehensive, easy to follow and after having read this book, one is so much more aware of the uniqueness of phytomedicines. A must read for any healthcare practitioner.' Covers the history, biology and chemistry of plant-based medicines Covers pharmaceutical and neutraceuticals derived from plants Covers the role of medicinal plants in worldwide healthcare systems Examines the therapeutics and evidence of plant-based medicines by body system Sections on regulatory information expanded New evidence updates throughout New material covering non-medical supplements Therapeutics updated throughout Now on StudentConsult

Pada buku ini dijelaskan lunasin, suatu protein yang terdapat pada kedelai. Pemaparan dimulai dari ekstraksi kedelai untuk menghasilkan lunasin, dilanjutkan dengan uji fitokimianya. Sebelum pembahasan mengenai peran lunasin dalam perbaikan histopatologi kolon, terlebih dahulu dipaparkan peran lunasin dalam menghambat toksisitas hati oleh induksi azoksimetan dan dekstran sodium sulfate. Pembahasan terakhir adalah tentang peran lunasin dalam menghambat ekspresi beberapa protein yang terlibat dalam proses peradangan dan karsinogenesis kolon. Penulis memberikan pemaparan secara teoritis dan menunjukkan eviden dari penelitian yang telah dilakukan.

The Handbook of Membrane Separations: Chemical, Pharmaceutical, Food, and Biotechnological Applications, Second Edition provides detailed information on membrane separation technologies from an

international team of experts. The handbook fills an important gap in the current literature by providing a comprehensive discussion of membrane application

PRINCIPLES OF INSTRUMENTAL ANALYSIS is the standard for courses on the principles and applications of modern analytical instruments. In the 7th edition, authors Skoog, Holler, and Crouch infuse their popular text with updated techniques and several new Instrumental Analysis in Action case studies. Updated material enhances the book's proven approach, which places an emphasis on the fundamental principles of operation for each type of instrument, its optimal area of application, its sensitivity, its precision, and its limitations. The text also introduces students to elementary analog and digital electronics, computers, and the treatment of analytical data. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Stevioside is one of the naturally occurring sweeteners, belonging to the diterpene glycoside family, which can be widely applied in food, drinks, medicine and consumer chemicals. It is a good dietary supplement, being non-caloric, thermally stable, non-toxic, with a sugar-like taste profile, and suitable for diabetics, phenylketonuria patients and the obese. It is also non-fermentable, and exhibits anti-carcinogenic, antioxidant and anti-hyperglycemic properties. Stevioside tastes about 300 times sweeter than 0.4% sucrose solution. Thus, it offers a reasonably rare combination of health benefits and taste benefits, making the extraction of stevioside is an area of active research for the food industry as well as academic food scientists. With the rapid increase in the popularity of stevioside as a sugar substitute, particularly with regard to its associated health benefits, there is a need for more efficient and feasible extraction processes for stevioside in the near future. This book offers an in-depth look at perhaps the major "sugar alternative of the future", up-to-date and in line with the latest global legislation regarding its suitability for consumption and its scope for application.

Herbs, Botanicals and Teas presents the latest scientific and technical information on the chemical, pharmacological, epidemiological and clinical aspects of major herbal and tea products. Written by leading researchers contributing to the field, this is the first reference to provide in-depth coverage of garlic, ginseng, Echinacea, ginger, fenugreek

There is a growing appreciation of traditional medical systems as a source of considerable knowledge of the medicinal properties of plants. Traditional medicines have the potential to offer leads to identifying potentially valuable chemicals that can be developed into new and more effective drugs, including safer contraceptives. The Pacific region is an excellent arena in which to search for such chemicals as: the area contains plant species not found elsewhere; there is every indication that many of the plants used more generally in traditional Pacific medicine may be efficacious – of 74 plants surveyed in one study 86% showed pharmacological activity; and in many Pacific traditions, knowledge of medicinal use is transmitted between generations as part of an inherited body of ethnomedical knowledge. This book documents all the available information on plants that have been used traditionally for anti-fertility and fertility purposes in the Pacific region, and indicates which of these plants hold the most promise for providing new anti-fertility agents. It also records instances in which the plant has been used outside the region.

Designed for associate-degree MLT/CLT programs and baccalaureate MT/CLS programs, this textbook presents the essentials of clinical microbiology. It provides balanced coverage of specific groups of microorganisms and the work-up of clinical specimens by organ system, and also discusses the role of the microbiology laboratory in regard to emerging infections, healthcare epidemiology, and bioterrorism. Clinical case studies and self-assessment questions show how to incorporate the information into everyday practice. More than 400 illustrations and visual information displays enhance the text. Essentials boxes, chapter outlines, key terms, summaries, and other study aids help students retain information. A bound-in CD-ROM includes additional review questions, case studies, and Web links.

