

Chemical Composition And Nutritional Quality Of Wheat Grain

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This publication provides information on the impact of animal feeds on food quality, food safety, and the environment, and thus improves the basis for managing such risks. The book brings together in printed form six reviews from the FAO electronic journal AGRIPPA (available online).

Chemical composition and nutritional quality of vegetable crops as influenced by ontogenesis, nitrogen supply and drought stress
Chemical Composition and Nutritional Quality of Vegetable Crops as Influences by Ontogenesis, Nitrogen Supply and Drought Stress

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Composition and Nutritional Quality of Vegetable Crops as Influenced by Ontogenesis, Nitrogen Supply and Drought Stress
Edible Mushrooms
Chemical Composition and Nutritional Value
Academic Press

Meat holds an important position in human nutrition. Although protein from this source has lower biological value than egg albumin, it is an exclusive source of heme iron and vitamins and minerals. Fat content and fatty acid profile from this source are a constant matter of concern. Though currently meat utilization is linked with an array of maladies, including atherosclerosis, leukemia, and diabetes, meat has a noteworthy role not only for safeguarding proper development and health, but also in human wellbeing. Enormous scientific investigations have proved that consuming meat has had a beneficial role in cranial/dental and gastrointestinal tract morphologic changes, human upright stance, reproductive attributes, extended lifespan, and maybe most prominently, in brain and cognitive development.

Comprehensive and timely, *Edible and Medicinal Mushrooms: Technology and Applications* provides the most up to date information on the various edible mushrooms on the market. Compiling knowledge on their production, application and nutritional effects, chapters are dedicated to the cultivation of major species such as *Agaricus bisporus*, *Pleurotus ostreatus*, *Agaricus subrufescens*, *Lentinula edodes*, *Ganoderma lucidum* and others. With contributions from top researchers from around the world, topics covered include: Biodiversity and biotechnological applications
Cultivation technologies
Control of pests and diseases
Current market overview
Bioactive mechanisms of mushrooms
Medicinal and nutritional properties
Extensively illustrated with over 200 images, this is the perfect resource for researchers and professionals in the mushroom industry, food scientists and nutritionists, as well as academics

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and students of biology, agronomy, nutrition and medicine.

Legumes have high potential for improving the nutritional quality of foods, but limited data on their bioactive compounds exists. Results of clinical and epidemiological studies suggest that natural antioxidants can protect us against oxidative stress that is closely associated with cancer and cardiovascular disease. Legumes are a valuable source of bioactive compounds such as phenolic compounds, peptides and non-nutritional factors. They are rich in several important micronutrients, including potassium, magnesium, folate, iron, and zinc, and are an important source of protein in vegetarian diets. They are among the only plant foods that provide significant amounts of the amino acid, lysine. Commonly consumed legumes are also rich in total and soluble fibre as well as in resistant starch. This book provides a comprehensive overview of the antioxidant activity and health aspects of legumes. The international spread of contributors will describe the key factors that influence consumer acceptance of legumes in the diet, as well as the known functional properties of legumes and legume based food products. It will serve as an excellent and up-to-date reference for food scientists, food chemists, researchers in human nutrition, dietetics and the chemistry of natural compounds.

For the first major update of this topic in 21 years, editors Webster and Wood have gathered an elite group of internationally recognized experts. This new edition addresses all aspects of oat chemistry, processing, nutrition, and plant genetics. It reflects the considerable changes in the science and food uses of oats that have occurred during the last two decades. Each chapter presents an in-depth review of a specific research area complete with an extensive bibliography. The book provides an important summary of oat nutritional research and

