

# Chemistry Biochemistry And Biology Of 1 3 Beta Glucans And Related Polysaccharides

Chemistry, Biochemistry, and Biology of 1-3 Beta Glucans and Related Polysaccharides  
Toxicology of 1 - 3-Beta-Glucans  
Biology and Chemistry of Beta Glucan  
Beta-Glucan: Sources, Properties and Applications  
Microbial Beta Glucanases  
Chemistry and Biology of 1,3- $\beta$ -Glucans  
Beta-glucan Studies in Oat (*Avena Sativa* L.)  
1,3-Beta-glucanases in the Oomycete *Phytophthora Infestans*  
Structure and Regulation of Rice [beta]-glucanase and [alpha]-amylase Gene Families  
Medical Subject Headings  
Food Microstructure  
Advances in Cereal Science and Technology  
Book of Abstracts  
Biological & Pharmaceutical Bulletin  
Biomass  
Journal of the Federated Institutes of Brewing  
Plant Carbohydrates  
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Collected Papers from the National Cancer Center Research Institute  
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chemistry biochemistry and biology of 1 3 beta glucans and related polysaccharides presents a comprehensive

systematic and authoritative survey of information about a family of chemically related but functionally diverse naturally occurring polysaccharides the 1 3 glucans international contributors describe the chemical and physicochemical properties of these glucans and their derivatives and the molecular biological and structural aspects of the enzymes involved in their formation and breakdown a detailed analysis of their physiological roles in the various biological situations in which they are found will be provided additionally evolutionary relationships among the family of these glucans will be described topics of medical relevance include detailing the glucans interactions with the immune system and research for cancer therapy applications resource links allow scientists to explore additional beta glucan research separate indexes divided into species and subject for enhanced searchability

the investigation of indoor air quality has shown that microbial contamination is often a problem in buildings recent evidence indicates that fungi are often a part of the picture a component of the fungal cell wall 1 3 glucans not only affect human health they are a marker for the existence of fungi in environmental samples toxicology

despite of the efforts of pharmaceutical researchers to find new medicaments nature offers many substances with healing properties beta glucans belong to this group of compounds the second volume of the e book series biology and chemistry of beta glucan provides new knowledge about these important polysaccharides in order to understand the role of beta glucans it is necessary to control the purity and to determine their composition and structure this volume presents modern chemical and separation methods which are applied in structural analysis of glucans as a result of structural analyses it can be concluded that beta glucans of different origin vary in chain length number and types of branching the book further discusses the biological effects of tailored oligomers and synthetic beta glucans including innovative use of enzymatic processes in the synthesis of these compounds this volume also discusses a hypothesis of beta glucans increasing impact on the photodynamic therapy in spite of many scientific papers describing the positive role of beta glucans in protection against diseases certain epidemiological data suggest that specific illnesses can be related to beta glucan exposure the fact of whether or not beta glucan is an accompanying substance of these biologically active agents is also questioned biology and chemistry of beta glucan volume 2 focuses on the strictly scientific basis on the effects of beta glucan on human health as well as other possibilities of beta glucan application such as protection of aquaculture against diseases

beta glucans are the polysaccharides obtained from the cell wall of fungi yeast bacteria and cereals with different physicochemical properties depending on the source beta glucans are polymers with  $\beta$  1 3 glucose as core linear

structure and vary with respect to side branching solubility viscosity gelation properties and molecular weight they are well known as cell response modifiers with immune modulating nutraceutical and health beneficial effects including anticancer and pro apoptotic properties this book is the first of its kind focusing on the different sources and properties of beta glucans the unique features of this book will be the focus on the extraction method of beta glucans chemistry stability modification and health benefits of beta glucans this book is suitable for students scientists and professionals in food science food processing product development nutrition and other health sciences this book will be typical in its form and we hope that it will represent an example for future works in this and related areas we aimed to summarize and review the outcomes and knowledge gained so far in the said area

this book offers an overview of the current knowledge on beta glucanase enzymes derived from actinobacterial source their structure functions and industrial applications it summarizes the exploitation of actinomycetes assay methods for beta glucanase screening structural characterisation genetic engineering protein engineering strategies for purification characterisation and finally how to synthesize a hybrid enzyme of beta glucanases enzyme beta glucanases have considerable interest in industrial biotechnology owing to its distinct effect on the hydrolysis of insoluble beta glucan molecules and applications in particular industrial sectors such as food feed and beverages industries the beta glucanases are characterized extensively in microorganisms viz bacteria fungi and also in plants a wide varieties of actinobacterial  $\beta$  glucanases have exclusively active on  $\beta$  glucan substrates and cleave the mixed linkage  $\beta$  glucan chains at different points this is significant for picking precise substrates for the assay of each type of enzymes within this enzyme groups the well recognized specificity and mechanism of action within the enormous substrates allow to understand that most of them are varied from cellulases excluding  $\beta$  1 4 glucanases the progress in genetic and protein engineering in actinobacterial beta glucanases improves the stability activity and thermodynamic properties in relation with industrial relevance this book will be useful for researchers and students engaged in industrial biotechnology enzyme production molecular biology protein engineering and many more

this book presents a comprehensive and systematic survey on 1 3 b glucans glucans with the 1 3 b glucosidic linkage as a major feature are present in most higher plants and many lower plants and microorganisms they may occur as major structural or storage components or be formed at very specific sites in response to particular developmental events or stimuli in many cases their functional role is a mystery in others it is well established their distribution and physiological involvement indicates that they are important to fields such as agriculture and biotechnology and may also have an impact in medicine through their role in immunology and cancer therapy

contains records of chemicals which have been mentioned in a significant way in journals indexed in medline

this volume covers cellulose and hemicellulose and includes proven and reproducible methods for research related to the conversion of carbohydrate polymers to usable monomeric units sections on the preparation of biomass materials and of substrates are included as are sections on analytical methods and on the purification and assay of enzymes

plant specific aspects of membrane biology are reviewed comprehensively by leading international experts in this up to date reference volume the editors have selected topics and contributors to ensure substantive coverage of this exciting and rapidly developing area of plant biology no previous volume has provided such authoritative coverage of the following areas functions of the plasma membrane at the cell surface membrane lipid metabolism ion and sugar transport intracellular membrane compartments primary and secondary plasmodesmata and membrane modifications induced by symbiotic and pathogenic microorganisms membranes specialized functions in plants is an invaluable reference source for all researchers and lecturers in plant cell biology and membrane biochemistry

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