The Malayan flora is one of the richest in the world. This book gives a brief systematic account of all the major groups of seed plants classified under 41 orders and 178 families which are represented by native or naturalised plants in Peninsular Malaysia and Singapore. Within each order, a list of families, an account of the diagnostic characters, a key to the families, and a brief note on the systematic position, the evolutionary trends or other points of interest, are included. Within each family, a simple description, a short note on the distribution, and, in most cases, a key to the Malayan genera are presented. For easy reference, two appendices containing a list of orders and family names in Malay and Chinese, a simple artificial key to the common Malayan families, and a glossary are also provided. This book presents a selection of challenging cases seen in everyday practice, highlighting learning points and recent developments made in the field. Each case is concise and formatted simply, logically leading the reader through clinical presentations, a series of questions/learning points, pertinent background information, recent developments, and further reading. Easy to read, ideal for dipping in and out during busy clinical practice, this book will be a valuable up-to-date resource for effective strategies to manage primary and secondary hypertension. For specialists in hypertension, cardiology, internal medicine, family medicine.

"Written in a highly polished yet informal style, this book will appeal to readers interested in memoirs of accomplished businesswomen and African American success, as well as those who want a glimpse into the fast-paced world of a top-level ad executive." --Library Journal "Graves established herself as a fierce force in the advertising field and a greatly admired role model for black professionals establishing themselves in American business. In a moving book steeped in perseverance and empowering determination, the author fully embodies the challenges of her culture and those of being a motivated businesswoman . . . Optimistic and galvanizing, Graves' message of hope and hard work is timely and applicable." --Kirkus Reviews "Barrier-breaking, highly celebrated creative director and advertising executive Graves is about more than glittery and impressive national advertising campaigns and her association with international celebrities and various Fortune 500 companies . . . No one was looking for her, but she showed up, spoke directly to the public, and captured the world's attention. Graves' well-told tale, set against a detailed social and cultural backdrop, of courage and success both personally (including a happy marriage) and professionally is moving and inspiring." --Booklist "A story about an accomplished woman who is the epitome of grit . . . Whether recalling the guilt she felt as a working, absentee parent, or how she came to adopt new age thinking, the author's storytelling skills and use of humor, imagery, and figurative language is noteworthy. At an early age, Valerie decided she would fake it until she made it. Now a success by most standards, she no longer has to pretend. Anyone who enjoys reading about those who travel difficult paths in life will find Pressure Makes Diamonds to be inspirational." --Foreword Reviews "When you get dealt a tough hand, you might choose to fold or you might decide to hold. If you're Valerie Graves, you reshuffle the whole damn deck...Graves's can't-stop-won't-stop energy offers a jump start toward meeting objectives and renews hope. Pressure Makes Diamonds is about more than overcoming." --Essence Magazine "A gem of a book . . . Valerie Graves has spun an appealing narrative with a protagonist who reads like an African-American female counterpart of Horatio Alger. Her journey from Mud Lake, Pontiac, an exurb of Detroit, to a corner office on Madison Avenue is exhilarating, marking her rise to the upper echelons of advertising and providing readers with an exposé of her creative life and the world ruled by 'Mad Men.'" --New York Amsterdam News "Graves paints the picture of how she was a determined woman who faked it till she made it—and made it big. [An] inspirational memoir." --Black Enterprise This is the unflinching memoir of a female African American advertising executive's unprecedented and unlikely success, which began in the Mad Men era. It follows her journey from the projects of Motown-era Michigan to the skyscrapers of Madison Avenue and beyond. With marches, riots, and demonstrations as the backdrop, and rock 'n' roll as a soundtrack, this book accompanies Graves as she traverses the seismically shifting terrain of 1960s and '70s America on her quest to "be somebody." In the '80s and '90s, as Graves makes her ascent to the East Coast heights of the white male-dominated advertising world, she turns familiarity with harsh realities like racism and sexism into robust insights that deeply connect with African American consumers. During the golden era of black advertising, she becomes an undisputed "somebody." Soon, though, she learns that money, success, a good marriage, and connections that reach all the way to the White House cannot entirely insulate her against the social ills that threaten to crush black Americans.

Pharmaceutical Preformulation and Formulation: A Practical Guide from Candidate Drug Selection to Commercial Dosage Form reflects the mounting pressure on pharmaceutical companies to accelerate the new drug development and launch process, as well as the shift from developing small molecules to the growth of biopharmaceuticals. The book meets the need for advanced information for drug preformulation and formulation and addresses the current trends in the continually evolving pharmaceutical industry. Topics include: Candidate drug selection Drug discovery and development Preformulation predictions and drug selections Product design to commercial dosage form Biopharmaceutical support in formulation Development The book is ideal for practitioners working in the pharmaceutical arena—including R&D scientists, technicians, and managers—as well as for undergraduate and postgraduate courses in industrial pharmacy and pharmaceutical technology.