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associated health claims that have been granted in recognition of the nutritional benefits associated with oat consumption. The individual chapters on component chemistry and functionality provide an excellent resource for product developers in their quest to design new, healthy, oat-based food products. The chapters on oat molecular biology and oat breeding coupled with the extensive works on oat nutrition provide direction to researchers interested in developing oats with enhanced nutrition. Oats: Chemistry and Technology, Second Edition, is the only up-to-date review of oat chemistry and technology and will be a valuable resource for food science professionals including nutritionists, cereal chemists, plant biochemists, plant breeders, molecular biologists, grain millers, and product development and research scientists. Improve Your Knowledge About This Super Grain Covers all areas of oat technology - Single source provides in-depth review of all aspects of oat technology. Provides an excellent source of oat nutritional information - Includes details of oat nutritional studies and potential health claims with a special emphasis on β -glucans. Offers authoritative descriptions of oat composition and functional properties - Provides researchers and food scientists with key chemical and application information. Highlights oat improvement opportunities - Breeding and molecular information provides researchers direction on oat improvement opportunities. Updates our knowledge of oat-processing technology - Provides in-depth discussion of oat milling and oat fractionation. Demystifies oat phenolics - Provides a peer-reviewed, in-depth discussion of oat phenolic chemistry and functional attributes. Wild Plants, Mushrooms and Nuts: Functional Properties and Food Applications is a compendium of current and novel research on the chemistry, biochemistry, nutritional and pharmaceutical value of traditional food products, namely wild mushrooms, plants and nuts,

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which are becoming more relevant in diets, and are especially useful for developing novel health foods and in modern natural food therapies. Topics covered will range from their nutritional value, chemical and biochemical characterization, to their multifunctional applications as food with beneficial effects on health, though their biological and pharmacological properties (antioxidant, antibacterial, antifungal, antitumor capacity, among others).

Edible Mushrooms provides an advanced overview of the chemical composition and nutritional properties of nearly all species of culinary mushrooms. This unique compendium gathers all current literature, which has been dispersed as fragmentary information until now. The book is broken into five parts covering chemical and nutrient composition, taste and flavor components as well as health stimulating and potentially detrimental effects. Appendices provide helpful quick references on abbreviations, common names of mushrooms, fatty acid profiles, and an index of mushroom species. Mycologists, nutrition researchers, mushroom cultivators and distributors, and food and nutraceutical processors will benefit from this sweeping overview of edible mushrooms. Thoroughly explores the chemical composition and nutritional value of both cultivated and wild growing mushroom species. Gathers all the information available on mushroom compounds in order providing an easy comparison of nutritional properties and bioactive compounds. Includes hundreds of current references allowing you to further your exploration of the topic by reviewing the detailed data in the primary literature.

Chemical and biological assays were performed with freeze-dried samples of the cultivated mushroom *Agaricus brunnescens*. Dried fruitbodies were subjected to proximate analysis, and protein, carbohydrates, fat, moisture, ash, and amino acid contents were determined. Diets

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containing 10% mushroom protein resulted in PER of 1.5 and NPR of 0.74 compared with values for casein of 2.7 and 2.4, respectively. No significant differences were observed between the weights of the pancreas, spleen and livers of the mushroom protein-fed rats and casein-fed rats. The mushroom fruitbodies were found to contain 10.7% dry matter and the chemical composition of 39.5% protein, 2.0% fat, 39.2% carbohydrates and 9.5% ash. Furthermore, the amino acid analysis showed that mushrooms contain all the essential amino acids and has a protein score of 51.2. In addition, mushroom was found to be nutrient dense in protein, iron, magnesium, phosphorus, thiamin, riboflavin, niacin, and vitamin C. Dried blood and soybean meal were added separately to the mushroom compost at spawning at the rates of 0, 2.5, 5.0 and 10.0 percent of the dried compost spawned. The effect of supplementation on yield, chemical composition and amino acid content of the mushroom produced were studied. Supplementation with dried blood resulted in 28.1% to 56.3% increase in yield obtained as a result of different levels of application. The addition of dried blood at 10% level increased the amount of threonine, tyrosine, phenylalanine, tryptophan, proline and serine with a 19.4% increase in the sulfur-containing amino acids. Supplementation with soybean meal resulted in an increase of lysine, phenylalanine, alanine, arginine, glutamic acid, histidine, proline and serine. Further supplementation with 5% dried blood resulted in yield increase of 25% at first break (crop), 29.3% at second break and 22.1% at third break. Dry matter and protein content increased in the first and second breaks then started to decrease in the third break.

A comprehensive guide that covers the banana's full value chain – from production to consumption The banana is the world's fourth major fruit crop. Offering a unique and in-

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depth overview of the fruit's entire value chain, this important new handbook charts its progression from production through to harvest, postharvest, processing, and consumption. The most up-to-date data and best practices are drawn together to present guidelines on innovative storage, processing, and packaging technologies, while fresh approaches to quality management and the value-added utilization of banana byproducts are also explained. Additionally, the book examines the banana's physiology, nutritional significance, and potential diseases and pests. The book also Edited by noted experts in the field of food science, this essential text: Provides a new examination of the world's fourth major fruit crop Covers the fruit's entire value chain Offers dedicated chapters on bioactive and phytochemical compounds found in bananas and the potential of processing byproducts Gives insight into bananas' antioxidant content and other nutritional properties Identifies and explains present and possible effects of bioactive and phytochemical compounds Handbook of Banana Production, Postharvest Science, Processing Technology, and Nutrition offers the most far-reaching overview of the banana currently available. It will be of great benefit to food industry professionals specializing in fruit processing, packaging, and manufacturing banana-based products. The book is also an excellent resource for those studying or researching food technology, food science, food engineering, food packaging, applied nutrition, biotechnology, and more.

Bread and flour-based foods are an important part of the diet for millions of people

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worldwide. Their complex nature provides energy, protein, minerals and many other macro- and micronutrients. However, consideration must be taken of three major aspects related to flour and bread. The first is that not all cultures consume bread made from wheat flour. There are literally dozens of flour types, each with their distinctive heritage, cultural roles and nutritive contents. Second, not all flours are used to make leavened bread in the traditional (i.e., Western) loaf form. There are many different ways that flours are used in the production of staple foods. Third, flour and breads provide a suitable means for fortification: either to add components that are removed in the milling and purification process or to add components that will increase palatability or promote health and reduce disease per se. Flour and Breads and their Fortification in Health and Disease Prevention provides a single-volume reference to the healthful benefits of a variety of flours and flour products, and guides the reader in identifying options and opportunities for improving health through flour and fortified flour products. Examines those flour and bread related agents that affect metabolism and other health-related conditions Explores the impact of compositional differences between flours, including differences based on country of origin and processing technique Includes methods for analysis of flours and bread-related compounds in other foods Seaweed in Health and Disease Prevention presents the potential usage of seaweed, macroalgae, and their extracts for enhancing health and disease. The book explores the possibilities in a comprehensive way, including outlining how seaweed can be used

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as a source of macronutrients and micronutrients, as well as nutraceuticals. The commercial value of seaweed for human consumption is increasing year-over-year, and some countries harvest several million tons annually. This text lays out the properties and effects of seaweeds and their use in the food industry, offering a holistic view of the ability of seaweed to impact or effect angiogenesis, tumors, diabetes and glucose control, oxidative stress, fungal infections, inflammation and infection, the gut, and the liver. Combines foundational information and nutritional context, offering a holistic approach to the relationship between sea vegetables, diet, nutrition, and health Provides comprehensive coverage of health benefits, including sea vegetables as sources of nutraceuticals and their specific applications in disease prevention, such as angiogenesis, diabetes, fungal infections, and others Includes Dictionary of Terms, Key Facts, and Summary points in each chapter to enhance comprehension Includes information on toxic varieties and safe consumption guidelines to supplement basic coverage of health benefits

This book presents a detailed overview and critical evaluation of recent advances and remaining challenges in improving nutritional quality and/or avoiding the accumulation of undesirable substances in plants using a variety of strategies based on modern biological tools and techniques. Each review chapter provides an authoritative and insightful account of the various aspects of nutritional enhancement of plants. In the course of the last two decades, several food crops rich in macro- and micronutrients

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have been developed to improve health and protect a large section of the populace in developing countries from chronic diseases. Providing extensive information on these developments, this book offers a valuable resource for all researchers, students and industrialists working in agriculture, the plant sciences, agronomy, horticulture, biotechnology, food and nutrition, and the soil and environmental sciences. This book is the result of collaborative work between INRA and the Association Française de Zootechnie (AFZ). The tables in this book present the chemical composition and nutritional values of the feed materials fed to the main farm species. The feed materials included in this publication are used both in the formulation of compound feeds and as straight feedstuffs (concentrates and by-products). The values of chemical composition were mainly obtained using field data collected by AFZ from laboratories specialising in animal feeding (the data base includes over one million values). The nutritional values result principally from experimental work performed by INRA and its partners. The data used take into account the evolution in feed materials and nutritional concepts. Important characteristics have been introduced, namely net energy for pigs (growing pigs and sows), amino acid digestibility, mineral availability and starch degradability for ruminants. In the present context of animal feeding and the new challenges that it faces (product quality and safety, animal health and welfare, environmental issues), this publication provides a reliable scientific reference document for feed manufacturers, veterinarians, extension officers, farmers, lecturers and