This book explores engineered nanomaterials (ENM) pulmonary effects and familiarizes readers with unique aspects of nanomaterial application and research. Focusing on the diagnostic and therapeutic utilities of nanomaterials in different lung diseases, it discusses the novel applications of nanotechnology for the treatment of airway diseases such as asthma, allergy, chronic obstructive pulmonary diseases, cystic fibrosis, and lung cancer. In an attempt to synchronize the efforts of pulmonary biologists, chemists, and clinicians in developing novel nano-based tools for airway diseases, the book also discusses the strategies to overcome the pathophysiological and technical barriers.

Organic Chemistry is unusual among market-leading texts; it exists only as a brief text and is specifically designed for a one-semester short course in organic chemistry. Its heavy emphasis on applications, increased coverage of basic concepts, thorough problem-solving pedagogy, and comprehensive problem sets address the specific needs of students in this course. "A Closer Look At" features require students to use resources on the Web to expand concepts in the text, applying text content more directly to real-world examples. The HM ClassPrep instructor CD-ROM provides valuable supplemental content in one convenient, portable product. The CD-ROM includes a test bank, Instructor's Resource Manual, and PowerPoint slides of all line art from the text and animations from the student CD-ROM. This revised and extended edition provides in-depth insights into the benefits and untapped potential of lichen-derived bioactive compounds. The whole spectrum of these compounds' biological and medical functions, from antibiotic to antiviral and anti-carcinogenic properties, is presented. In addition, a new chapter discusses the anti-neurodegenerative and anti-diabetic activities of lichenic secondary metabolites. Given its scope, the book offers a valuable asset for students and researchers in this field.

Introduce your students to the latest advances in spectroscopy with the text that has set the standard in the field for more than three decades: INTRODUCTION TO SPECTROSCOPY, 5e, by Donald L. Pavia, Gary M. Lampman, George A. Kriz, and James R. Vyvyan. Whether you use the book as a primary text in an upper-level spectroscopy course or as a companion book with an organic chemistry text, your students will receive an unmatched, systematic introduction to spectra and basic theoretical concepts in spectroscopic methods. This acclaimed resource features up-to-date spectra; a modern presentation of one-dimensional nuclear magnetic resonance (NMR) spectroscopy; an introduction to biological molecules in mass spectrometry; and coverage of modern techniques alongside DEPT, COSY, and HECTOR. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Extraction is an important operation in food engineering, enabling the recovery of valuable soluble components from raw materials. With increasing energy costs and environmental concerns, industry specialists are looking for improved techniques requiring less solvents and energy consumption. Enhancing Extraction Processes in the Food Industry is a

Organized in a reader-friendly format, this reference collects a vast amount of information on the underlying mechanisms of hypertension and applies them to day-to-day clinical practices -- focusing on recent developments in patient management, as well as the molecular, biological, physiological, pathophysiological, and pharmacological facets of hypertension.

Natural Products Isolation provides a comprehensive introduction to techniques for the extraction and purification of natural products from all biological sources. Geared to scientists with little experience of natural products extraction, but offering even skilled researchers valuable advice and insight, Natural Products Isolation lays the foundation for the potential extractor to isolate natural substances efficiently. Its methods and guidance will almost certainly play a major role in today's natural product discovery and development.

Spons adalah hewan multiseluler primitif yang tidak memiliki organ dan jaringan yang sesungguhnya. Permukaan tubuhnya dipenuhi oleh ostium/ostia, yaitu pori mikroskopik tempat masuknya air yang membawa makanan masuk ke dalam tubuhnya, dan memiliki oskulum/oskula, yaitu lubang tempat keluarnya air yang membawa sisa-sisa metabolisme dan produk seksual yang dihasilkannya. Hewan ini hidup bersifat bentik sesil yang hidup pada perairan dangkal sampai perairan dalam, perairan tropis sampai perairan subtropis, bahkan dijumpai juga di perairan kutub. Secara sistematis, spons termasuk ke dalam filum Porifera yang terdiri dari empat kelas (Demospongiae, Calcarea, Hexactinellida, dan Homoscleromorpha) belasan ordo, ratusan famili dan genera, serta ribuan spesies. Saat ini spons menjadi sangat populer di kalangan banyak orang setelah diketahui memiliki banyak kandungan senyawa aktif, yang memiliki sifat-sifat sebagai antikanker, antivirus, antibakteri, antifungi, dan sifat-sifat bioaktif lainnya. Sebagai antivirus, beberapa senyawa aktif dari spons memiliki potensi sebagai kandidat obat untuk menyembuhkan penyakit HIV-AIDS dan infeksi virus lainnya, seperti infeksi virus Herpes simplex. Sebagai antikanker, beberapa senyawa aktifnya juga memiliki potensi sebagai kandidat obat atau obat untuk menyembuhkan penyakit kanker leukemia, dan penyakit kanker lainnya. Selain itu, beberapa jenis spons tergolong spons mandi (bath sponge) dan spons ornamental penghias akuarium laut, yang dapat dikembangkan budi dayanya untuk keperluan ekspor dan untuk menghasilkan devisa bagi negara.

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