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students. Daniel Sauvant is professor of animal sciences at INA P-G, director of the Physiology of Nutrition and Feeding Research Unit at INRA/INA P-G, president of AFZ and a member of the expert committee on Animal Feeding at AFSSA. Jean-Marc Perez is deputy director of the Animal Physiology and Livestock Systems Department at INRA and scientific director of the journal INRA Productions Animales. Gilles Tran is the French Feed Database project manager at AFZ.

Assists policymakers in evaluating the appropriate scientific methods for detecting unintended changes in food and assessing the potential for adverse health effects from genetically modified products. In this book, the committee recommended that greater scrutiny should be given to foods containing new compounds or unusual amounts of naturally occurring substances, regardless of the method used to create them. The book offers a framework to guide federal agencies in selecting the route of safety assessment. It identifies and recommends several pre- and post-market approaches to guide the assessment of unintended compositional changes that could result from genetically modified foods and research avenues to fill the knowledge gaps.

Wild fruits play an important role in mitigating hunger in the developing world. As a sustainable and natural food source in rural areas, these fruits have a strong effect on regional food security and poverty alleviation. This makes the utilization of wild foods incredibly important for native populations both in terms of food security and economics. There are many traditional methods for wild fruit harvesting, indigenous tree

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and plant domestication and cultivation passed down through generations that are sustainable and economically viable, ultimately contributing to a better quality of life for large sections of the developing world. To date there has not been a reference work focusing on the full scope of wild fruits from their growth and chemical makeup to their harvest, distribution, health effects and beyond. *Wild Fruits: Composition, Nutritional Value and Products* adequately fills this gap, expansively covering the utilization of multi-purpose wild fruits in regions worldwide. Effects on quality of life, food security, economics and health are extensively covered. Over 31 wild fruit species are examined, with individual chapters focusing on each species' phytochemical constituents, bioactive compounds, traditional and medicinal uses and chemical composition. Harvest, post-harvest and consumption methods are covered for each, as are their overall effect on the food security and economics of their native regions. This book is essential for researchers in search of a comprehensive singular source for the chemical makeups and cultivation of indigenous wild fruits and their many benefits to their native regions.

Desert truffles are found in every known desert, irrespective of the habitat – cool or hot, loamy or acidic, sandy or heavy soil – the only common condition seems to be a limited supply of water. In contrast to 'true' truffles, desert truffles have evolved over time in different families, mainly within the order Pezizales. While in some arid areas, desert truffles have been traditionally used as food, in most regions interest has only recently

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been increasing, and truffles are now treasured for their nutritional value, as an income source and for research. This volume gives a comprehensive overview of the phylogeny, biology, mycorrhizal association, and distribution of desert truffles, their use, biochemical and medicinal properties, as well as their domestication and cultivation. Nutritional Composition of Fruit Cultivars provides readers with the latest information on the health related properties of foods, making the documentation of the nutritive value of historical cultivars especially urgent, especially before they are lost and can't be effectively compared to modern cultivars. Because there is considerable diversity and a substantial body of the compositional studies directed towards commercial varieties, this information is useful for identifying traits and features that may be transposed from one variety to another. In addition, compositional and sensory features may also be used for commercialization and to characterize adulteration. Detailed characterization of cultivars can be used to identify "super-foods". Alternatively, unmasked historical cultivars may be the focus of reinvigorated commercial practices. Each chapter in this book has sections on the botanical aspects, the composition of traditional or ancient cultivars, the composition of modern cultivars, a focus on areas of research, the specialty of the communicating author of each chapter, and summary points. Presents the botanical aspects and composition of both traditional and modern plants, including in-depth insight into current research, and overall summary points for each fruit for consistent comparison and ease of reference Provides important information in the

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consideration of preservation, transference, or re-introduction of historical/traditional cultivars into current crop science Provides details on compositional and sensory parameters, from aroma and taste to micro- and macronutrients Includes data on nutraceuticals and novel components that have proven to impact on, or be important in, food quality, storage, processing, storage, and marketing

Wheat - An Exceptional Crop: Botanical Features, Chemistry, Utilization, Nutritional and Health Aspects presents the exceptional position of wheat among food crops. The book demonstrates the benefits and drawbacks of wheat from a wheat science, nutrition and technology perspective. Organized into 13 chapters, chapters 1 - 3 present a basic overview of wheat; chapters 4 - 6 explore the overall benefits of wheat for the general population, and chapters 7 - 13 assess wheat-related disorders that affect a small portion of the population. Wheat - An Exceptional Crop: Botanical Features, Chemistry, Utilization, Nutritional and Health Aspects is an exceptional reference for those working in and researching the fields of agronomy, food chemistry, food technology, nutrition, allergology and gastroenterology. Explores the botanical features of wheat, chemical composition of wheat grains, and the cultivation and milling of wheat Highlights wheat-based food and feed, wheat-based raw materials, and the nutritional value of wheat Discusses principles of wheat hypersensitivities and various wheat-related disorders This book is the result of collaborative work between INRA and the Association Française de Zootechnie (AFZ). The tables in this book present the chemical composition and nutritional

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values of the feed materials fed to the main farm species. The feed materials included in this publication are used both in the formulation of compound feeds and as straight feedstuffs (concentrates and by-products). The values of chemical composition were mainly obtained using field data collected by AFZ from laboratories specialising in animal feeding (the data base includes over one million values). The nutritional values result principally from experimental work performed by INRA and its partners. The data used take into account the evolution in feed materials and nutritional concepts. Important characteristics have been introduced, namely net energy for pigs (growing pigs and sows), amino acid digestibility, mineral availability and starch degradability for ruminants. In the present context of animal feeding and the new challenges that it faces (product quality and safety, animal health and welfare, environmental issues), this publication provides a reliable scientific reference document for feed manufacturers, veterinarians, extension officers, farmers, lecturers and students. Daniel Sauvant is professor of animal sciences at INA P-G, director of the Physiology of Nutrition and Feeding Research Unit at INRA/INA P-G, president of AFZ and a member of the expert committee on Animal Feeding at AFSSA. Jean-Marc Perez is deputy director of the Animal Physiology and Livestock Systems Department at INRA and scientific director of the journal INRA Productions Animales. Gilles Tran is the French Feed Database project manager at AFZ.

Introduction to the Chemistry of Food describes the molecular composition of food and the chemistry of its components. It provides students with an understanding of chemical and biochemical reactions that impact food quality and contribute to wellness. This innovative approach enables students in food science, nutrition and culinology to better understand the

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role of chemistry in food. Specifically, the text provides background in food composition, demonstrates how chemistry impacts quality, and highlights its role in creating novel foods. Each chapter contains a review section with suggested learning activities. Text and supplemental materials can be used in traditional face-to-face, distance, or blended learning formats. Describes the major and minor components of food Explains the functional properties contributed by proteins, carbohydrates and lipids in food Explores the chemical and enzymatic reactions affecting food attributes (color, flavor and nutritional quality) Describes the gut microbiome and influence of food components on its microbial population Reviews major food systems and novel sources of food protein

Large scale cultivation of macrofungi is possible with fermentation, using easily accessible lignocellulosic agricultural residues utilising economical methods to generate substantial biomass, food and biofuels. Bioconversion of lignocellulosic wastes by macrofungi generates value-added fungal nutritional biomass for humans and livestock. Besides commercial cultivation techniques, other topics covered include healing potential of mushrooms, industrial opportunities, mycelium-based products, forest wild mushrooms and industrial applications of white rot fungi. This book addresses the various applications of macrofungi. It encourages readers to explore non-conventional sources of nutrition as well as bioactive metabolites to serve as nutraceuticals. The volume emphasizes the significance of macrofungi as source of bioactive compounds to remedy human lifestyle diseases especially cancers and cardiovascular ailments along with immunostimulation potential by Cordyceps. This book also emphasises on the role of mushrooms as a source of cosmeceuticals, source of flavors, essence, scents and perfumes.

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